



Comhairle Contae Chill Mhantáin Wicklow County Council

**Pleanáil, Forbairt Eacnamaíochta agus Tuaithe
Planning, Economic and Rural Development**

Aras An Chontae / County Buildings
Cill Mhantáin / Wicklow
Guthán / Tel: (0404) 20148
Faics / Fax: (0404) 69462
Rphost / Email: plandev@wicklowcoco.ie
Suíomh / Website: www.wicklow.ie

John Spain & Associates
39 Fitzwilliam Place
Dublin 2
D02 ND61

6th
Of November 2025

RE: Declaration in accordance with Section 5 of the Planning & Development
Acts 2000 (As Amended) -EX 120/2025

A Chara,

I enclose herewith Declaration in accordance with Article 5 (2) (A) of the Planning
& Development Act 2000.

Where a Declaration is used under this Section any person issued with a
Declaration under subsection (2) (a) may, on payment to An Bord Pleanála of such
fee as may be prescribed, refer a declaration for review by the Board within four
weeks of the date of the issuing of the declaration by the Local Authority.

Is mise, le meas,

ADMINISTRATIVE OFFICER
PLANNING DEVELOPMENT & ENVIRONMENT.







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DECLARATION IN ACCORDANCE WITH ARTICLE 5 (2) (A) OF THE PLANNING & DEVELOPMENT ACT 2000 AS AMENDED

Applicant: Crag Digital Avoca Limited

Location: Avoca River Park, Arklow, Co. Wicklow

Reference Number: EX 120/2025

CHIEF EXECUTIVE ORDER NO. CE/PERD/2025/1210

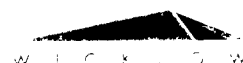
A question has arisen as to whether *"the provision of new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann watermain located within a right of way through Arklow Town Marsh"* at Avoca River Park, Arklow, Co. Wicklow is or is not exempted development.

Having regard to:

- A. The details submitted with this application on the 14th of October March 2025.
- B. Objectives CPO17.4, CPO 17.7, Schedule 17.03 of the Wicklow County Development Plan 2022-2028, Objective HT1 of the Arklow & Environs Local Area Plan 2018.
- C. Sections 2, 3 and 4 of the Planning and Development Act 2000 (as amended).
- D. Article 5, 6, 9 and Schedule 2: Part 1 Class 58 of the Planning and Development Regulations 2001 (as amended).
- E. An Coimisiún Pleanála References ABP-319561-24, ABP-306259-19, ABP-312371-22.

Main Reasons with respect to Section 5 Declaration:

- (a) the extent and type of the works i.e. the construction/ excavation and laying of watermains, sewer infrastructure and fibre ducting underground over 2.2km through lands identified as a pNHA within the Wicklow County Development Plan 2022 - 2028 as well as a pumping station.
- (b) The said operations would be works having regard to the definition set out in Schedule 2 of the Planning and Development Act 2000(as amended).
- (c) These works would constitute development having regard to Section 3(1) of the Planning and Development Act 2000(as amended).
- (d) The exemption under Section 4(1)(g) of the Planning and Development Act 2000(as amended) only applies to works by Local Authorities or other statutory undertakers,
- (e) The exemption under Section 4(1)(h) of the Planning and Development Act 2000(as amended) only applies to works on existing structures,
- (f) Class 21 : Part 1 : Schedule 2 of the Planning and Development Regulations 2001 (as amended) would not apply as it is considered an Information, Communication and Technology Facility does not come within the scope of the definition of "industrial process" set out in the Planning and Development Regulations 2001(as amended) , as such a facility is for the storage of data, and not for the making of any article, and as such is not an Industrial undertaker.



- (g) Class 31: Part 1: Schedule 2 of the Planning and Development Regulations 2001 (as amended) would not apply to the provision of fibre ducting, as the works are not being undertaken by Statutory Undertaker authorised to provide a telecommunications service.
- (h) The exemption under Class 58 Part 1 Schedule 2 of the Regulations would not apply as that exemption only applies to works by Uisce Eireann.
- (i) The new watermain, new raising foul main, would come within the description set out under Class 48: Part1: Schedule 2 of the Planning and Development Regulations 2001(as amended).
- (j) The said works would comprise the excavation/ alteration of Arklow Marsh pNHA, which is identified within Schedule 17.03 of the County Development Plan 2022-2028, and subject to the provisions of Objectives CPO 17.4 CPO 17.7 of the County Development Plan, and Objective HT1 of the Arklow & Environs Local Area Plan which seeks to maintain the conservation value of such areas. Therefore the works are not exempted development having regard to Article 9(1)(a)(vii) of the Planning and Development Regulations 2001 which states that Development to which article 6 relates shall not be exempted development for the purposes of the Act— if the carrying out of such development would— (vii) consist of or comprise the excavation, alteration or demolition (other than peat extraction) of places, caves, sites, features or other objects of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan or local area plan for the area in which the development is proposed or, pending the variation of a development plan or local area plan, or the making of a new development plan or local area plan, in the draft variation of the development plan or the local area plan or the draft development plan or draft local area plan.

The Planning Authority considers that *"the provision of new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann watermain located within a right of way through Arklow Town Marsh"* at Avoca River Park, Arklow, Co. Wicklow **is development and IS NOT exempted development.**

Signed: 
ADMINISTRATIVE OFFICER
PLANNING DEVELOPMENT & ENVIRONMENT

Dated: 6th day of November 2025

WICKLOW COUNTY COUNCIL

PLANNING & DEVELOPMENT ACTS 2000 (As Amended)
SECTION 5

CHIEF EXECUTIVE ORDER NO. CE/PERD/2025/1210

Reference Number: EX 120/2025

Name of Applicant: Crag Digital Avoca Limited

Nature of Application: Section 5 Referral as to whether *"the provision of new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann watermain located within a right of way through Arklow Town Marsh"* is or is not development and is or is not exempted development.

Location of Subject Site: Avoca River Park, Arklow, Co. Wicklow

Report from: Neal Murphy, EP, Edel Bermingham, T/SP

With respect to the query under Section 5 of the Planning & Development Act 2000 as to whether *"the provision of new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann watermain located within a right of way through Arklow Town Marsh"* at Avoca River Park, Arklow, Co. Wicklow is or is not exempted development within the meaning of the Planning & Development Act 2000 (as amended)

Having regard to:

- A. The details submitted with this application on the 14th of October March 2025.
- B. Objectives CPO17.4, CPO 17.7, Schedule 17.03 of the Wicklow County Development Plan 2022-2028, Objective HT1 of the Arklow & Environs Local Area Plan 2018.
- C. Sections 2, 3 and 4 of the Planning and Development Act 2000 (as amended).
- D. Article 5, 6, 9 and Schedule 2: Part 1 Class 58 of the Planning and Development Regulations 2001 (as amended).
- E. An Coimisiún Pleanála References ABP-319561-24, ABP-306259-19, ABP-312371-22.

Main Reasons with respect to Section 5 Declaration:

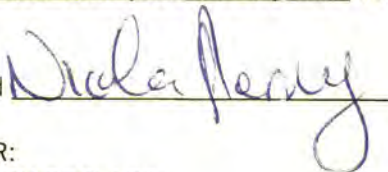
- (a) the extent and type of the works i.e. the construction/ excavation and laying of watermains, sewer infrastructure and fibre ducting underground over 2.2km through lands identified as a pNHA within the Wicklow County Development Plan 2022 - 2028 as well as a pumping station.
- (b) The said operations would be works having regard to the definition set out in Schedule 2 of the Planning and Development Act 2000(as amended).
- (c) These works would constitute development having regard to Section 3(1) of the Planning and Development Act 2000(as amended).
- (d) The exemption under Section 4(1)(g) of the Planning and Development Act 2000(as amended) only applies to works by Local Authorities or other statutory undertakers.
- (e) The exemption under Section 4(1)(h) of the Planning and Development Act 2000(as amended) only applies to works on existing structures,

- (f) Class 21 : Part 1 : Schedule 2 of the Planning and Development Regulations 2001 (as amended) would not apply as it is considered an Information, Communication and Technology Facility does not come within the scope of the definition of "industrial process" set out in the Planning and Development Regulations 2001(as amended) , as such a facility is for the storage of data, and not for the making of any article, and as such is not an Industrial undertaker.
- (g) Class 31: Part 1: Schedule 2 of the Planning and Development Regulations 2001 (as amended) would not apply to the provision of fibre ducting, as the works are not being undertaken by Statutory Undertaker authorised to provide a telecommunications service.
- (h) The exemption under Class 58 Part 1 Schedule 2 of the Regulations would not apply as that exemption only applies to works by Uisce Eireann.
- (i) The new watermain, new raising foul main, would come within the description set out under Class 48: Part1: Schedule 2 of the Planning and Development Regulations 2001(as amended).
- (j) The said works would comprise the excavation/ alteration of Arklow Marsh pNHA, which is identified within Schedule 17.03 of the County Development Plan 2022-2028, and subject to the provisions of Objectives CPO 17.4 CPO 17.7 of the County Development Plan, and Objective HT1 of the Arklow & Environs Local Area Plan which seeks to maintain the conservation value of such areas. Therefore the works are not exempted development having regard to Article 9(1)(a)(vii) of the Planning and Development Regulations 2001 which states that Development to which article 6 relates shall not be exempted development for the purposes of the Act— if the carrying out of such development would— (vii) consist of or comprise the excavation, alteration or demolition (other than peat extraction) of places, caves, sites, features or other objects of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan or local area plan for the area in which the development is proposed or, pending the variation of a development plan or local area plan, or the making of a new development plan or local area plan, in the draft variation of the development plan or the local area plan or the draft development plan or draft local area plan.

Recommendation

The Planning Authority considers that *"the provision of new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann watermain located within a right of way through Arklow Town Marsh"* at Avoca River Park, Arklow, Co. Wicklow is development and is NOT exempted development as recommended in the planning reports.

Signed



Dated:



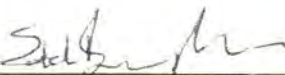
day of November 2025

ORDER:

I HEREBY DECLARE:

That *"the provision of new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann watermain located within a right of way through Arklow Town Marsh"* at Avoca River Park, Arklow, Co. Wicklow **is development and is NOT exempted** development within the meaning of the Planning & Development Acts 2000 (as amended).

Signed:



T/Senior Planner

Planning, Economic & Rural Development

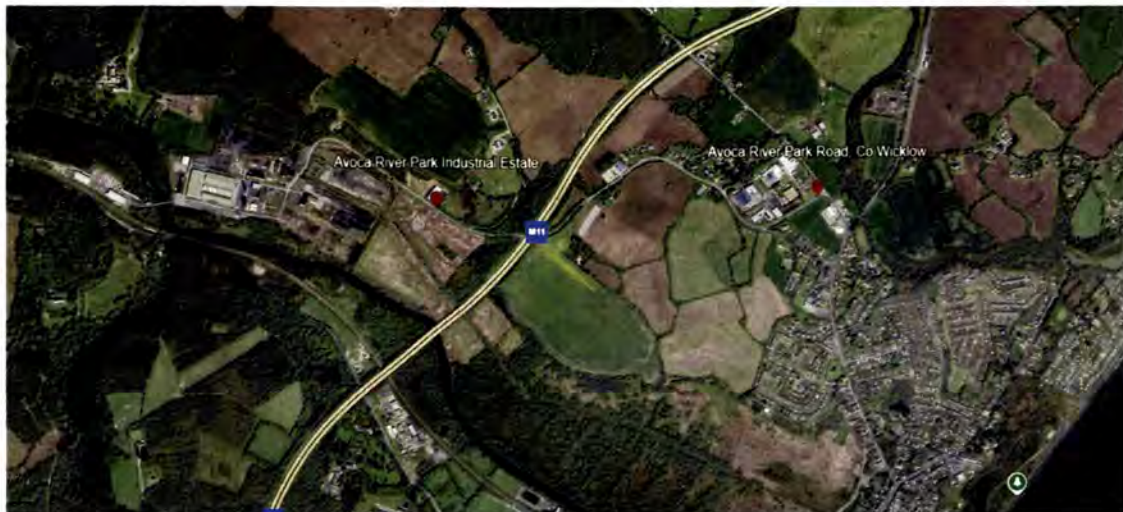
Dated: 6th day November 2025



**WICKLOW COUNTY COUNCIL
PLANNING DEPARTMENT**

Section 5 – Application for declaration of Exemption Certificate

TO: Edel Bermingham T/SE / Patrice Ryan SEP
FROM: Neal Murphy E.P
REF: EX120/2025
DECISION DUE: 10/11/2025
NAME: CRAG DIGITAL AVOCA LTD
DEVELOPMENT: NEW WATERMAIN, FOUL RISING MAIN, FIBRE DUCTING AND UNDERGROUND PUMPING STATION
LOCATION: SITE AT AVOCA RIVER PARK, ARKLOW



Site Location and Description

The site is located to the northwest of Arklow town in an established industrial area within close proximity of the Avoca River to the south and the M11 to the east. The site currently has permission for data centres.

Question

The applicants have applied to see whether or not the following is or is not development and is or is not exempted development:

- The provision of a new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann (UE) watermain located within a right of way through Arklow Town Marsh on a site located at Avoca River Park, Arklow, Co. Wicklow.

Planning History

25/60594 – AT FURTHER INFORMATION STAGE for 1 no. ICT facility building with a gross floor area (GFA) of c. 36,655 sq.m and a total parapet height of c.19.5m. 2 no. ICT facilities each with a GFA of c. 4,428 sq.m and a total parapet height of c. 10.5m. Each of the ICT facilities will accommodate ICT equipment rooms, external mechanical equipment areas, electrical equipment rooms, network rooms, ancillary office space, storage and loading bays; The construction of a solar farm development consisting of photovoltaic (PV) panel arrays covering an area of approximately c. 2.7 ha in the east of the site, on ground mounted steel frames, underground cabling and ducting, a new gated internal track for maintenance and all associated site services works; Relocation of the customer transformer compound permitted under WCC Reg. Ref.: 21/1080 as amended by WCC Reg. Ref.: 23/843; The provision of process water and domestic water split tanks, process water and domestic water plantrooms, rainwater harvesting tanks, chlorine dosing kiosk, sprinkler pump rooms, sprinkler tanks, fire hydrant pump room and hydrant tank; The provision of an internal road network and circulation areas, footpaths, 104 no. car parking spaces and 100 no. cycle parking spaces; The construction site access arrangements and amendments to the internal road network permitted under WCC Reg. Ref.: 21/1080 as amended by WCC Reg. Ref.: 23/843; Landscaping and planting, boundary treatments, site lighting, security fencing, all associated site works including underground foul and storm water drainage network, Sustainable Urban Drainage Systems (SuDS) measures, and utility cables, and all ancillary works. The operation of the proposed development will require an EPA Industrial Emissions Directive (IE) Licence. An Environmental Impact Assessment Report (EIAR) has been prepared.

23/72 – PERMISSION GRANTED for the proposed development occupies part of the site of (and will supersede) a previously permitted data centre development under Reg. Ref. 20/1285. The proposed development, for which a ten-year permission is sought, consists of the following: Demolition of the existing structures on site (industrial structures and outbuildings) and site clearance works; construction of 3 no. three storey information and communication technology (ICT) facility buildings, each with a gross floor area (GFA) of c. 16,206 sq.m (c. 48,618sq.m GFA in total), and with a parapet height of c. 19.5 metres; each of the 3 no. ICT buildings will accommodate ICT equipment rooms, mechanical equipment rooms, staff welfare facilities, ancillary office space, security rooms, storage, and loading bays; a customer compound, a power trunk building, a transformer compound and a water tank compound area are provided to the north of the ICT facility buildings; the development includes the extension of the existing road and serving the existing industrial park to access the subject site, with gated access points to the proposed ICT facility development to be provided off this roadway; construction of internal road network and circulation areas, footpaths, provision of 124 no. car parking spaces and motorcycle and cycle parking spaces; landscaping and planting, boundary treatments, lighting, security fencing, and all associated site works including underground foul and storm water drainage network, attenuation and percolation areas, and utility cable (including connections to the substation permitted under ABP Ref. 310090-21, resulting in the partial culverting of an existing drainage ditch), on an application site area measuring c. 9.69 hectares. An Environmental Impact Assessment Report (EIAR) has been prepared and will be submitted to the Planning Authority with the planning application

23/843 – PERMISSION GRANTED for an amendment to the development permitted under Reg. Ref 21/1080, The proposed development will consist of the following to facilitate the above. Demolition of the existing structures on the western part of the site that comprises 4 no. industrial commercial buildings, an associated hut / outbuilding, a gas enclosure, and a tank with bund wall.

The removal of the remains of a previously demolished building, areas of hard standing, and existing surface treatments. The relocation of the Energy Centre 1 to the western part of the site, which will supersede the previously permitted 110kV GIS substation compound at that location under ABP Ref: VA27.309252. The proposed development will provide for a revised energy centre design, to include the provision of 8 no. gas turbines (with associated flues of 25.15m in height), 4 no. black start emergency generators and associated transformers, 2 no. single storey fuel oil pump rooms with a gross floor area (GFA) of 90.17sq.m, a single storey air compressor building with a GFA of 88.9sq.m, 4 no. fuel tanks, 2 no. MCC control rooms with a GFA of 44.17sq.m, 3 no. fire water tanks, a single storey welfare, storage, and pump room building with a combined GFA of 160.97 sq.m, a two storey MV /LV building with a GFA of 655.54sq.m, 8 no. 11kV/ 33kV step-up transformers in the north of the site, water treatment equipment, and a security hut, all within a fenced compound. The proposed development includes landscaping and planting, boundary treatments, lighting, security fencing, car parking, and all site works including underground foul and storm water drainage network (including on-site wastewater treatment system), and utility cables, along with all associated and ancillary works. An EPA- Industrial Emissions Directive (IED) licence will be applied for to facilitate the operation of the proposed development

21/1080 - **PERMISSION GRANTED** to Crag Digital Avoca Limited for ten years for 2no. energy centre buildings, a battery compound, a transformer compound, 2no. fuel storage tanks, a new access from the existing estate access road, landscaping and planting and an on-site wastewater treatment system.

ABP VA27.309252 – PERMISSION GRANTED to Crag Digital Avoca Ltd. in August 2021 for a storey 110kV GIS substation with all associated site works and ancillary works.

16/345 – **PERMISSION GRANTED** for proposed change of use from industrial use to plastics recycling facility unit.

08/1963 – **RETENTION PERMISSION GRANTED** for paving display area, 2m high boundary fence, office, external cladding of storage shed and signage

ABP 310090-21(VA) - **PERMISSION GRANTED** for onshore grid infrastructure.

23/72 – **PERMISSION GRANTED** for amendments to 20/1285 comprising demolition of structures, construction of 3no. 3 storey ICT facility buildings, a customer compound, extension of existing road and internal road network, landscaping and planting.

20/1285 - **PERMISSION GRANTED** for demolition of existing building units, development of 3no. data centre buildings, upgrading of existing substation and all associated site works.

18/940 (ABP 303938-19) – **PERMISSION GRANTED** for demolition of buildings & structures on site & construction of Data Storage Facility comprising 3 data storage buildings & all associated site works.

13/8382 - **PERMISSION GRANTED** to extend the appropriate period of a permission - 08/468.

08/468 - **PERMISSION GRANTED** for the development of a Simple Cycle Gas Turbine peaking power.

Relevant An Coimisiun Pleanála Referrals

REF ABP3371-22

An Bord Pleanála, in exercise of the powers conferred on it by section 5 (4) of the 2000 Act, hereby decides that the use of building number 7 as a Data Centre (with ancillary offices) and physical works at the former Hewlett Packard site, Celbridge Road, County Kildare, is development and is not exempted development as -

- (a) The use of the site as a Data Centre does not come within the scope of the definition of "industrial process" in Article 5(1) of the Planning and Development Regulations 2001, as amended, as it does not involve the making of any article, including the making of any computer programme or other original database, but rather exclusively entails the storage of data,
- (b) the change of use from manufacturing to a Data Centre would constitute a change of use that is a material change of use; on the basis the change of use from industrial use to a Data Centre, as described above, raises planning considerations that are materially different to the planning considerations relating to the permitted use (that is, industrial use), having regard to case law. In particular, the energy requirements associated with the Data Centre, and
- (c) there are no exemptions provided in either the Planning and Development Act, 2000, as amended, or the Planning and Development Regulations, 2001, as amended, in respect of such a material change of use:

Ref: ABP-319561-24

Question: Whether the laying of a rising main between Ballynagran Landfill to Uisce Éireann connection point at Ballynerrin Upper along the local road L1113, crossing the M11 and along the R751, is or is not development and is or is not exempted development.

Conclusion: An Bord Pleanála concluded that:

- (a) The laying of the rising main constitutes development;
- (b) The laying of the rising main falls within the scope of Class 48, Part 1, Schedule 2 of the Regulations and there are no relevant limitations;
- (c) There is no requirement for appropriate assessment so that the restriction on exemption under Article 9(1)(a)(viiB) of the Regulations does not apply.

NOW THEREFORE An Bord Pleanála, in exercise of the powers conferred on it by section 5 (4) of the 2000 Act, hereby decides that the laying of a rising main between Ballynagran Landfill, Coolbeg Cross to Uisce Éireann connection point at Ballynerrin Upper, all in County Wicklow, along the local road L1113, crossing the M11 and along the R751 **is development and is exempted development.**

Ref: ABP-306259-19

Question: Whether the treatment of effluent underground pipeline from Liffey Meats to the Mountnuggent River is or is not development and is or is not exempted development. The said pipeline distance has a given distance of c2500m with 1000m indicated as already in situ as part of the current waste management arrangement.

Conclusion: An Bord Pleanála concluded that:

(a) The installation and construction of wastewater treatment effluent underground pipeline from Liffey Meats along the bank of the Pound Stream to the Mount Nugent River constitutes works that come within the scope of Section 2(1) of the Planning and Development Act, 2000,

(b) The said works constitute development that comes within the scope of Section 3(1) of the said Act,

(c) A significant portion of the pipeline relates to lands that are not occupied and/or used by the industrial undertaker for any of their industrial undertakings and as a consequence they do not come within the scope of the exemption provided under Article 6(1) and Part 1 and Part 3 of Schedule 2 of the said Regulations,

(d) It has not been demonstrated clearly and unambiguously that the works do not require appropriate assessment. Therefore, based on the precautionary approach and with regard to Part 3 of Schedule 2 of the Planning and Development Regulations, 2001, as amended, the works are subject to the requirements of Section 4(4) of the Planning and Development Act, 2000 (as amended).

NOW THEREFORE An Bord Pleanála, in exercise of the powers conferred on it by section 5(4) of the 2000 Act, hereby decides that the installation of an underground effluent pipeline for a distance of c 2,500m (with c1000m already in place) and, all of its associated works is **development and is not exempted development.**

Policy

County Development Plan 2022-2028

CPO 17.4

To contribute, as appropriate, towards the protection of designated ecological sites including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); Wildlife Sites (including proposed Natural Heritage Areas); Salmonid Waters; Flora Protection Order sites; Wildfowl Sanctuaries (see S.I. 192 of 1979); Freshwater Pearl Mussel catchments; and Tree Preservation Orders (TPOs).

To contribute towards compliance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines, including but not limited to the following and any updated/superseding documents:

- EU Directives, including the Habitats Directive (92/43/EEC, as amended)⁶, the Birds Directive (2009/147/EC)⁷, the Environmental Liability Directive (2004/35/EC)⁸, the Environmental Impact Assessment Directive (2011/92/EU, as amended), the Water Framework Directive (2000/60/EC), EU Groundwater Directive (2006/118/EC) and the Strategic Environmental Assessment Directive (2001/42/EC); EU 'Guidance on

integrating ecosystems and their services into decision-making' (European Commission 2019);

- National legislation, including the Wildlife Acts 1976 and 2010 (as amended)⁹, European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, the Wildlife (Amendment) Act 2000, the European Union (Water Policy) Regulations 2003 (as amended), the Planning and Development Act 2000 (as amended), the European Communities (Birds and Natural Habitats) Regulations 2011 (SI No. 477 of 2011), the European Communities (Environmental Liability) Regulations 2008 (as amended)¹⁰ and the Flora Protection order 2015;
- National policy guidelines (including any clarifying circulars or superseding versions of same), including 'Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment' (2018), 'Guidance for Consent Authorities regarding Sub-Threshold Development' (2003), 'Tree Preservation Guidelines', 'Landscape and Landscape Assessment' (draft 2000), 'Appropriate Assessment Guidance' (2010);
- Catchment and water resource management plans, including the National River Basin Management Plan 2018-2021 (including any superseding versions of same);
- Biodiversity plans and guidelines, including National Biodiversity Action Plan 2017-2021 (including any superseding versions of same) and the County Wicklow Biodiversity Action Plan;
- Ireland's Environment – An Integrated Assessment 2020 (EPA), including any superseding versions of same), and to make provision where appropriate to address the report's goals and challenges.

CPO 17.7 To maintain the conservation value of all proposed and future Natural Heritage Areas (NHAs) and to protect other designated ecological sites¹ in Wicklow.

Schedule 17.03 Proposed Natural Heritage Areas in County Wicklow NPWS Site

1931 Arklow Town Marsh

Arklow & Environs LAP 2018

¹ Along with SACs, SPAs and pNHA these include Salmonid Waters; Flora Protection Order sites; Wildfowl Sanctuaries (see S.I. 192 of 1979); Freshwater Pearl Mussel catchments; and Tree Preservation Orders (TPOs).

HT1 To maintain the favourable conservation status of all proposed and future Natural Heritage Areas (NHAs) in the plan area in particular the Arklow Marsh and to support environmentally sensitive measures to enhance the understanding and enjoyment of such natural areas.

Relevant Legislation

Planning and Development Act 2000 (as amended):

Section 2(1) states the following in respect of:

'works' includes *Any act or operation of construction, excavation, demolition, extension, alteration, repair or renewal...*"

Section 3(1) states the following in respect of:

'development': (a) the carrying out of any works in, on, over or under land, or the making of any material change in the use of any land or structures situated on land, or

Section 4 Sets out the types of works that while considered 'development', can be considered 'exempted development' for the purposes of the Act.

Section 4(1)(g) development consisting of the carrying out by any local authority or statutory undertaker of any works for the purpose of inspecting, repairing, renewing, altering or removing any sewers, mains, pipes, cables, overhead wires, or other apparatus, including the excavation of any street or other land for that purpose;

Section 4(1)(h) "development consisting of the carrying out of works for the maintenance, improvement or other alteration of any structure, being works which affect only the interior of the structure or which do not materially affect the external appearance of the structure so as to render the appearance inconsistent with the character of the structure or of neighbouring structures."

Section 4(2) Makes provision for ministerial regulations to set out further exemptions. The 2001 Planning Regulations as amended derive from this section and designate further works as being exempted development for the purposes of the act.

Section 4(4) Notwithstanding..... any regulations under subsection (2), development shall not be exempted development if an environmental impact assessment or an appropriate assessment of the development is required"

Section 172(1) "An environmental impact assessment shall be carried out by a planning authority or the Board, as the case may be in respect of an application for consent for –

(a) Proposed development of a class specified in Schedule 5 to the Planning and Development Regulations 2001 which exceeds a quantity area, or other limit specified in that Schedule, and

(b) Proposed development of a class specified in Schedule 5 to the Planning and Development Regulations 2001 which does not exceed a quantity, area or other limit specified in that Schedule but which the planning authority or the Board determines would be likely to have significant effects on the environment."

Section 177U(9) "In deciding upon a declaration or a referral under section 5 of this Act a Planning Authority or the Board, as the case may be shall where appropriate, conduct a screening for appropriate assessment in accordance with the provisions of this section

Planning and Development Regulations 2001(as amended)

Article 5 (1) An "industrial undertaker" means a person by whom an industrial process is carried on and "industrial undertaking" shall be construed accordingly;
"industrial process" means any process which is carried on in the course of trade or business, other than agriculture, and which is-
(a) for or incidental to the making of any article or part of an article, or for or incidental to the altering, repairing, ornamenting, finishing, cleaning, washing, packing, canning, adapting for sale, breaking up or demolition of any article, including the getting, dressing or treatment of minerals, and for the purposes of this paragraph, "article" includes-
(i) a vehicle, a craft, ship or vessel, or
(ii) a sound recording, film, broadcast, cable programme, publication and computer program or other original database;

Article 6 "(1) Subject to Article 9, development of a class specified in column 1 part 1 of schedule 2 shall be exempted development for the purposes of the Act, provided that such development complies with the conditions and limitations specified in column 2 of the said part 1 opposite the mention of that class in the said column 1.

Article 9(1) Development to which article 6 relates shall not be exempted development for the purposes of the Act—

(a) if the carrying out of such development would—

(i) contravene a condition attached to a permission under the Act or be inconsistent with any use specified in a permission under the Act,

(vii) consist of or comprise the excavation, alteration or demolition (other than peat extraction) of places, caves, sites, features or other objects of

archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan or local area plan for the area in which the development is proposed or, pending the variation of a development plan or local area plan, or the making of a new development plan or local area plan, in the draft variation of the development plan or the local area plan or the draft development plan or draft local area plan

(viiB) comprise development in relation to which a planning authority or An Bord Pleanála is the competent authority in relation to appropriate assessment and the development would require an appropriate assessment

(viiC) consist of or comprise development which would be likely to have an adverse impact on an area designated as a natural heritage area by order made under section 18 of the Wildlife (Amendment) Act 2000.

Schedule 2, Part 1 Development

Class 21

- (a) Development of the following descriptions, carried out by an industrial undertaker on land occupied and used by such undertaker for the carrying on, and for the purposes of, any industrial process, or on land used as a dock, harbour or quay for the purposes of any industrial undertaking
 - (ii) the provision, rearrangement, replacement or maintenance of sewers, mains, pipes, cables or other apparatus,

Conditions

1. Any such development shall not materially alter the external appearance of the premises of the undertaking.
2. The height of any plant or machinery, or any structure in the nature of plant or machinery shall not exceed 15 metres above ground level or the height of the plant, machinery or structure replaced, whichever is the greater.

CLASS 31

The carrying out by a statutory undertaker authorised to provide a telecommunications service of development consisting of the provision of—

(a) underground telecommunications structures or other underground telecommunications works (including the laying of mains and cables and the installation underground of any apparatus or equipment),

Class 48

The connection of any premises to a wired broadcast relay service, sewer, watermain, gas main or electricity supply line or cable, including the breaking open of any street or other land for that purpose.

Class 58

Development by Irish Water, for the purpose of the provision of water services, consisting of one or more of the following:

- (b) the installation of either or both—
 - (i) underground pipes, cables, water mains, sewers, including associated accessories, service connections, boundary boxes and meters, and,
 - (ii) above ground kiosks, meters and other apparatus and overhead wires,

including the excavation of any street or other land for that purpose;

- (f) The carrying out of remedial works in respect of existing water services infrastructure in order to comply with conditions of licences and certificates issued under the Waste Water Discharge (Authorisation) Regulations 2007 (S.I No. 684 of 2007);

Limitation

The volume above ground level of any such kiosk, meter or other apparatus shall not exceed 13 cubic metres in rural areas (being areas as defined in Article 6(3)) or 2 cubic metres in other areas, measured externally.

Assessment

The declaration queries whether the provision of a new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann (UE) watermain located within a right of way through Arklow Town Marsh on a site located at Avoca River Park, Arklow, Co. Wicklow is or is not exempted development. The proposal consists of approximately 2.24km of watermain and foul rising main within a right of way through the Arklow Town Marsh (pNHA) and adjacent to the existing UE infrastructure. The applicant notes that the proposed infrastructure would be built in accordance with Uisce Eireann requirements and in consultation with same. Given the sensitivity of the site located through a pNHA, the following was submitted:

- Appropriate Assessment Screening Report
- EcIA
- EIA Screening Report
- Resource and Waste Management Plan
- Outline Construction Environmental and Management Report

The proposed development would link the ICT Centre as granted permission under 20/1285 (as amended by 23/72), an Energy Centre permitted under 23/843 and Uisce Eireann infrastructure networks as well as providing fibre ducting. As noted in the application, a flood defence berm is located on the eastern edge of the Arklow Marsh pNHA which is permitted under the Arklow Flood Relief Scheme which would intersect part of the proposed pipeline route.

The first question to be asked is whether the proposed works would come within the definition of development within the remit of Section 3 of the Planning and Development Act 2001. In this regard, Section 3 of the Planning and Development Act provides that:

“development” means, except where the context otherwise requires, the the carrying out of any works in, on, over or under land, or the making of any material change in the use of any land or structures situated on land, or

It should be noted that Section 2 of the Act defines works as:

“works” includes any act or operation of construction, excavation, demolition, extension, alteration, repair or renewal and, in relation to a protected structure or proposed protected structure, includes any act or operation involving the application or removal of plaster, paint, wallpaper, tiles or other material to or from the surfaces of the interior or exterior of a structure.

With regard to the above, it is considered that the installation of a new watermain, foul rising main, fibre ducting and underground pumping station would involve operations of excavation/ construction and are therefore works, and **would constitute ‘development’ under the meaning of the Act.**

The second stage of the assessment is to determine whether or not the proposed development would be exempted development under the Planning and Development Act 2000 (as amended) or it’s associated Regulations.

- The agents consider the proposed development is exempted development under Section 4 (1)(g) of the Planning and Development Act 2000

development consisting of the carrying out by any local authority or statutory undertaker of any works for the purpose of inspecting, repairing, renewing, altering or removing any sewers, mains, pipes, cables, overhead wires, or other apparatus, including the excavation of any street or other land for that purpose;

The agent notes that the proposed works at the behest of Uisce Eireann. It is noted that the works are not being carried out by Uisce Eireann and refer to new infrastructure provision.

- The agent further contends that the works would be exempted development as per Section 4 (1) (h) of the Planning and Development Act 2000

development consisting of the carrying out of works for the maintenance, improvement or other alteration of any structure, being works which affect only the interior of the structure or which do not materially affect the external appearance of the structure so as to render the appearance inconsistent with the character of the structure or of neighbouring structures;

It is stated that the works are all underground services and therefore would not materially affect the external / above ground appearance of the structure and the proposed is not a structure.

- Finally, the applicant contends that the proposed development is exempted development as per Schedule 2 Part 1, Class 58(b) of the Planning and Development Regulations 2001 – 2025

Development by Irish Water, for the purpose of the provision of water services, consisting of one or more of the following:

(b) the installation of either or both—

(i) underground pipes, cables, water mains, sewers, including associated accessories, service connections, boundary boxes and meters, and,

(ii) above ground kiosks, meters and other apparatus and overhead wires,

(c) The construction or erection of either or both—

(i) below ground pumping or booster stations and, where appropriate, above ground kiosks, and

(ii) below ground holding tanks or reservoirs;

as the applicant states that the new watermain was requested by Uisce Eireann.

As the works are not being carried out by a Statutory Undertaker the provisions of Section 4(1)(g) are not applicable.

The proposal is for new structures, and contrary to the submission given that they are structures in and off themselves they would not come within the provisions of Section 4(1)(h) as the works are not for the maintenance, improvement or other alteration of an existing structure.

There are a number of Classes set out under Schedule 2 : Part 1 of the Planning and Development Regulations 2001 (as amended) under which the works are assessed.

Class 21

Class 21 is not considered applicable as the description refers to development by an Industrial undertaker. Having regard to ACP Reference ABP-312371-22 it is considered an Information, Communication and Technology Facility does not come within the scope of the definition of "industrial process" set out in the Planning and Development Regulations 2001(as amended) , as such a facility is for the storage of data, and not for the making of any article, and as such is not an Industrial undertaker.

CLASS 31

Class 31 is not considered applicable in respect to the fibre ducting as the applicant is not a statutory undertaker authorised to provide a telecommunications service.

Class 58

The applicant has further referenced Class 58 of the Planning and Development Regulations 2001(as amended) which is also not applicable as this refers to works undertaken by Uisce Eireann (Irish Water) and not by other operators and is therefore not relevant.

The Planning and Development Regulations 2001(as amended) Provide under Class 48 for

The connection of any premises to a wired broadcast relay service, sewer, watermain, gas main or electricity supply line or cable, including the breaking open of any street or other land for that purpose.

Class 48

The connection of the premises to the foul sewer / watermain would come within the provisions of Class 48 having regard to An Bord Pleanála referral ABP-319561-24. However, such an exemption is curtailed by reference to ~~notwithstanding this~~, Article 9(1)(a)(vii) of the Planning and Development Regulations 2001 (as amended) which states

Development to which article 6 relates shall not be exempted development for the purposes of the Act—

(vii) consist of or comprise the excavation, alteration or demolition (other than peat extraction) of places, caves, sites, features or other objects of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan or local area plan for the area in which the development is proposed or, pending the variation of a development plan or local area plan, or the making of a new development plan or local area plan, in the draft variation of the development plan or the local area plan or the draft development plan or draft local area plan

The proposed development is located through the Arklow Town Marsh pNHA as designated in the Wicklow County Development Plan 2022 – 2028. Objective CPO 17.4, CPO 17.7 of the CDP and Objective HT1 of the Arklow & Environs Local Area Plan seek to maintain the conservation value of such areas. Therefore, the proposed development would contravene Article 9(1)(a)(vii) of the Planning and Development Regulations 2001 (as amended) and is therefore not considered exempted development.

Recommendation:

With respect to the query under Section 5 of the Planning and Development Act 2000 (as amended), as to whether

The provision of a new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Éireann (UE) watermain located within a right of way through Arklow Town Marsh on a site located at Avoca River Park, Arklow, Co. Wicklow.

The Planning Authority considers that

The provision of a new watermain, foul rising main, fibre ducting and underground pumping station to be installed adjacent to the existing 50mm diameter watermain Uisce Éireann (UE) watermain located within a right of way through Arklow Town Marsh on a site located at Avoca River Park, Arklow, Co. Wicklow **is Development and is NOT Exempted Development.**

Main Considerations with respect to Section 5 Declaration:

- A. The details submitted with this application on the 14th October March 2025

- B. Objectives CPO17.4 CPO 17.7, Schedule 17.03 of the Wicklow County Development Plan 2022-2028, Objective HT1 of the Arklow & Environs Local Area Plan 2018
- C. Sections 2, 3 and 4 of the Planning and Development Act 2000 (as amended).
- D. Article 5, 6, 9 and Schedule 2: Part 1 Class 58 of the Planning and Development Regulations 2001 (as amended).
- E. An Coimisiún Pleanála References ABP-319561-24, ABP-306259-19, ABP-312371-22

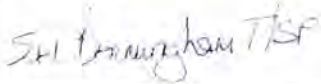
Main Reasons with respect to Section 5 Declaration:

- (a) the extent and type of the works i.e. the construction/ excavation and laying of watermains, sewer infrastructure and fibre ducting underground over 2.2km through lands identified as a pNHA within the Wicklow County Development Plan 2022 - 2028 as well as a pumping station,
- (b) The said operations would be works having regard to the definition set out in Schedule 2 of the Planning and Development Act 2000(as amended).
- (c) These works would constitute development having regard to ~~that comes within the scope of Section 3(1) of the Planning and Development Act 2000(as amended)~~ **said Act**,
- (d) The exemption under Section 4(1)(g) of the Planning and Development Act 2000(as amended) only applies to works by Local Authorities or other statutory undertakers,
- (e) The exemption under Section 4(1)(h) of the Planning and Development Act 2000(as amended) only applies to works on existing structures,
- (f) Class 21 : Part 1 : Schedule 2 of the Planning and Development Regulations 2001 (as amended) would not apply as it is considered an Information, Communication and Technology Facility does not come within the scope of the definition of "industrial process" set out in the Planning and Development Regulations 2001(as amended) , as such a facility is for the storage of data, and not for the making of any article, and as such is not an Industrial undertaker.
- (g) Class 31 : Part 1 : Schedule 2 of the Planning and Development Regulations 2001 (as amended) would not apply to the provision of fibre ducting, as the works are not being undertaken by Statutory Undertaker authorised to provide a telecommunications service.
- (h) The exemption under Class 58 Part 1 Schedule 2 of the Regulations would not apply as that exemption only applies to works by Uisce Éireann.
- (i) The new watermain, new raising foul main, would come within the description set out under Class 48: Part1: Schedule 2 of the Planning and Development Regulations 2001(as amended).
- (j) The said works would comprise the excavation/ alteration of Arklow Marsh pNHA, which is identified within Schedule 17.03 of the County Development Plan 2022-2028, and subject to the provisions of Objectives CPO 17.4 CPO 17.7 of the County Development Plan , and Objective HT1 of the Arklow & Environs Local Area Plan which seeks to maintain the conservation value of such areas. Therefore the works are not exempted development having regard to ~~contravene~~ Article 9(1)(a)(vii) of the Planning and Development Regulations 2001 which states that *Development to which article 6 relates shall not be exempted development for the purposes of the Act— if the carrying out of such development would— (vii) consist of or comprise the excavation, alteration or demolition (other than peat extraction) of places, caves, sites, features or other objects of*

archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan or local area plan for the area in which the development is proposed or, pending the variation of a development plan or local area plan, or the making of a new development plan or local area plan, in the draft variation of the development plan or the local area plan or the draft development plan or draft local area plan.



Neal Murphy
Executive Planner
04/11/2025



Agreed as modified

4/11/2025



Comhairle Contae Chill Mhantáin Wicklow County Council

**Pleanáil, Forbairt Eacnamaíochta agus Tuaithe
Planning, Economic and Rural Development**

Áras An Chontae / County Buildings
Cill Mhantáin / Wicklow
Guthán / Tel (0404) 20148
Faics / Fax (0404) 69462
Rphost / Email plandev@wicklowcoco.ie
Suíomh / Website www.wicklow.ie

MEMORANDUM

WICKLOW COUNTY COUNCIL

**TO: Neal Murphy
Executive Planner**

**FROM: Nicola Fleming
Staff Officer**

**RE:- EX120/2025 - Declaration in accordance with Section 5 of the
Planning & Development Acts 2000 (as amended)**

I enclose herewith for your attention application for Section 5 Declaration received 14/10/2025.

The due date on this declaration is the 10/11/2025.



**Staff Officer
Planning Development & Environment**





Comhairle Contae Chill Mhantáin Wicklow County Council

**Pleanáil, Forbairt Eacnamaíochta agus Tuaithe
Planning, Economic and Rural Development**

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Suíomh / Website www.wicklow.ie

**John Spain & Associates
39 Fitzwilliam Place
Dublin 2
D02 ND61**

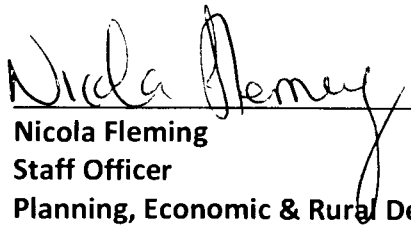
17th October 2025

RE: Application for Certificate of Exemption under Section 5 of the Planning and Development Acts 2000 (as amended). – EX120/2025 for Crag Digital Avoca Limited

A Chara

I wish to acknowledge receipt on 14/10/2025 details supplied by you in respect of the above Section 5 application. A decision is due in respect of this application by 10/11/2025.

Mise, le meas


**Nicola Fleming
Staff Officer
Planning, Economic & Rural Development**



Planning Department
Wicklow County Council,
County Buildings,
Wicklow,
Co Wicklow.



Date: 14/10/2025
JSA Ref: LW 20081

Dear Sir / Madam,

RE: REQUEST FOR SECTION 5 DECLARATION IN RELATION TO THE CONSTRUCTION OF A NEW WATERMAIN, FOUL RISING MAIN, FIBRE DUCTING, AND UNDERGROUND PUMPING STATION, TO BE INSTALLED ADJACENT TO THE EXISTING 50MM DIAMETER WATERMAIN UISCE ÉIREANN (UÉ) WATERMAIN LOCATED WITHIN A RIGHT OF WAY THROUGH ARKLOW TOWN MARSH, ON A SITE LOCATED AT AVOCA RIVER PARK, ARKLOW, CO. WICKLOW.

1.0 INTRODUCTION

On behalf of the applicant, Crag Digital Avoca Ltd., (Silverstone House, 1st Floor, Ballymoss Road, Sandyford, D18 A7K7), we hereby request a Section 5 Declaration in respect of the above referenced new foul rising main, watermain, fibre ducting, and underground pump station, on a site located at Avoca River Park, Arklow, Co. Wicklow and traversing a public right of way to connect to the public network to the east.

These underground utilities will connect Avoca River Park to the public wastewater and potable water network in the area, and are required by Uisce Éireann.

We ask the Planning Authority to consider whether the proposed foul rising main, watermain, fibre ducting, and underground pump station, to be installed adjacent to the existing 50mm diameter watermain Uisce Éireann (UÉ) watermain located within a right of way through Arklow Town Marsh, on a site located at Avoca River Park, Arklow, Co. Wicklow:

- i. Is or is not development as defined by Section 3 of the Planning and Development Act 2000, as amended, and
- ii. In the case where the works are considered to constitute development, whether or not the development is exempted development having regard to section 4(1)(h) of the Planning and Development Act 2000 (as amended) and regard to Class 22 of Schedule 2, Part 1, of the Planning and Development Regulations 2001 (as amended).

In order to assist with the assessment of this application for a Section 5 Declaration, we set out a detailed justification below supporting the case that the proposed installation of necessary watermain infrastructure in the location proposed is development but is exempted

Managing Director: P. Turley, Executive Directors: R. Kunz | S. Blair | B. Cristian | L. Wymer | K. Kerrigan

Senior Associate Directors: M. Nolan | B. Cloughan | J. Livingstone, Associate Director: T. Devereux

John Spain Associates Ltd. (Incorporated in the Republic of Ireland)

Registered Address: 39 Fitzwilliam Place, Dublin 2 | Directors: A. Murphy | J. Brennan | P. Turley | T. Gledhill

CR 3 No. 096309, VAT No. IE 64759083

development having regard to section 4(1)(h) of the Planning and Development Act 2000 (as amended)¹ and regard to Class 22 of Schedule 2, Part 1, of the Planning and Development Regulations 2001 (as amended). We enclose architectural plans, sections and elevations to illustrate the existing site condition and proposed works.

2.0 SITE LOCATION AND DEVELOPMENT CONTEXT

The Proposed Development site ('the Site' hereafter) is located in the townlands of Shelton Abbey and Marsh in Arklow, Co. Wicklow and has an overall site area of c. 3.93 hectares. The watermain and foul rising main route is approximately c. 2.2km in total and travels east to west from the Avoca River Business Park, through the applicant's landholding and the Avoca Marsh proposed Natural Heritage Area (pNHA) with the end point in Ferrybank (R772).

The route through the Avoca Marsh is along an existing raised road / track, so will not entail any works impacting on the pNHA itself.

Figure 1: Site Location Map



The Site exists at present as a Right of Way established for existing water supply connection to Arklow Business Park and transverses through Avoca Marsh pNHA. There is an existing Uisce Éireann (UE) mains water pipeline within the development area, this is to be maintained as is and there will be no disruption to supply.

¹ The exempted development provisions of the 2000 Act, as amended, and 2001 Regulations, as amended remain in force pending the commencement of the relevant section of the Planning and Development Act 2024 pertaining to exempted development (Section 9) and the publication of the associated Regulations.

Figure 2: Right of Way through Arklow Marsh pNHA

Current land use in the vicinity of the site is predominantly commercial and residential in nature. To the east, the proposed pipelines travel under the M11 motorway, a main arterial route between Dublin and Wicklow.

The subject site is identified in the Wicklow County Development Plan 2022-2028 as being within the Arklow Town and Environs 'Urban Area' landscape category. The site is not located within a designated area of landscape character and will not arise to any adverse impacts.

3.0 PLANNING HISTORY

This section provides an overview of the planning history of the lands where the proposed pipeline traverses through. The planning history shows the majority of recent development focused around the Avoca River Park with minimal development along the route within the Arklow Marsh pNHA. Relevant development in Avoca River Park is summarised below:

Application Reference	Address	Development Description	Decision
WCC Reg. Ref.: 25/60594	A site located at and to the east of Avoca River Park, Arklow, Co. Wicklow,	Construction of 1 ICT Facility building (c. 36,665sq.m), 2 no. ICT facilities (4,428 sq.m), c. 2.7ha solar farm and all associated site development works.	Further Information Requested
ABP Reg. Ref.: VA27.310090	The townlands of Johnstown North, Johnstown South, Seabank, Ballymoney, Killiniskyduff, Templerainy, Coolboy, Kilbride, Shelton Abbey, Ballyraine Lower and Ballyraine Middle, County Wicklow.	Electricity transmission development under Section 182A(1) of the Planning and Development Act 2000 comprising onshore grid infrastructure for the Arklow Bank Wind Park Phase 2	Granted – 27.01.2023
WCC Reg. Ref.: 23/72	A site located at Avoca River Park, Arklow, Co. Wicklow.	Demolition and construction of 3 no. ICT Facility Buildings, extension to the Avoca River	Granted 25.07.2023

		Park site entrance and all associated development works.	
WCC Reg. Ref.: 20/1285	A site located at Avoca River Park, Shelton Abbey & Kilbride, Arklow, Co. Wicklow.	Demolition and construction of 3 no. ICT Facility buildings, upgrade works to existing 110kV substation and all associated development.	Granted – 17.01.2021

4.0 DESCRIPTION OF THE PROPOSAL

The proposed works comprises the installation of approximately 2.2km of watermain and foul rising main in support of several developments within the Avoca River Business Park lands, comprising a total construction area of c. 3.93ha.

The Proposed Development includes the following:

- An underground foul pump station.
- C. 2,240. 200mm diameter foul rising main.
- C. 2,240m 160mm diameter watermain.
- c. 2,240mm 4x4 140mm diameter fibre ducts.
- Connection to Uisce Éireann foul network
- Connection to Uisce Éireann watermain network.
- All associated ancillary works.

On 14th June 2023 a planning application was granted planning under Wicklow County Council (WCC) Reg. Ref.: 2372, for a proposed ICT facility. Subsequently the most recent permitted planning submission, an amendment to a granted Energy centre, had also been granted by WCC (Reg. Ref.: 23/843), for which a confirmation of feasibility (CoF) was issued by Uisce Éireann (UE).

In the CoF, upgrades were required in the form of a new installation of watermain with minimum 100mm diameter with a length of approx. 2.6km. UE proposed that the watermain 160mm diameter is to be installed adjacent to the existing 50mm diameter UE asset, which was installed within a Right of Way through the Arklow Town Marsh. The right of way comprises a raised road / track above the level of the surrounding marsh land, and the works would be confined to that right of way area.

Additionally, the developer now proposes a new foul rising main to provide a connection opportunity for the applicant's developments and the business park to the public network, as an alternative to the previous reliance on localised on-site treatment. This has been borne out of design development on the granted ICT facility campus and associated end user requirements.

Connection for both the proposed watermain and foul rising main will be into existing Uisce Éireann networks. The nearby Arklow Wastewater Treatment Plant has significantly enhanced the wastewater treatment capacity in the local public network and Uisce Éireann advised that there is capacity in the local public network without further infrastructure upgrades. For further details, please refer to the CoF appended to the accompanying Outline Construction Environmental Management Report prepared by DBFL Consulting Engineers.

The proposed infrastructure will be built in accordance with Uisce Éireann requirements and in ongoing consultation with Uisce Éireann.

Co-ordination with Arklow Flood Relief Scheme

A flood defence berm on the eastern edge of the Arklow Marsh pNHA is permitted under the Arklow Flood Relief Scheme (ABP Reg. Ref.: 310368-21) and will intersect part of the proposed pipeline route subject of this Section 5 declaration.

A meeting between Wicklow Council and the Design Team was held and it has been agreed that a co-ordinated design would be required to manage this interaction. For further details on how the subject works co-ordinate with the flood defence works, please refer to the Outline Construction Environmental Management Report and engineering drawing pack prepared by DBFL Consulting Engineers.

5.0 ASSESSMENT OF THE PROPOSAL

The subject works for which a Section 5 Declaration is sought has been outlined above and indicated on the accompanying drawings by DBFL Consulting Engineers and K-Design Studio. The proposal seeks to provide for the installation of approximately 2.2km of watermain and foul rising main, as requested by Uisce Éireann, and to support the operation of the Avoca River Business Park, Arklow, Co. Wicklow. Fibre ducting will also be provided along with an underground foul pumping station on the applicant's lands.

It is acknowledged that the proposal, connecting the Avoca River Business Park Lands with Uisce Éireann Foul and watermain networks, and associated works, constitutes "development" which is defined in the Act as follows:

"In this Act, "development" means, except where the context otherwise requires, the carrying out of any works on, in over or under land or the making of any material change in the use of any structures or other land".

The definition of works is stated below:

"works" includes any act or operation of construction, excavation, demolition, extension, alteration, repair or renewal and, in relation to a protected structure or proposed protected structure, includes any act or operation involving the application or removal of plaster, paint, wallpaper, tiles or other material to or from the surfaces of the interior or exterior of a structure".

In light of the above, it is considered the works constitute "development" as defined in the Act.

Section 4 of the Planning and Development Act 2000 (as amended), sets out what shall be exempted development for the purposes of the Act:

Section 4(1)(g) includes: *"development consisting of the carrying out by any local authority or statutory undertaker of any works for the purpose of inspecting, repairing, renewing, altering or removing any sewers, mains, pipes, cables, overhead wires, or other apparatus, including the excavation of any street or other land for that purpose".*

The proposed works relate to those required to connect the existing Avoca River park with public utilities, and are being carried out at the behest of Uisce Éireann. The water infrastructure works are considered to represent exempted development on this basis.

Section 4(1)(h) includes: *"development consisting of the carrying out of works for the maintenance, improvement or other alteration of any structure, being works which affect only the interior of the structure or which do not materially affect the external appearance of the structure so as to render the appearance inconsistent with the character of the structure or of neighbouring structures".*

The definition of structure as set out above includes “*any other thing constructed or made on, in or under any land*”. This includes the existing raised service road traversing marshlands – i.e. the route of the proposed works. The proposed works are all underground services, and so will not materially affect the external / above ground appearance of the ‘structure’ in question. The works can therefore also be considered exempted development under section 4(1)(h) of the Act.

The application of this exemption has been considered by the Supreme Court: *Cronin (Readymix) Ltd. v. An Bord Pleanála* [2017] IESC 36. The court explained that it does not cover extensions, even where those might be considered an “improvement”. Instead, it should be considered an exemption for alterations, with the concepts of maintenance and improvement being subsets.

The proposed works, comprising services connections must be considered an ‘alteration’ that must logically also be considered an ‘improvement’ to the existing access road / track, and the existing piped infrastructure that runs through it. While the additional infrastructure will lead to an increase in the extent of underground infrastructure through this route, the exemption continues to apply to a different shape or extent, provided that the alteration does not “*materially affect the external appearance of the structure so as to render the appearance inconsistent with the character of the structure or of neighbouring structures*”. The proposed works do not materially affect the external appearance of the structure.

Under Schedule 2 Part 1 of the Planning and Development Regulations 2001-2025 sets out the classes and descriptions of exempted development. Relevant to the subject works, Class 58(b) provides for the following exemption:

“Development by Irish Water, for the purpose of the provision of water services, consisting of one or more of the following:

(b) the installation of either or both—

- (i) **underground pipes, cables, water mains, sewers, including associated accessories, service connections, boundary boxes and meters, and,***
- (ii) **above ground kiosks, meters and other apparatus and overhead wires.***

The proposed works, as described above in section 4.0, are classed as improvement works comprising the installation of a new watermain pipeline requested by Uisce Éireann and the installation of a new foul rising main. The proposed works will not affect existing piping, cabling or ducting and as requested by Uisce Éireann and the new watermain will be installed adjacent to the existing 50mm diameter Uisce Éireann asset. It is beneficial that the new foul rising main and fibre ducting is constructed in tandem with the proposed watermain as they will be constructed beside the existing and proposed Uisce Éireann pipelines and will minimise disturbance later, which is important given the setting of the Arklow Marsh pNHA.

As the proposed works are underground, they will not result in a material visual impact having regard to the Arklow Marsh pNHA and residential amenity closer to Ferrybank (R772). It is submitted that the subject works will not materially affect the external appearance of the existing area.

Furthermore, as confirmed in the accompanying documents prepared by AWN Consulting Ltd, the works do not require EIA or Stage 2 Appropriate Assessment, so are not de-exempted on that basis.

We also note that Article 9 includes a restriction on exemption where the proposed exempted development would '*(i) contravene a condition attached to a permission under the Act or be inconsistent with any use specified in a permission under the Act*'. We have reviewed the conditions attached to the final grant of permission of which the mentioned CoF relates to (WCC Reg. Ref.: 23/72) and there are no restrictions that would prevent the installation of the subject works.

Article 9 of the Planning and Development Regulations 2001 (as amended) sets out certain restrictions on exemptions that apply under Schedule 2 of the Regulations, such as Class 58. It is respectfully submitted that none of the restrictions apply in this instance.

7.0 SUMMARY AND CONCLUSIONS

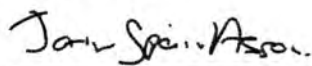
In accessing this Section 5 application we request the Planning Authority to consider whether the proposed new foul rising main, watermain, fibre ducting, and underground pumping station is or is not development as defined by Section 3 of the Planning and Development Act 2000 (as amended) and in the case where the proposed works are considered to constitute development, whether or not the development is exempted development having regard to section 4(1)(g) and/or 4(1)(h) of the Planning and Development Act 2000 (as amended) and Class 58 of Schedule 2, Part 1, of the Planning and Development Regulations 2001 (as amended).

The following documentation is submitted with this Section 5 Request:

- 2 no. copies of the completed Section 5 Request form;
- 2 no. copies of this Section 5 Cover Letter;
- 2 no. copies of the site location map, site layout plans;
- 2 no. copies of engineering drawings and an Outline Construction Management Plan (OCEMP), prepared by DBFL Consulting Engineers;
- 2 no. copies of an Environmental Impact Assessment (EIA) Screening Report and a Resource and Waste Management Plan (RWMP), prepared by AWN Consulting Ltd;
- 2 no. copies of an Appropriate Assessment (AA) Screening and an Ecological Impact Assessment (EclA) prepared by Altamar Ltd.
- €80 Section 5 application fee made payable to Wicklow County Council.

Please do not hesitate to contact us should you require any clarification of the documentation enclosed.

Yours Sincerely,



John Spain Associates

Wicklow County Council
County Buildings
Wicklow
0404-20100

03/10/2025

Receipt No. : BANKS/8476/2012169
***** REPRINT *****

Unallocated Payments OS	80.00
GOODS	80.00
VAT Exempt/Non-vatable	

Total : 80.00 EUR

Tendered :	
Cash	80.00

Change : 0.00

Issued By : Import Cashier
From : Bank Unallocated Payments
Vat reg No.0015233H



Wicklow County Council
County Buildings
Wicklow
Co Wicklow
Telephone 0404 20148
Fax 0404 69462

Office Use Only

Date Received _____

Fee Received _____

**APPLICATION FORM FOR A
DECLARATION IN ACCORDANCE WITH SECTION 5 OF THE PLANNING &
DEVELOPMENT ACTS 2000 (AS AMENDED) AS TO WHAT IS OR IS NOT
DEVELOPMENT OR IS OR IS NOT EXEMPTED DEVELOPMENT**

1. Applicant Details

(a) Name of applicant: Crag Digital Avoca Limited.

Address of applicant: Silverstone House, 1st Floor, Ballymoss Road,
Sandyford, D18 A7K7.

Note Phone number and email to be filled in on separate page.

2. Agents Details (Where Applicable)

(b) Name of Agent (where applicable): John Spain Associates

Address of Agent : 39 Fitzwilliam Place, Dublin 2, D02 ND61

Note Phone number and email to be filled in on separate page.

3. Declaration Details

i. Location of Development subject of Declaration: Avoca River Park, Arklow,
Co. Wicklow.

- ii. Are you the owner and/or occupier of these lands at the location under i. above ?
Yes.
- iii. If 'No' to ii above, please supply the Name and Address of the Owner, and or occupier: N/A.
- iv. Section 5 of the Planning and Development Act provides that : If any question arises as to what, in any particular case, is or is not development and is or is not exempted development, within the meaning of this act, any person may, on payment of the prescribed fee, request in writing from the relevant planning authority a declaration on that question. You should therefore set out the query for which you seek the Section 5 Declaration:

We request if the following works are considered as exempted development:

- Foul pump station
 - c. 2240m 200mm diameter foul rising main
 - c. 2240m 160mm diameter watermain
 - c. 2240m 4x4 160mm diameter fibre ducts
 - Connection to Uisce Éireann foul network
 - Connection to Uisce Éireann watermain network
- v. Indication of the Sections of the Planning and Development Act or Planning Regulations you consider relevant to the Declaration:
- Section 4(1)(g) and 4(1)(h) of the Planning and Development Act 2000 (as amended)
 - Class 58 under Schedule 2 Part 1 of the Planning and Development Regulations 2001-2025
- vi. Does the Declaration relate to a Protected Structure or is it within the curtilage of a Protected Structure (or proposed protected structure) ? No.
- vii. List of Plans, Drawings submitted with this Declaration Application:
- 2 no. copies of the completed Section 5 application form;
 - 2 no. copies of this Section 5 Cover Letter;
 - 2 no. copies of the site location map, site layout plans;
 - 2 no. copies of civils/engineering drawings and an Outline Construction Management Plan (OCEMP), prepared by DBFL Consulting Engineers;
 - 2 no. copies of an Environmental Impact Assessment (EIA) Screening

Report and a Resource and Waste Management Plan (RWMP), prepared by AWN Consulting;

- 2 no. copies of an Appropriate Assessment (AA) Screening and an Ecological Impact Assessment (EcIA) prepared by Altamar Ltd.
- €80 Section 5 application fee made payable to Wicklow County Council (EFT).

viii. Fee of € 80 Attached ? Yes.

Signed : John Spill Arson Dated : 14/10/2025

Additional Notes :

As a guide the minimum information requirements for the most common types of referrals under Section 5 are listed below :

A. Extension to dwelling - Class 1 Part 1 of Schedule 2

- Site Location Map
- Floor area of structure in question - whether proposed or existing.
- Floor area of all relevant structures e.g. previous extensions.
- Floor plans and elevations of relevant structures.
- Site Layout Plan showing distance to boundaries, rear garden area, adjoining dwellings/structures etc.

B. Land Reclamation -

The provisions of Article 8 of the Planning and Development Regulations 2001 (as amended) now applies to land reclamation, other than works to wetlands which are still governed by Schedule 2, Part 3, Class 11. Note in addition to confirmation of exemption status under the Planning and Development Act 2000(as amended) there is a certification process with respect to land reclamation works as set out under the European Communities (Environmental Impact Assessment) (Agriculture) Regulations 2011 S.I. 456 of 2011. You should therefore seek advice from the Department of Agriculture, Fisheries and Food.

Any Section 5 Declaration should include a location map delineating the location of and

exact area of lands to be reclaimed, and an indication of the character of the land.

C. Farm Structures - Class 6 -Class 10 Part 3 of Schedule 2.

- Site layout plan showing location of structure and any adjoining farm structures and any dwellings within 100m of the farm structure.
- Gross floor area of the farm structure
- Floor plan and elevational details of Farm Structure and Full details of the gross floor area of the proposed structure.
- Details of gross floor area of structures of similar type within the same farmyard complex or within 100metres of that complex.



Trinity
Consultants



awnconsulting

Resource & Waste Management Plan

Project Title: Infrastructure Connection Arklow to Avoca River Park Industrial Estate

CLIENT

Crag Digital
Avoca, Ltd.

DOCUMENT REFERENCE

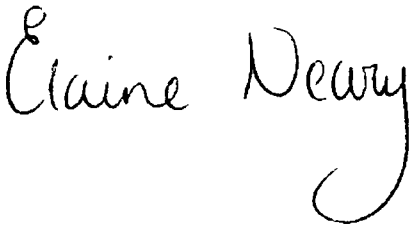
257501.0526WMR01

DATE

25/09/2025

DOCUMENT CONTROL SHEET

Document Control Sheet		
Our Reference	257501.0526WMR01	
Original Issue Date	05 September 2025	
Client:	Crag Digital Avoca, Ltd.	
Revision	Revision Date	Description
01	09/10/2025	Removal of demolition
02	13/10/2025	Updated site area

Details	Written by	Approved by
Signature		
Name	Ana Neary	Elaine Neary
Title	Environmental Consultant	Associate
Date	25/09/2025	25/09/2025

Disclaimer This report considers the specific instructions and requirements of our client. It is not intended for third-party use or reliance, and no responsibility is accepted for any third party. The provisions in this report apply solely to this project and should not be assumed applicable to other developments without review and modification.
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1. INTRODUCTION

AWN Consulting, a Trinity Consultants Company, has prepared this Construction and Demolition (C&D) Resource & Waste Management Plan (RWMP) on behalf of Crag Digital Avoca, Ltd. The Proposed Works will principally consist of the installation of a c.2240m 160mm diameter foul rising main, c.2240m 200mm diameter watermain, c. 2240m 4x4 160mm diameter fibre ducts, construction of a foul pump station, connections to the Uisce Éireann foul and watermain networks, and associated works, comprising a total site boundary area of c. 3.93 ha.

A full description of the Proposed Works is included in the accompanying Environmental Impact Assessment Screening Report submitted with this Section 5 request.

This plan provides information necessary to ensure that the management of C&D waste at the site is undertaken in accordance with the current legal and industry standards including the *Waste Management Act 1996* as amended and associated Regulations ¹, *Environmental Protection Agency Act 1992* as amended ², *Litter Pollution Act 1997* as amended ³, the National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) (2024) ⁴. In particular, this plan aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It also provides appropriate measures in relation to the collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil and/or water).

This RWMP includes information on the legal and policy framework for C&D waste management in Ireland, estimates of the type and quantity of waste to be generated by the proposed works and prescribes measures for the management of different waste streams. The RWMP should be viewed as a live document and will be regularly revisited throughout the project's lifecycle so that opportunities to maximise waste reduction / efficiencies are exploited throughout, and that data is collected on an ongoing basis so that it is as accurate as possible.

2. OVERVIEW OF WASTE MANAGEMENT IN IRELAND

2.1 National level

The Irish Government issued a policy statement in September 1998, *Changing Our Ways*⁵, which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The target for C&D waste in this report was to recycle at least 50% of C&D waste within a five year period (by 2003), with a progressive increase to at least 85% over fifteen years (i.e. 2018).

In response to the *Changing Our Ways* report, a task force (Task Force B4) representing the waste sector of the already established Forum for the Construction Industry, released a report entitled '*Recycling of Construction and Demolition Waste*'⁶ concerning the development and implementation of a voluntary construction industry programme to meet the Government's objectives for the recovery of C&D waste.

In September 2020, the Irish Government published a policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan, '*A Waste Action Plan for a Circular Economy*'⁷ (WAPCE), replaces the previous national waste management plan, '*A Resource Opportunity*' (2012), and was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to an altered economical model, where climate and environmental challenges are turned into opportunities.

The WAPCE sets the direction for waste planning and management in Ireland up to 2025. This reorients policy from a focus on managing waste to a much greater focus on creating circular patterns of production and consumption. Other policy statements of a number of public bodies already acknowledge the circular economy as a national policy priority.

The policy document contains over 200 measures across various waste areas including circular economy, municipal waste, consumer protection and citizen engagement, plastics and packaging, construction and demolition, textiles, green public procurement and waste enforcement.

One of the first actions to be taken was the development of the *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'* (2021)⁸ to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

The Circular Economy and Miscellaneous Provisions Act 2022⁹ was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will work to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

The Environmental Protection Agency (EPA) of Ireland issued '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects*' in November 2021¹⁰. These guidelines replace the previous 2006 guidelines issued by The National Construction and Demolition Waste Council (NCDWC) and the Department of the Environment, Heritage and Local Government (DoEHLG) in 2006¹¹. The guidelines provide a practical approach which is informed by best practice in the prevention and management of C&D wastes and resources from design to construction of a project, including consideration of the deconstruction of a project. These guidelines have been followed in the preparation of this document and include the following elements:

- ▶ Predicted C&D wastes and procedures to prevent, minimise, recycle and reuse wastes;
- ▶ Design teams roles and approach;
- ▶ Relevant EU, national and local waste policy, legislation and guidelines;
- ▶ Waste disposal/recycling of C&D wastes at the site;
- ▶ Provision of training for Resource Waste Manager (RM) and site crew;
- ▶ Details of proposed record keeping system;
- ▶ Details of waste audit procedures and plan; and
- ▶ Details of consultation with relevant bodies i.e. waste recycling companies, Local Authority, etc.

Section 3 of the Guidelines identifies thresholds above which there is a requirement for the preparation of a bespoke RWMP for projects and developments. The new guidance classifies developments on a two-tiered system. Developments which do not exceed any of the following thresholds may be classed as Tier 1 development, which require a simplified RWMP:

- ▶ New residential development of less than 10 dwellings.
- ▶ Retrofit of 20 dwellings or less.
- ▶ New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 1,250m².
- ▶ Retrofit of commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 2,000m²; and
- ▶ Demolition projects generating in total less than 100m³ in volume of C&D waste.

A development which exceeds one or more of these thresholds is classed as Tier-2 development.

The proposed works require a RWMP as a Tier 2 development as it is above the following criterion:

- ▶ New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 1,250m².

The Proposed works comprise the installation of infrastructure with an aggregate area of c. 10,178m²; it therefore exceeds the above threshold.

Other guidelines followed in the preparation of this report include '*Construction and Demolition Waste Management – a handbook for Contractors and Site Managers*'¹², published by FÁS and the Construction Industry Federation in 2002 and the previous guidelines, 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' (2006).

These guidance documents are considered to define best practice for C&D projects in Ireland and describe how C&D projects are to be undertaken such that environmental impacts and risks are minimised and maximum levels of waste recycling are achieved.

2.2 Regional Level

The proposed works are located in the Local Authority area of Wicklow County Council (WCC).

The Eastern Midlands Region (EMR) Waste Management Plan 2015 – 2021, which previously governed waste management policy in the DLRCC area, has been superseded as of March 2024 by the NWMPCE 2024 – 2030, the new national waste management plan for Ireland.

The NWMPCE does not dissolve the three regional waste areas. The NWCPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector.

This Plan seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation.

The national plan sets out the following strategic targets for waste management in the country that are relevant to the proposed works:

National Targets

1B. (Construction Materials) 12% Reduction in Construction & Demolition Waste Generated by 2030.

3B. (Reuse Facilities) Provide for reuse at 10 Civic Amenity Sites, minimum

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €140 - €160 per tonne of waste which includes an €85 per tonne landfill levy introduced under the *Waste Management (Landfill Levy) (Amendment) Regulations 2015 (as amended)*¹³. *The Circular Economy (Waste Recovery Levy) Regulations 2024*¹⁴ will also incur a levy of €10 per tonne for waste accepted for recovery. This will include backfilling at authorised recovery sites and at municipal waste landfills.

The Wicklow County Development Plan 2022 – 2028¹⁵ sets out a number of objectives for Wicklow County in line with the objectives of the regional waste management plan. It is the policy of the Council, as set out in the Regional Waste Management Plan, to:

- ▶ Prevent or minimise the production or harmful nature of waste;
- ▶ Encourage and support the recovery of waste;
- ▶ Ensure that the waste which cannot be prevented or recovered is disposed of without causing environmental pollution;
- ▶ Ensure that the 'polluter pays' principle is effectively applied.

Other waste management objectives with a particular relevance to the proposed works are:

CPO 15.1 - To require all developments likely to give rise to significant quantities of waste, either by virtue of the scale of the development or the nature of the development (e.g. one that involves demolition) to submit a construction management plan, which will outline, amongst other things, the plan to minimise waste generation and the plan to protect the environment with the safe and efficient disposal of waste from the site.

CPO 15.6 - To facilitate the development of sites, services and facilities necessary to achieve implementation of the objectives of the Regional Waste Management Plan.

2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the proposed works are:

- ▶ *Waste Management Act 1996 as amended;*
- ▶ *Environmental Protection Agency Act 1992 as amended;*
- ▶ *Litter Pollution Act 1997 as amended;*
- ▶ *Planning and Development Act 2000 as amended*¹⁶;
- ▶ *Circular Economy and Miscellaneous Provisions Act 2022.*

One of the guiding principles of European waste legislation, which has in turn been incorporated into the *Waste Management Act 1996* as amended and subsequent Irish legislation, is the principle of "Duty of Care". This implies that the waste producer is responsible for waste from the time it is generated through until its legal recycling, recovery or disposal (including its method of disposal). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final destination, waste contractors will be employed to physically transport waste to the final destination. Following on from this is the concept of "Polluter Pays" whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged (e.g. for transportation and disposal/recovery/recycling of waste).

It is therefore imperative that the Developer ensures that the waste contractors engaged by construction contractors are legally compliant with respect to waste transportation, recycling, recovery and disposal. This includes the requirement that a contractor handle, transport and recycle/recover/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007 as amended* or a Waste Licence granted by the EPA. The COR / permit / licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

3. DESIGN APPROACH

The client and the design team have integrated the '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects*' guidelines into the design workshops, to help review processes, identify and evaluate resource reduction measures and investigate the impact on cost, time, quality, buildability, second life and management post construction. Further details on these design principals can be found within the aforementioned guidance document.

The design team have undertaken the design process in line with the international best practice principles to firstly prevent wastes, reuse where possible and thereafter sustainably reduce and recover materials. The below sections have been the focal point of the design process and material selections and will continued to be analysed and investigated throughout the design process and when selecting material.

As noted in the EPA guidelines, the approaches presented are based on international principles of optimizing resources and reducing waste on construction projects through:

- ▶ *Prevention;*
- ▶ *Reuse;*
- ▶ *Recycling;*
- ▶ *Green Procurement Principles;*
- ▶ *Off-Site Construction;*
- ▶ *Materials Optimisation; and*
- ▶ *Flexibility and Deconstruction.*

3.1 Designing For Prevention, Reuse and Recycling

Undertaken at the outset and during project feasibility and evaluation the Client and Design Team considered:

- ▶ Establishing the potential for any reusable site assets (buildings, structures, equipment, materials, soils, etc.);
- ▶ The potential for refurbishment and refit of existing structures or buildings rather than demolition and new build;
- ▶ Assessing any existing buildings on the site that can be refurbished either in part or wholly to meet the Client requirements; and
- ▶ Assessing if the existing foul drainage and water mains infrastructure can be utilised either in part or wholly to meet the Client requirements
- ▶ Enabling the optimum recovery of assets on site.

3.2 Designing for Green Procurement

Waste prevention and minimisation pre-procurement have been discussed and will be further discussed in this section. The Design Team will discuss proposed design solutions, encourage innovation in tenders and incentivise competitions to recognise sustainable approaches. They will also discuss options for packaging reduction with the main Contractor and subcontractors/suppliers using measures such as 'Just-in-Time' delivery and use ordering procedures that avoid excessive waste. The Green procurement extends from the design stage into the detailed design and tender stage and will be an ongoing part of the long-term design and selection process for these works.

3.3 Designing for Off-Site Construction

Use of off-site manufacturing has been shown to reduce residual wastes by up to 90% (volumetric building versus traditional). The decision to use offsite construction is typically cost led but there are significant benefits for resource management. Some further considerations for procurement which are being investigated as part of the design process are listed as follows:

- ▶ Modular buildings as these can displace the use of concrete and the resource losses associated with concrete blocks such as broken blocks, mortars, etc.;
- Modular buildings are typically pre-fitted with fixed plasterboard and installed insulation, eliminating these residual streams from site.
- ▶ Use of pre-cast structural concrete panels which can reduce the residual volumes of concrete blocks, mortars, plasters, etc.;
- ▶ The use of prefabricated composite panels for walls and roofing to reduce residual volumes of insulation and plasterboards;
- ▶ Using pre-cast hollow-core flooring instead of in-situ ready mix flooring or timber flooring to reduce the residual volumes of concrete/formwork and wood/packaging, respectively; and
- ▶ Designing for the preferential use of offsite modular units.

3.4 Designing for Materials Optimisation During Construction

To ensure manufacturers and construction companies adopt lean production models, including maximising the reuse of materials onsite as outlined in section 3.1, the infrastructure layout and construction process should be designed with the intent of designing out waste. This helps to reduce the environmental impacts associated with transportation of materials and from waste management activities. This includes investigating the use of standardised sizes for certain materials to help reduce the amount of offcuts produced on site, focusing on promotion and development of off-site manufacture.

3.5 Designing for Flexibility and Deconstruction

Design flexibility has and will be investigated throughout the design process to ensure that where possible products only contain materials that can be recycled and are designed to be easily disassembled. Material efficiency is being considered for the duration and end of life of a building project to produce; flexible, adaptable spaces that enable a resource-efficient, low-waste future change of use; durability of materials and how they can be recovered effectively when maintenance and upgrades are undertaken and during disassembly/deconstruction.

4. DESCRIPTION OF THE PROPOSED WORKS

4.1 Location, Size and Scale of the Proposed Works

The Proposed Works comprise the construction of new foul rising and water mains pipelines and fiber cable ducting to be installed adjacent to the existing 50mm diameter Uisce Éireann (UE) within an existing Right of Way. These works are intended to connect the Avoca River Park Industrial Estate to the public sewer network, as an amendment to previous reliance on localised, on-site, treatment. The Proposed Works will consist of the following:

- ▶ Excavation, horizontal drilling, and backfill of a c. 2.4km trench
- ▶ 1 no. Foul pump station [insert dimensions]
- ▶ 1 no. c. 2240m 100mm diameter foul rising main
- ▶ 1 no. c. 2240m 100mm diameter watermain
- ▶ Connection to Uisce Éireann foul network
- ▶ Connection to Uisce Éireann watermain network

Figure 4-1 Site Location Redline



4.2 Details of the Non-Hazardous Wastes to be Produced

There will be soil, stones, clay and made ground excavated to facilitate the installation of the new foul rising and water mains pipelines within the trench. The project engineers (DBFL Consulting Engineers) have estimated that 6,031m³ of material will need to be excavated to do so. It is currently envisaged that the majority of excavated material, and all excavated soils, will be able to be retained and reused onsite for backfill of the trench. The remaining material will need to be removed offsite due to the limited

opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

During the construction phase there may be a surplus of building materials, such as broken concrete blocks, plastics, and metals generated. There may also be small amounts of excess concrete during construction which will need to be disposed of. Plastic and cardboard waste from packaging and supply of materials will also be generated. The contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

Waste will also be generated from construction workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided on site during the construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices.

4.3 Potential Hazardous Wastes Arising

4.3.1 Contaminated Soil

Intrusive site investigations and environmental soil testing were undertaken in July of 2021 as part of works associated with planned and permitted developments in the Avoca River Park Industrial Estate. These investigations confirmed the presence of a carbon/black phosphor-gypsum within the overall waste matrix associated with the historical use of the north-western portion of the subject site as a landfill. This previous use resulted in some soil and groundwater contamination within Avoca River Park Industrial Estate. Soil samples were tested for the Waste Acceptance Criteria (WAC) suite of analysis was carried out to classify the soil for disposal purposes. Based on the WAC results, a small number of soil samples were classified as hazardous for disposal purposes, with the remainder classified as inert or non-hazardous.

Within the Avoca River Park Industrial Estate, the Proposed Works are within an existing Right-of-Way that not considered to be part of the historical landfill use area. The Proposed Works area extends beyond the Avoca River Park Industrial Estate. There is no soil quality information or waste classification for the soils along the remainder of the route. If any potentially contaminated material is encountered along the remainder of the route, it will need to be segregated from clean / inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous*'¹⁷ using the *HazWasteOnline* application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC*¹⁸, which establishes the criteria for the acceptance of waste at landfills.

In the event that Asbestos Containing Materials (ACMs) are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with *the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010 and the Best Practice Guidance for Handling Asbestos* (2023)¹⁹. All asbestos will be taken to a suitably licensed or permitted facility.

In the event that previously unknown hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify WCC and provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal / treatment, in addition to information on the authorized waste collector(s). Further information regarding hazardous soils is contained within the Construction Environmental Management Plan (CEMP) prepared by DBFL Consulting Engineers submitted alongside this report.

4.3.2 Fuel/Oils

Fuels and oils are classed as hazardous materials; any on-site storage of fuel / oil, and all storage tanks and all draw-off points will be bunded and located in a dedicated, secure area of the site. Provided that these requirements are adhered to and the site crew are trained in the appropriate refueling techniques, it is not expected that there will be any fuel / oil waste generated at the site.

If refueling or accidental spills occur onsite small associated waste volumes will be generated from their cleanup, with the proposed mitigation this will be kept to a minimum. Wastes will be stored in appropriate receptacles pending collection by an authorised waste contractor.

4.3.3 Invasive Plant Species

A site invasive species surveys was undertaken by Altermar Marine and Environmental Consultancy in August, 2025. This included a site walkover survey of the entire site, and around part of the outside perimeter to search for any invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). Rhododendron, a first schedule invasive species, was identified throughout the site during the survey.

Altermar have undertaken initial surveys to understand the extent of the infestation. Within the construction methodology contained within the outline Construction Environmental Management Plan (OCEMP), prepared by DBFL Consulting Engineers, it is stated that *'All vegetation will be chipped or mulched and spread within the Right of Way as recommended in The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads. No disposal of vegetation will occur within any watercourse along the route. No cut vegetation will be removed from site and wheel washes will be positioned such that any vehicle exiting site will not carry vegetation out of the works area.'* Further details are contained within the OCEMP, to which the construction contractors will be required to adhere.

4.3.4 Asbestos

If asbestos is located on site, then removal of asbestos or ACMs will be carried out by a suitably qualified contractor and ACMs will only be removed from site by a suitably permitted / licenced waste contractor, in accordance with the *Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010* and the *Best Practice Guidance for Handling Asbestos (2023)*. All material will be taken to a suitably licensed or permitted facility.

4.3.5 Other Known Hazardous Substances

Paints, glues, adhesives and other known hazardous substances will be stored in designated areas. They will generally be present in small volumes only and associated waste volumes generated will be kept to a minimum. Wastes will be stored in appropriate receptacles pending collection by an authorised waste contractor.

In addition, WEEE (containing hazardous components), printer toner / cartridges, batteries (Lead, Ni-Cd or Mercury) and / or fluorescent tubes and other mercury containing waste may be generated from during C&D activities or temporary site offices. These wastes, if generated, will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

5. ROLES AND RESPONSIBILITIES

The *Best Practice Guidelines on the Preparation of Resource Waste Management Plans for Construction and Demolition Projects* promotes that a suitably qualified Resource Manager (RM) with expertise in waste and resource management to implement the RWMP should be appointed. The RM may be performed by number of different individuals over the life-cycle of the Project, however it is intended to be a reliable person chosen from within the Planning/Design/Contracting Team, who is technically competent and appropriately trained, who takes the responsibility to ensure that the objectives and measures within the Project RWMP are complied with. The RM is assigned the requisite authority to meet the objective and obligations of the RWMP. The role will include the important activities of conducting waste checks/audits and adopting construction methodology that is designed to facilitate maximum reuse and/or recycling of waste.

5.1 Role of the Client

The Client are the body establishing the aims and the performance targets for the project.

- ▶ The Client has commissioned the preparation and submission of this RWMP as part of the design and Section 5 request submission;
- ▶ The Client is to commission the preparation and submission of an updated RWMP as part of the construction tendering process;
- ▶ The Client will ensure that the RWMP is agreed on and submitted to the local authority and their agreement obtained prior to commencement of works on site;
- ▶ The Client will request the end-of-project RWMP from the Contractor.

5.2 Role of the Client Advisory Team

The Client Advisory Team or Design Team is formed of architects, consultants, quantity surveyors and engineers and is responsible for:

- ▶ Drafting and maintaining the RWMP through the design, Section 5 request, and procurement phases of the project;
- ▶ Appointing a RM to track and document the design process, inform the Design Team and prepare the RWMP.
- ▶ Including details and estimated quantities of all projected waste streams with the support of environmental consultants/scientists. This will also include data on waste types (e.g. waste characterisation data, contaminated land assessments, site investigation information) and prevention mechanisms (such as by-products) to illustrate the positive circular economy principles applied by the Design Team;
- ▶ Handing over of the RWMP to the selected Contractor upon commencement of construction works, in a similar fashion to how the safety file is handed over to the Contractor;
- ▶ Working with the Contractor as required to meet the performance targets for the project.

5.3 Future Role of the Contractor

The future and construction Contractors have not yet been decided upon for this RWMP. However, once selected they will have major roles to fulfil. They will be responsible for:

- ▶ Preparing, implementing and reviewing the RWMP throughout the construction phase (including the management of all suppliers and sub-contractors) as per the requirements of the EPA guidelines;
- ▶ Identifying a designated and suitably qualified RM who will be responsible for implementing the RWMP;
- ▶ Identifying all hauliers to be engaged to transport each of the resources / wastes off-site;

- ▶ Implementing waste management policies whereby waste materials generated on site are to be segregated as far as practicable;
- ▶ Renting and operating a mobile-crusher to crush concrete for temporary reuse onsite during construction and reduce the amount of HGV loads required to remove material from site;
- ▶ Applying for the appropriate waste permit to crush concrete onsite;
- ▶ Identifying all destinations for resources taken off-site. As above, any resource that is legally classified as a 'waste' must only be transported to an authorised waste facility;
- ▶ End-of-waste and by-product notifications addressed with the EPA where required;
- ▶ Clarification of any other statutory waste management obligations, which could include on-site processing;
- ▶ Full records of all resources (both wastes and other resources) will be maintained for the duration of the project; and
- ▶ Preparing a RWMP Implementation Review Report at project handover.

6. KEY MATERIALS & QUANTITIES

6.1 Project Resource Targets

Project specific resource and waste management targets for the site have not yet been set and this information will be updated for these targets once these targets have been confirmed by the client. However, it is expected for projects of this nature that a minimum of 70% of waste is fully re-used, recycled or recovered. Target setting will inform the setting of project-specific benchmarks to track target progress. Typical Key Performance Indicators (KPIs) that will be used to set targets include (as per guidelines):

- ▶ Weight (tonnes) or Volume (m3) of waste generated per construction value;
- ▶ Weight (tonnes) or Volume (m3) of waste generated per construction area (m2);
- ▶ Fraction of resource reused on site;
- ▶ Fraction of resource notified as by-product;
- ▶ Fraction of waste segregated at source before being sent off-site for recycling/recovery; and
- ▶ Fraction of waste recovered, fraction of waste recycled, or fraction of waste disposed.

6.2 Main Construction and Demolition Waste Categories

The main non-hazardous and hazardous waste streams that could be generated by the construction activities at a typical site are shown in Table 6.1. The List of Waste (LoW) code (2018) for each waste stream is also shown.

Table 6.1 Typical waste types generated and LoW codes (individual waste types may contain hazardous substances)

Waste Material	LoW Code
Concrete, bricks, tiles, ceramics	17 01 01-03 & 07
Wood, glass and plastic	17 02 01-03
Treated wood, glass, plastic, containing hazardous substances	17-02-04*
Bituminous mixtures, coal tar and tarred products	17 03 01*, 02 & 03*
Metals (including their alloys) and cable	17 04 01-11
Soil and stones	17 05 03* & 04
Gypsum-based construction material	17 08 01* & 02
Paper and cardboard	20 01 01
Mixed C&D waste	17 09 04
Green waste	20 02 01
Electrical and electronic components	20 01 35 & 36
Batteries and accumulators	20 01 33 & 34
Liquid fuels	13 07 01-10
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13, 19, 27-30
Insulation materials	17 06 04
Organic (food) waste	20 01 08
Mixed Municipal Waste	20 03 01

* Individual waste type may contain hazardous substances

6.3 Demolition Waste Generation

No demolition will be undertaken for the Proposed Works.

6.4 Construction Waste Generation

Table 6.3 shows the breakdown of C&D waste types produced on a typical site based on data from the EPA *National Waste Reports*²⁰ and the joint EPA & GMIT study¹⁸.

Table 6.2 Waste materials generated on a typical Irish construction site

Waste Types	%
Mixed C&D	33
Timber	28
Plasterboard	10
Metals	8
Concrete	6
Other	15
Total	100

Table 6.4, below, shows the estimated construction waste generation for the proposed Project based on the gross area of construction and other information available to date, along with indicative targets for management of the waste streams. The estimated amounts for the main waste types (with the exception of soils and stones) are based on waste generation rate per m², using the waste breakdown rates shown in Table 6.3. These have been calculated from the schedule of works areas provided by the project engineers (DBFL Consulting Engineers).

Table 6.3 Predicted on and off-site reuse, recycle and disposal rates for construction waste

Waste Type	Tonnes	Reuse		Recycle Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	5.0	10	0.5	80	4.0	10	0.5
Timber	4.2	40	1.7	55	2.3	5	0.2
Metals	1.2	5	0.1	90	1.1	5	0.1
Concrete	0.9	30	0.3	65	0.6	5	0.0
Other	2.3	20	0.5	60	1.4	20	0.5
Total	13.7		3.0		9.4		1.3

In addition to the waste streams in Table 6.4 there will be c. 6,031 m³ of soil, stones, gravel, and made ground excavated to facilitate the installation of the proposed foul rising main, watermain, and fibre ducting. The majority of this is expected to be reinstated on site as backfill, with the exception of material that is found to be unsuitable; any suitable excavated material will be temporarily stockpiled in the site construction compound for reuse as fill, where possible. All excavated topsoil and subsoil will be reused during the installation works as backfill. However, due to the site location and nature of the anticipated excavations, it may not be possible to reuse all the excavated material on-site. For example, where excavations involve the removal of contaminated soil, tarmac, or hardcore, this excavated material will need to be exported as waste. Where material is removed off-site, it will be taken for appropriate reuse, recovery, and/or disposal.

It should be noted that until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the proposed works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

6.5 Proposed Resource and Waste Management Options

Waste materials generated will be segregated on-site, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source, where feasible. All waste receptacles leaving the site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the Dublin region that provide this service.

All waste arisings will be handled by an approved waste contractor holding a current waste collection permit. All waste arisings requiring disposal off-site will be reused, recycled, recovered or disposed of at a facility holding the appropriate registration, permit or licence, as required.

During construction, some of the sub-contractors on site will generate waste in relatively low quantities. The transportation of non-hazardous waste by persons who are not directly involved with the waste business, at weights less than or equal to 2 tonnes, and in vehicles not designed for the carriage of waste, are exempt from the requirement to have a waste collection permit (per Article 30 (1) (b) of the Waste Collection Permit Regulations 2007, as amended). Any sub-contractors engaged that do not generate more than 2 tonnes of waste at any one time can transport this waste off-site in their work vehicles (which are not designed for the carriage of waste). However, they are required to ensure that the receiving facility has the appropriate COR / permit / licence.

Written records will be maintained by the contractor(s), detailing the waste arising throughout the C&D phases, the classification of each waste type, waste collection permits for all waste contractors who collect waste from the site and COR / permit / licence for the receiving waste facility for all waste removed off-site for appropriate reuse, recycling, recovery and / or disposal

Dedicated bunded storage containers will be provided for hazardous wastes which may arise, such as batteries, paints, oils, chemicals, if required.

The anticipated management of the main waste streams is outlined as follows:

Soil, Stone, Gravel, & Made Ground

The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The excavations are required to facilitate construction works so the preferred option (prevention and minimisation) cannot be accommodated for the excavation phase.

It is anticipated that all excavated topsoil and subsoil will be reused on site. No soils will be removed from the Proposed Works area. If any other excavated material is removed off-site it could be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Regulation 27 of the European Communities (Waste Directive) Regulations 2011, as amended, which requires that certain conditions are met and that by-product notifications are made to the EPA via their online notification form. Excavated material should not be removed from site until approval from the EPA has been received. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material.

The next option (beneficial reuse) may be appropriate for the excavated material, pending environmental testing to classify the material as hazardous or non-hazardous in accordance with the EPA *Waste*

Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous publication. Clean inert material may be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end use.

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Regulation 27. Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Regulation 27. Regulation 27 will be investigated to see if the material can be imported onto this site for beneficial reuse instead of using virgin materials.

If the material is deemed to be a waste, then removal and reuse / recovery / disposal of the material will be carried out in accordance with the Waste Framework Directive (Directive 2008/98/EC), the *Waste Management Act 1996* as amended, the *Waste Management (Collection Permit) Regulations 2007* as amended and the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended. Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered.

In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS).

Bedrock

While it is not envisaged that bedrock will be encountered, if bedrock is encountered, it is anticipated that it will not be crushed on site. Any excavated rock is expected to be removed off-site for appropriate reuse, recovery and / or disposal.

Silt & Sludge

During the construction phase, silt and petrochemical interception will be carried out on run-off and pumped water from site works, where required. Sludge and silt will then be collected by a suitably licensed contractor and removed off-site.

Concrete Blocks, Bricks, Tiles & Ceramics

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the construction works are expected to be clean, inert material and will be recycled, where possible.

Hard Plastic

As hard plastic is a highly recyclable material, much of the plastic generated will be primarily from material off-cuts. All recyclable plastic will be segregated and recycled, where possible.

Timber

Timber that is uncontaminated, i.e. free from paints, preservatives, glues, etc., will be disposed of in a separate skip and recycled off-site.

Metal

Metals will be segregated, where practical, and stored in skips. Metal is highly recyclable and there are numerous companies that will accept these materials.

Glass

Glass materials will be segregated for recycling, where possible.

Waste Electrical & Electronic Equipment (WEEE)

Any WEEE will be stored in dedicated covered cages / receptacles / pallets pending collection for recycling.

Other Recyclables

Where any other recyclable wastes, such as cardboard and soft plastic, are generated, these will be segregated at source into dedicated skips and removed off-site.

Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip / receptacle will be examined by a member of the waste team (see Section 9.0) to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

Other Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e. contaminated soil if encountered and / or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately.

It should be noted that until a construction contractor is appointed it is not possible to provide information on the specific destinations of each construction waste stream. Prior to commencement of construction and removal of any waste offsite, details of the proposed destination of each waste stream will be provided to SDCC by the project team.

6.6 Tracking and Documentation Procedures for Off-Site Waste

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by a weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project RM (see Section 9.0).

All movement of waste and the use of waste contractors will be undertaken in accordance with the Waste Framework Directive (Directive 2008/98/EC), the *Waste Management Act 1996* as amended, *Waste Management (Collection Permit) Regulations 2007* as amended and *Waste Management (Facility Permit & Registration) Regulations 2007* and amended. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project RM (see Section 8.0) will maintain a copy of all waste collection permits on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR / permit or EPA Waste Licence for that site will be provided to the nominated project Waste Manager (see Section 8.0). If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from DCC (as the relevant authority on behalf of all Local Authorities in Ireland) and kept on-site along with details of the final destination (COR, permits, licences, etc.). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

All information will be entered in a waste management recording system to be maintained on-site.

7. ESTIMATED COST OF WASTE MANAGEMENT

An outline of the costs associated with different aspects of waste management is outlined below. The total cost of C&D waste management will be measured and will take into account handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

7.1 Reuse

By reusing materials on site, there will be a reduction in the transport and recycle / recovery / disposal costs associated with the requirement for a waste contractor to take the material off-site. Clean and inert soils, gravel, stones, etc., which cannot be reused on-site may be used as access roads or capping material for landfill sites, etc. This material is often taken free of charge or at a reduced fee for such purposes, reducing final waste disposal costs.

7.2 Recycling

Salvageable metals will earn a rebate, which can be offset against the costs of collection and transportation of the skips.

Clean, uncontaminated cardboard and certain hard plastics can also be recycled. Waste contractors will charge considerably less to take segregated wastes, such as recyclable waste, from a site than mixed waste.

Timber can be recycled as chipboard. Again, waste contractors will charge considerably less to take segregated wastes, such as timber, from a site than mixed waste.

7.3 Disposal

Landfill charges are currently at around €140 - €160 per tonne which includes a €85 per tonne landfill levy specified in the *Waste Management (Landfill Levy) Regulations 2015* as amended. In addition to disposal costs, waste contractors will also charge a collection fee for skips.

Collection of segregated C&D waste usually costs less than municipal waste. Specific C&D waste contractors take the waste off-site to a licensed or permitted facility and, where possible, remove salvageable items from the waste stream before disposing of the remainder to landfill. Clean soil, rubble, etc., is also used as fill / capping material, wherever possible.

8. TRAINING PROVISIONS

A member of the construction team will be appointed as the RM to ensure commitment, operational efficiency and accountability in relation to waste management during the proposed construction works.

8.1 Resource Manager Training and Responsibilities

The nominated RM will be given responsibility and authority to select a waste team if required, i.e. members of the site crew that will aid them in the organisation, operation and recording of the waste management system implemented on site.

The RM will have overall responsibility to oversee, record and provide feedback to the client on everyday waste management at the site. Authority will be given to the Waste Manager to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

The RM will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site. The RM will also be trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site and be knowledgeable in how to implement this RWMP.

8.2 Site Crew Training

Training of site crew in relation to waste is the responsibility of the RM and, as such, a waste training program will be organised. A basic awareness course will be held for all site crew to outline the RWMP and to detail the segregation of waste materials at source. This may be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling.

This basic course will describe the materials to be segregated, the storage methods and the location of the Waste Storage Areas (WSAs). A sub-section on hazardous wastes will be incorporated into the training program and the particular dangers of each hazardous waste will be explained.

9. TRACKING AND TRACING / RECORD KEEPING

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A recording system will be put in place to record the waste arisings on Site.

A waste tracking log will be used to track each waste movement from the site. On exit from the site, the waste collection vehicle driver will stop at the site office and sign out as a visitor and provide the security personnel or RM with a waste docket (or Waste Transfer Form (WTF) for hazardous waste) for the waste load collected. At this time, the security personnel will complete and sign the Waste Tracking Register with the following information:

- ▶ Date
- ▶ Time
- ▶ Waste Contractor
- ▶ Company waste contractor appointed by, e.g. Contractor or subcontractor name
- ▶ Collection Permit No.
- ▶ Vehicle Reg.
- ▶ Driver Name
- ▶ Docket No.
- ▶ Waste Type
- ▶ LoW
- ▶ Weight/Quantity

The waste vehicle will be checked by security personal or the RM to ensure it has the waste collection permit no. displayed and a copy of the waste collection permit in the vehicle before they are allowed to remove the waste from the site.

The waste transfer dockets will be transferred to the RM on a weekly basis and can be placed in the Waste Tracking Log file. This information will be forwarded onto the WCC Waste Regulation Unit when requested.

Each subcontractor that has engaged their own waste contractor will be required to maintain a similar waste tracking log with the waste dockets / WTF maintained on file and available for inspection on site by the main contractor as required. These subcontractor logs will be merged with the main waste log.

Waste receipts from the receiving waste facility will also be obtained by the site contractor(s) and retained. A copy of the Waste Collection Permits, CORs, Waste Facility Permits and Waste Licences will be maintained on site at all times and will be periodically reviewed by the RM. Subcontractors who have engaged their own waste contractors, will provide the main contractor with a copy of the waste collection permits and COR / permit / licence for the receiving waste facilities and maintain a copy on file, available for inspection on site as required.

10. OUTLINE WASTE AUDIT PROCEDURE

10.1 Responsibility for Waste Audit

The appointed RM will be responsible for conducting a waste audit at the site during the C&D phase of the proposed Project. Contact details for the nominated RM will be provided to the WCC Waste Regulation Unit after the main contractor is appointed and prior to any material being removed from site.

10.2 Review of Records and Identification of Corrective Actions

A review of all waste management costs and the records for the waste generated and transported off-site will be undertaken mid-way through the construction phase of the proposed Project.

If waste movements are not accounted for, the reasons for this will be established in order to see if and why the record keeping system has not been maintained. The waste records will be compared with the established recovery / reuse / recycling targets for the site. Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

Upon completion of the C&D phase, a final report will be prepared, summarising the outcomes of waste management processes adopted and the total recycling / reuse / recovery figures for the construction works.

11. CONSULTATION WITH RELEVANT BODIES

11.1 Local Authority

Once construction contractors have been appointed and have appointed waste contractors, and prior to removal of any C&D waste materials off-site, details of the proposed destination of each waste stream will be provided to the WCC Waste Regulation Unit.

WCC will also be consulted, as required, throughout the excavation, installation, ~~and construction~~ phases in order to ensure that all available waste reduction, reuse and recycling opportunities are identified and utilised and that compliant waste management practices are carried out.

11.2 Recycling / Salvage Companies

The appointed waste contractor for the main waste streams managed by the construction contractors will be audited in order to ensure that relevant and up-to-date waste collection permits and facility registrations / permits / licences are held. In addition, information will be obtained regarding the feasibility of recycling each material, the costs of recycling / reclamation, the means by which the wastes will be collected and transported off-site, and the recycling / reclamation process each material will undergo off-site.

12. SUMMARY AND CONCLUSION

Adherence to this plan will also ensure that waste management during the construction phase of the proposed works carried out in accordance with the requirements in the EPA's Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects, the WCC Waste Bye-Laws and the NWMPCE.

13. REFERENCES

1. Waste Management Act 1996 as amended,
2. Environmental Protection Agency Act 1992 as amended.
3. Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended
4. Regional Waste Management Planning Offices, *The National Waste Management Plan for a Circular Economy 2024 – 2030 (2024)*.
5. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998).
6. Forum for the Construction Industry – *Recycling of Construction and Demolition Waste*.
7. Department of Communications, Climate Action and Environment (DCCAE), *Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025* (Sept 2020).
8. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'* (2021)
9. Circular Economy and Miscellaneous Provisions Act 2022.
10. Environmental Protection Agency (EPA) '*Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects*' (2021)
11. Department of Environment, Heritage and Local Government, *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* (2006).
12. FÁS and the Construction Industry Federation (CIF), *Construction and Demolition Waste Management – a handbook for Contractors and site Managers* (2002).
13. Waste Management (Landfill Levy) Regulations 2015 (as amended)
14. Circular Economy (Waste Recovery Levy) Regulations 2024
15. Wicklow City Council (WCC), Wicklow County Development Plan 2022-2028 (2021)
16. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended
17. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2018)
18. Local Government Ireland, *Best practice guidance for handling asbestos (2023)*
19. Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.
20. Environmental Protection Agency (EPA), National Waste Database Reports 1998 – 2020 and the Circular Economy and National Waste Database Report 2021 - 2022
21. EPA and Galway-Mayo Institute of Technology (GMIT), *EPA Research Report 146 – A Review of Design and Construction Waste Management Practices in Selected Case Studies – Lessons Learned* (2015).
22. Local Government Ireland, *the Best Practice Guidance for Handling Asbestos (2023)*.
23. European Commission, *Guidelines for the waste audits before demolition and renovation works of buildings* (May 2018)



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EIA Screening Report

Project Title: Infrastructure Connections Arklow to Avoca River Park Industrial Estate

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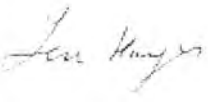
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Title	Environmental Consultant	Director
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Disclaimer

This report considers the specific instructions and requirements of our client. It is not intended for third-party use or reliance, and no responsibility is accepted for any third party. The provisions in this report apply solely to this project and should not be assumed applicable to other developments without review and modification.



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1. NON-TECHNICAL SUMMARY

Countries within the EU are required to carry out a specific form of assessment (referred to as Environmental Impact Assessment, or EIA) for certain types of developments that *may* have the potential to have significant impacts upon the environment. EIA commences with studying the likely impacts arising from a project and designing various means to mitigate these impacts and is conducted with the assistance of an Environmental Impact Assessment Report (EIAR). The EIAR assesses the final project and determines if, upon further analysis and project re-design there really is going to be a significant impact upon the environment or not.

In order to assist countries, the EU has created a list of certain projects that mandatorily require EIA which are called 'Annex 1' projects – referred in Ireland to 'Part 1' projects.

The project described herein is not a Part 1 project, and does not require EIA under this category

The EU has also created a second-tier list of other 'types' (in Ireland this can also be called a 'class') of projects which are not as potentially impactful to the environment, but could still, if not designed correctly have potential to significantly impact the environment. In Ireland we have established a threshold system for these classes, whereby projects at or exceeding the threshold would also mandatorily require EIA. The EU calls these projects 'Annex 2 types' and here in Ireland we call them 'Part 2 types'.

The project described herein is a Part 2 project, but it does not exceed any of the applicable thresholds, and does not require mandatory EIA under this category.

In instances where a project is a Part 2 type but does not exceed the thresholds (i.e. smaller or less intensive) there is a requirement from the EU for Ireland to determine if, despite the fact it does not exceed the threshold, there is still potential for significant impacts to the environment. This is referred to as 'EIA Screening'. In Ireland such a project is called a 'sub-threshold' project, and a Screening Assessment is needed to determine if EIA is required.

The project described herein is a Part 2 sub-threshold project, and hence is subject to EIA Screening.

This report has been prepared by environmental assessment experts to assist Wicklow County Council (WCC) in determining if the project described herein is likely to have significant impacts upon the environment such that it needs to undergo EIA and hence an EIAR will need to be produced.

Under EU law, WCC are required to make this determination with respect to likely impacts upon the following environmental criteria :

- ▶ population and human health,
- ▶ biodiversity,
- ▶ land, soil, water, air and climate,
- ▶ material assets, cultural heritage and the landscape, and
- ▶ the interaction between the factors mentioned in subparagraphs

Table 1-1 on the following page provides a summary of the findings of this report, all of which support the conclusion that the project described herein does not require EIA.

Table 1-1 Summary of Findings

Environmental Criteria	Potential for Significant Impact to the Environment?	
	Yes	No
Population and Human Health		✓
Biodiversity		✓
Land, Soils, Geology, Hydrogeology, Hydrology		✓
Air, Climate, Noise and Vibration		✓
Material Assets (including Waste and traffic)		✓
Cultural Heritage and Archaeology		✓
Landscape and Visual Impact		✓
Cumulative		✓
Interaction		✓
EIA Screening Determination	Does the Project Described Herein Require EIA?	
	Yes	No
		✓

Conclusion: The project described herein is a Part 2 sub-threshold project, and has been Screened as not requiring EIA under this category.

Where to Find Information to Support the Above Findings	
Section 2	Provides much greater detail of the legislative context for this report
Section 3	Provides more detail regarding how this project is considered to be a sub-threshold project.
Section 4	Describes the aspects of the project with potential to result in alterations to the surrounding environment.
Section 5	Details the process for establishing a zone of influence (ZOI) for the project, and also for identifying other developments (called 'cumulative' developments) that could add to/detract from the possible alterations to the environment produced by this project within this zone.
Section 6	Describes the environment the project is located within and the ability of that environment to facilitate the project.
Section 7	Assesses the likely environmental impact arising from this project and any cumulative projects, taking into account any mitigation measures. Includes statements for each environmental criteria as to whether there is likely to be a significant environmental impact.

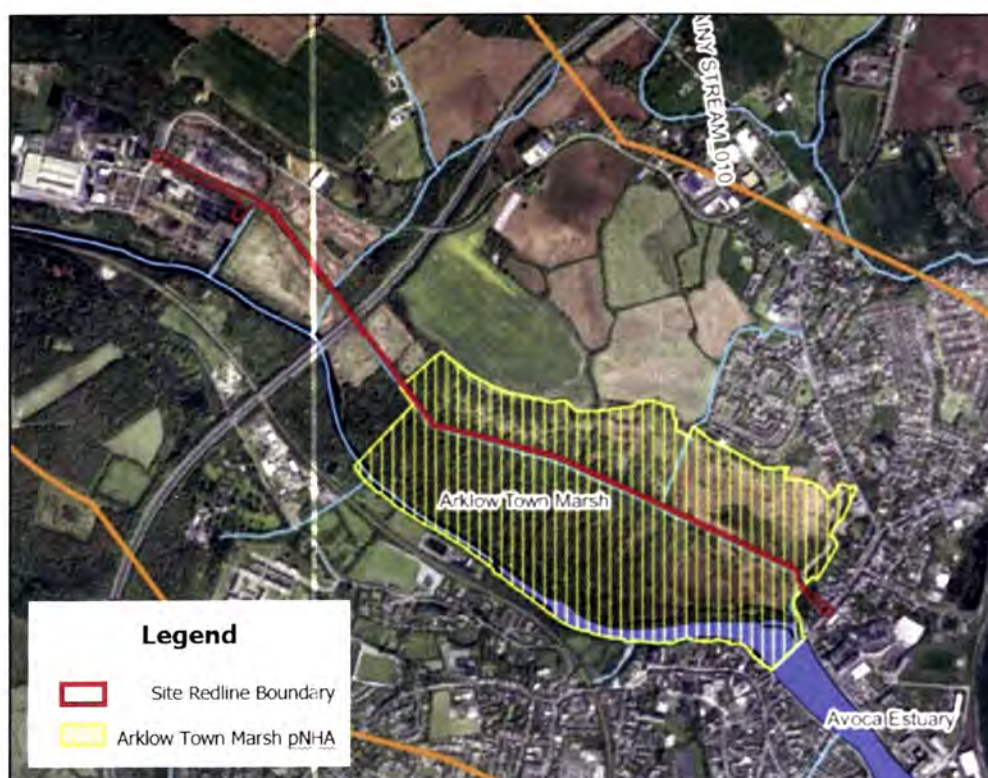
2. INTRODUCTION

On behalf of Crag Digital Avoca Limited ('the Applicant'), AWN Consulting Limited ('AWN') has prepared the following Environmental Impact Assessment (EIA) Screening Report in relation to the Section 5 request for declaration of exempted development of the proposed fibre ducting, foul rising main and water mains pipelines in the townlands of Shelton Abbey and Marsh in Arklow, Co. Wicklow. The works area is bounded by the Avoca River Park Industrial Estate (including a number of planned and permitted developments) to the west, the built-up area of Arklow to the east, and transects the Arklow Town Marsh pNHA to the north and south.

The Proposed Works comprise the construction of new foul rising main, watermains, fibre ducting, and pump station water mains pipelines and ancillary works, to be installed adjacent to the existing 50mm diameter watermain Uisce Eireann (UE) watermain located within a Right of Way through the Arklow Town Marsh. No works are required outside of the existing right of way. The total site area comprises c. 3.93 ha. These works are intended to connect the Avoca River Park Industrial Estate to the public sewer network, to remove reliance on localised, on-site, treatment.

The proposed works area (hereafter referred to as 'the works area') is outlined in red on Figure 2-1. The Proposed Works are described in further detail in Section 4 below.

Figure 2-1 Proposed Works Area and Arklow Town Marsh pNHA Location (in red)¹



The purpose of this report is to provide the Competent Authority (Wicklow City Council (WCC)) with the information for this sub-threshold project required under Schedule 7A² to demonstrate the likely effects on the environment, having regard to the criteria set out in Schedule 7 of the Planning and Development

¹ Source: Google Earth

² Planning and Development Regulations 2001 (as amended)

Regulations 2001, as amended. This information will enable WCC to undertake a screening determination for this sub-threshold project in respect of the need for an Environmental Impact Assessment (EIA) Report for the Proposed Works.

There is a mandatory requirement for an EIA to be undertaken for types of development that meet or exceed the relevant 'thresholds' specified in Schedule 5 to the Planning and Development Regulations 2001 (as amended). In addition to the mandatory requirement, there is a case-by-case assessment necessary for sub-threshold developments as they may be likely to have significant effects on the environment. If a sub-threshold development is determined to be likely to have a significant effect on the environment, then EIA will be required.

As the Proposed Works do not meet or exceed the 'thresholds' specified in Schedule 5, AWN have undertaken an assessment of the effects on the environment from the Proposed Works and has concluded that there is no likely significant environmental effects on the receiving environment, therefore a sub-threshold EIA is not required. The assessment is documented in Sections 4, 5, 6 and 7 and covers each aspect of the environment in accordance with guidance (refer to Section 2.1) including; Population and Human Health; Biodiversity; Land, Soils, Geology, Hydrogeology, and Hydrology; Air Quality, Climate, Noise and Vibration; Material Assets including traffic and waste; Cultural Heritage and Archaeology; Landscape and Visual Impact; and the interaction between these factors.

2.1 EIA Screening Legislation and Guidance

The legislation and guidance listed below has informed this report and the method to EIA Screening:

- ▶ Guidelines on the Information to be contained in Environmental Impact Assessment Reports. (2022). Environmental Protection Agency.
- ▶ Environmental Impact Assessment Screening, OPR Practice Note PN02 (Office of the Planning Regulator, 2021).
- ▶ European Union (Planning & Development) (Environmental Impact Assessment) Regulations 2018.
- ▶ EU (2024) Interpretation of definitions of project categories of annex I and II of the EIA Directive. European Commission
- ▶ Environmental Impact Assessment of Projects – Guidance on Screening. (2017). European Commission.
- ▶ Commission notice regarding application of the Environmental Impact Assessment Directive (Directive 2011/92/EU of the European Parliament and of the Council, as amended by Directive 2014/52/EU) to changes and extension of projects - Annex I.24 and Annex II.13(a), including main concepts and principles related to these (2021/C 486/01)
- ▶ Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. (August 2018). Department of Housing, Planning and Local Government.
- ▶ European Union Environmental Impact Assessment (EIA) Directive 2011/92/EU as amended by 2014/52/EU.
- ▶ Planning and Development Regulations 2001 (as amended).
- ▶ Planning and Development Act, 2000 (as amended).

The screening process followed in this report is in accordance with the EIA Directive 2011/92/EU of the European Parliament and of the Council as amended by 2014/52/EU and as transposed by the Act³ and the Regulations² and follows the format as per Section 3.2 of the EPA Guidelines (2022). The potential for significant effects of the Proposed Works have been considered against the criteria under Annex III of the EIA Directive 2011/92/EU as amended by 2014/52/EU and Schedule 7 of the Planning and Development Regulations, 2001 as amended.

It is noted that Article 27 of the EIA Directive 2011/92/EU, as amended, states that the '*screening procedure should ensure that an environmental impact assessment is only required for projects likely to*

³ Planning and Development Act, 2000 (as amended)

*have significant effects on the environment*⁶. This assessment is used to establish whether the Proposed Works are likely to have significant effects on the environment and if EIA is required.

Pursuant to Article 103 of the Planning & Development Regulations 2001, as amended, information on how the available results of other relevant assessments of the effects on the environment carried out pursuant to European Union legislation other than the Environmental Impact Assessment Directive have been taken into account and is included in this EIA Screening report.

The screening process that has been implemented, through Article 103 of the 2001 Regulations (as amended), comprises:

1. a 'preliminary examination' process (Art 103(1)), where the planning authority considers the nature, size or location of the development; and
2. (ii) a 'screening determination' process (Art 103(1B)) where the planning authority considers the information in Art 103(1A) and Schedule 7A of the 2001 Regulations, the criteria in Schedule 7 of the 2001 Regulations, and the other prescribed factors in Art 103(3) of the 2001 Regulations.

Under the 2001 Regulations², developers have the opportunity to enter directly into the screening determination process, by submitting the information specified in Article 103(1A) and Schedule 7A of the 2001 Regulations, as provided for in Art 103(1B).

The applicant has elected to provide the information specified in Article 103(1A) and Schedule 7A. The information, as provided in this report, supports a conclusion that the works, i.e. the Proposed Works, can be screened out at the 'screening determination' stage (Article 103(1B)).

Further, and in addition to the information included in this report relevant to Article 103, an Appropriate Assessment Screening Report has been prepared in relation to the likely significant effects on European sites.

2.2 Screening Methodology

The screening process followed in this report is in accordance with the EIA Directive 2011/92/EU of the European Parliament and of the Council as amended by 2014/52/EU and follows the format as per Section 3.2 of the EPA Guidelines (2022).

The key steps to screen for an EIA is set out in Section 3.2 of the EPA Guidelines (2022) are as follows:

1. Is the development a type that requires EIA?
2. Is it of a type that requires mandatory EIA?
3. Is it above the specified threshold?
4. Is it a type of project that could lead to effects? and/or
5. Is it a sensitive location? and/or
6. Could the effects be significant?

An assessment of the points 1 to 3 above has been made by AWN against the relevant legislation and thresholds set out in Schedule 5 of the Regulations, this evaluation is documented in Section 23 of this report.

In order to address Steps 4 to 6 above, an evaluation of the characteristics of the project, the sensitivity of the location of the retained development, and the potential for significant impacts has been made with regard to Schedule 7 of the Regulations² (Sections 4 to 7 of this report).

Schedule 7 of the Regulations of 2001 sets out the criteria for the Competent Authority to determine whether a development would or would not be likely to have significant effects on the environment. The criteria are broadly set out under the three main headings:

► Characteristics of Proposed Works (Refer to Sections 4 and 5 of this report)

- a. the size and design of the whole of the Proposed Works,
- b. cumulation with other existing development and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment (Section 5),
- c. the nature of any associated demolition works,
- d. the use of natural resources, in particular land, soil, water and biodiversity,
- e. the production of waste,
- f. pollution and nuisances,
- g. the risk of major accidents, and/or disasters which are relevant to the project concerned, including those caused by climate change, in accordance with scientific knowledge, and
- h. the risks to human health (for example, due to water contamination or air pollution).

► Location of Proposed Works (Refer to Section 6 of this report)

- a. the existing and approved land use,
- b. the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground,
- c. the absorption capacity of the natural environment, paying particular attention to the following areas:
 - i. wetlands, riparian areas, river mouths;
 - ii. coastal zones and the marine environment;
 - iii. mountain and forest areas;
 - iv. nature reserves and parks;
 - v. areas classified or protected under legislation, including Natura 2000 areas designated pursuant to the Habitats Directive and the Birds Directive and;
 - vi. areas in which there has already been a failure to meet the environmental quality standards laid down in legislation of the European Union and relevant to the project, or in which it is considered that there is such a failure;
 - vii. densely populated areas;
 - viii. landscapes and sites of historical, cultural or archaeological significance.

► Types and Characteristics of Potential Impacts (Refer to Section 7 of this report)

The likely significant effects on the environment of proposed works in relation to criteria set out under paragraphs 1 and 2, with regard to the impact of the project on the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment report' in section 171A of the Act, taking into account —

- a. the magnitude and spatial extent of the impact (for example, geographical area and size of the population likely to be affected),
- b. the nature of the impact,
- c. the transboundary nature of the impact,
- d. the intensity and complexity of the impact,
- e. the probability of the impact,
- f. the expected onset, duration, frequency and reversibility of the impact,
- g. the cumulation of the impact with the impact of other existing and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment, and
- h. the possibility of effectively reducing the impact.

Following a review of the EIA Directive (2011/92/EU), as amended by 2014/52/EU), Annex III of the Directive determines that the environmental sensitivity of geographical areas, which are likely to be affected by a project, must be considered for case-by-case screening. The list of criteria is identical to those stated in Schedule 7 of the Regulations of 2001 above (i.e. Characteristics of Proposed Development; Location of Proposed Development; and Types and characteristics of proposed impact).

It is important to note that with respect to Schedule 7A – (Information to be provided by the applicant or developer for the purposes of screening sub-threshold development for environmental impact assessment), states '*The compilation of the information at paragraphs 1 to 3 [of Schedule 7A] shall take into account, where relevant, the criteria set out in Schedule 7* that the main body of this report (Sections 4, 6 and 7) will cover Schedule 7A fully (as detailed above), but it has been set out to present the information under the headings provided in Schedule 7 in order to assist the Competent Authority in their screening assessment.

2.3 Project Team and Contributors to The EIA Screening Report

This EIA Screening Report and the Proposed Works have been informed by the accompanying documents submitted with the application (and the relevant listed mitigation measures as included therein). The preparation and co-ordination of this screening report has been completed by AWN and has relied on specialist input from the project design team and applicant, as per Table 2-1.

Table 2-1 Applicant Project Team

Role	Contributor
Applicant	Crag Digital Avoca Ltd.
Planning Consultant	John Spain Associates (JSA)
Civil Engineering including Project Design, Outline Construction Management Plan; Transport Statement;	DBFL Consulting Engineers
Population and Human Health; Land, Soils, Geology and Hydrology; Air Quality and Climate; Noise and Vibration; Material Assets; Waste Management	AWN Consulting Limited
Appropriate Assessment Screening Report	Altamar Marine & Environmental Consultancy

This EIA Screening Report was prepared by Teri Hayes (BSc MSc PGeol EurGeol, Advanced Diploma in Planning & Environmental Law). Teri is a Director of Environmental Services with AWN Consulting with 30 years of experience in water resource management, environmental assessment and environmental licensing. Teri is a former President of The International Association of Hydrogeologists (IAH, Irish Group) and is a professional member of the Institute of Geologists of Ireland (IGI) and European Federation of Geologists (EurGeol). She has qualified as a competent person for contaminated land assessment as required by the IGI and EPA. Teri has written and provided technical review and training on environmental programmes for both the public and private sector and has considerable experience in public presentations, stakeholder liaison and acting as a legal witness.

This EIA Screening was also prepared by Ana Neary. Ana is a Graduate Environmental Consultant at AWN with ongoing roles in the water department. She holds a BSc in Sustainability with Social Sciences, Policy, and Law from University College Dublin, and is a graduate member of the Institute of Sustainability and Environmental Professionals (GradISEP). Ana has experience in EIA reports, EIA Screening reports, and Waste Management reports for developments including ICT facilities, renewable energy developments, and large residential developments.

The Appropriate Assessment (AA) Screening Report, the conclusions of which are relied on in this report, was compiled by Altamar Marine & Environmental Consultancy. Bryan Deegan, the managing director of Altamar, is an Environmental Scientist and Marine Biologist with over 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is

currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

3. SCREENING EVALUATION

Schedule 5 of the Planning & Development Regulations 2001, as amended, sets out a number of types (classes) and scales of development that require EIA.

3.1 Consideration under Part 1 of Schedule 5 of the Planning & Development Regulations 2001

The Proposed Works are not of any project type listed under Part 1 of Schedule 5 of the Planning and Development Regulations, 2001, as amended.

3.2 Consideration under Part 2 of Schedule 5 of the Planning & Development Regulations 2001 (Threshold Development)

In considering the wider context and the component parts of the Proposed Works, the project types of relevance to the Proposed Works from Part 2 of Schedule 5 (Classes 1 to 14)² are set out in Table 3-1.

Table 3-1 Relevant Part 2 Schedule 5 Classes for EIA and determination of requirement of EIA (Classes 1-14 – Threshold Development)

Development for the Purposes of:	Project Type?	Related Development Details	Exceeds Threshold?	Threshold Screening Conclusion
10. Infrastructure projects – (a) Industrial estate development projects, where the area would exceed 15 hectares.	Yes	The Proposed Works are partially within lands zoned for industrial development; therefore the project would be an Industrial Estate Development Project. The Proposed Works area is c. 3.93 hectares.	No	The Proposed Works area is not equal to, nor does it exceed the limit, quantity or threshold set out in Class 10(a); therefore, an EIA is not mandatory under this Project Class.

As can be seen in Table 3-1 the Proposed Works area is outside the mandatory requirements for EIA, and is considered to be sub-threshold for Schedule 5, Part 2, 10(a)².

3.3 Consideration under Part 2 of Schedule 5 of the Planning & Development Regulations 2001 (Sub-Threshold Development)

EIA is still required by Schedule 5, Part 2, Class 15 of the Regulations² for development which would be of a project type listed in Schedule 5, Part 2 Classes 1-14 of the Regulations², but be sub-threshold and considered likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7². In considering the Proposed Works in the context of Section 3.2 above, the project type of relevance to the Proposed Works from Part 2 of Schedule 5² is Class 15 as set out in Table 3-2.

**Table 3-2 Relevant Part 2 Schedule 5 Class for EIA and determination of requirement of EIA
(Class 15 – Sub-Threshold)**

Development for the Purposes of:	Project Type?	Related Development Details	Potential for Significant Effects?	Sub-Threshold Screening Conclusion
15. Any project listed in this Part which does not exceed a quantity, area or other limit specified in this Part in respect of the relevant class of development but which would be likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7.	Yes	The Proposed Works are of a type in Part 2 (Class 10(a)) but is below the relevant threshold.	The Proposed Works are of sufficient quantum that there is a slight potential for significant effects on the environment, having regard to the criteria set out in Schedule 7.	Seek Screening Determination

3.4 Conclusion – Sub Threshold Development

The Proposed Works are of a type set out in Schedule 5 which does not exceed a quantity, area or other limit specified in that Schedule in respect of the relevant class of development². The development is outside the mandatory requirements for EIA and is considered to be sub-threshold (Class 15) for the relevant project type (Class 10(a)).

Therefore, it is necessary to consider whether EIA is required because the development will be likely to have significant effects on the environment, even though it does not meet nor exceed the relevant thresholds in Schedule 5 of the Planning and Development Regulations².

The following Sections 4, 5, 6 and 7 of this EIA Screening Report provide information on the characteristics of the Proposed Works; in order to provide information on the likelihood of the project (including construction, and operation) to have significant effects on the environment from these works, having regard to the criteria set out in Schedule 7².

4. CHARACTERISTICS OF PROPOSED WORKS

This section addresses the characteristics of the Proposed Works by describing the physical characteristics of the Proposed Works, with regard to the environmental sensitivity of geographical areas likely to be affected.

The cumulation of the Proposed Works with other existing development and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act³ and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive¹⁶ by or under any other enactment is described in Section 5.

4.1 Size and Design of The Proposed Works

The Proposed Works comprise the construction of new foul rising and water mains, and fibre cable ducts to be installed adjacent to the existing 50mm diameter Uisce Éireann (UE) within a pre-existing Right of Way through the Arklow Town Marsh. This development is intended to connect the Avoca River Park Industrial Estate to the public sewer network, as an amendment to previous reliance on localised, on-site, treatment. The development will consist of:

- ▶ Excavation and backfill of a c. 2.4km trench
- ▶ 1 no. Foul pump station [insert dimensions] within the Avoca River Park Industrial Estate
- ▶ 1 no. c. 2240m 200mm diameter foul rising main
- ▶ 1 no. c. 2240m 160 mm diameter watermain
- ▶ XX no. c.2240m 4X4 160mm diameter fibre ducts
- ▶ Connection to Uisce Éireann foul network
- ▶ Connection to Uisce Éireann watermain network

Access to the site will be provided via the existing access to the Avoca River Park, down the existing service road which extends through the Marshlands up to the intersection with Ferrybank road in Arklow Town.

4.1.1 Construction Phase

It is envisaged that construction is likely to commence in Q3 2026 subject to declaration of exempted development. Construction. The construction programme will be undertake in 50 metre lengths and overall be completed within a 6 month period (Trenching works 12-16 weeks). The works will consist of the following indicative phases:

- ▶ Site access establishment and initial compound set up (within industrial estate)
- ▶ Site Clearance
- ▶ Advance excavation laying and backfill of watermains and foul rising mains in 50m sections
- ▶ Excavation, laying, and backfill of fibre ducting in 50m sections
- ▶ Close out / defects period

Construction of the Proposed Works will be managed within the existing 8m Right of Way. This Right of Way comprises a raised pathway through the Marchlands. The foul rising main and watermain will be installed in a trench parallel to the existing Uisce Éireann watermain in 50 meter sections to allow management of stockpiled excavated materials. Excavated topsoil will be stockpiled adjacent to each length of the works area, and all cleared vegetation will be mulched and spread within the right-of-way in accordance with the TII (formerly National Roads Authority) guidelines contained within *The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*. Excavated materials will be reinstated as backfill; no excavated material is to be removed from the Proposed Works area. Installation of the Proposed fibre ducting will similarly involve installing a trench adjacent to the Proposed foul rising

main and water mains in 50 meter sections, and will be completed by a second construction team working behind the first team to allow construction activities to be contained within the Right of Way.

At the eastern portion of the development, the Proposed Works route intersects the Shelton Abbey canal stream near the connection point at Ferrybank Road. The permitted Arklow Flood Relief Scheme (Reg. Ref. ABP-310368) will seek to construct a flood defence embankment and divert the Shelton Abbey canal stream, intersecting the Proposed Works. Following design stage coordination with Wicklow County Council and the Flood Relief Scheme design team, it is proposed to route the foul rising main, watermain, and fibre ducts through the flood embankment, with coordination to ensure that the works do not interfere with the flood defence scheme. Further details are contained within the Construction Environmental Management Plan (DBFL, 2025), and this methodology will be subject to further coordination with the Arklow Flood Relief Scheme works in addition to any conditions imposed by Wicklow County Council.

The proposed works will be hoarded off from the public using a 2.4m high hoarding around working areas, where practicable, in accordance with a hoarding licence obtained from WCC. The public will be protected throughout the construction phase.

As stated in the OCEMP (DBFL, 2025) and Ecological Impact Assessment (Altamar, 2025b), the construction design includes measures to reduce potential for any run-off to the surrounding marshland and waterways during construction. These include installation of trenched double silt fencing at the top of the watercourse embankment, and the retention of a 1m vegetation buffer between the works area and the watercourse. Additionally, the staggered construction methodology described above has been designed to allow sufficient management of stockpiled materials to reduce as far as possible the potential for run-off. No works or soil storage will be undertaken outside of the public Right of Way. Additional measures for the protection of water quality have been outlined in the OCEMP, Ecological Impact Assessment, and Appropriate Assessment screening reports, in addition to Section 7.3 of this report.

For the duration of the proposed infrastructure works the maximum working hours shall be 07:00 to 19:00 Monday to Friday (excluding bank holidays) and 09:00 to 13:00 Saturdays, subject to the restrictions imposed by the local authority. No working will be allowed on Sundays and Public Holidays in accordance with the Environmental Noise Regulations 2006.

4.1.1.1 Construction Equipment and Fuel Usage

As construction requires shallow trenching only, there will be minimal requirement for construction equipment.

Table 4-1 below contains a non-exhaustive list of the various construction plant and equipment anticipated to be used for the construction phase of the Proposed Works. It must be noted that this list is indicative and will be refined closer to the commencement of construction. An estimate of the daily fuel consumption of the construction equipment is also provided. The average daily fuel consumption will naturally depend on the intensity of use of each item.

There will be vehicular movements to and from the site that will make use of existing roads. Due to the nature of these activities, there is potential for generation of noise, air (dust), and surface water emissions arising from construction.

Table 4-1 Anticipated Construction Plant & Equipment

Construction Equipment	Daily (Litres/day)
2 no. Diggers with. trenching attachment	c. 120
2 no. Diggers (Backfill)	c. 120
2 no. Water Bowser	n/a
2 no. Compactor	c. 120

4.1.1.2 Construction Personnel

It is anticipated that the construction phase will take approximately 12-16 weeks with a typical trenching team of 16 no. personnel.

4.1.1.3 Contractor Site Compound Services

During construction works, temporary construction facilities will be provided within the area of the Dub 20 permitted facility (Proposed Transformer Compound Area)). This area is located within the Section 5 request area and has been the subject of this screening assessment.

During construction, power will be mainly supplied from the existing Avoca River Park Industrial Estate, and if necessary via suitably bundled generator(s), maintained by the construction contractor.

The contractor's site compound layout will include the following: welfare facilities, sign-in/out facilities, Construction Management Team (CMT) offices and storage/workshop areas for the contractors and sub-contractors. A wheel wash will be located at the exit of the construction compound

The site compound will be located within the proposed transformer compound area. This space is centrally located offering efficient vehicle movement to facilitate construction. The materials store will be located in an area of the compound at least 50m away from any watercourse. As construction for the development nears completion, the compound will be de-erected, and the transformer compound will be constructed as part of separate works.

Temporary connections to the existing services will be utilised (subject to relevant applications and approvals as required by Uisce Éireann, DCC and ESB). Connection to water services is expected to be from a temporary standpipe on the existing 50mm watermain at the western section of the Proposed Works area, within the existing Avoca River Park Industrial Estate.

4.1.1.4 Construction Transport Requirements

It is expected that normal volumes of deliveries shall be of the order of <5 deliveries per day. Deliveries will be arranged with suppliers on suitably sized rigid body HGVs, notably flat-bed lorries. All materials will be transported directly onto site - no storage of materials will be permitted on roads. The total duration of the project is predicted to be completed over an estimated period of approximately 12-16 weeks.

4.1.2 Operational Phase

There are no landscape designations on the subject site and the site is not located within a designated area of landscape character.

The development site traverses a number of zoning designations. The southern portion of the Proposed Works will be located in lands zoned as OS2 'Open Space' and the Arklow Town Marsh pNHA. The northern portion of the development site traverses lands zoned as 'E1 Employment.'

The Proposed works are in keeping with the zonings of the development site, and will provide key water, wastewater and fibre infrastructure to support the development of an employment zone at the Avoca River Park Industrial Estate.

4.1.3 Operational Equipment

There will be intermittent servicing of the infrastructure by the service operators during the operational phase. No significant mechanical plant is expected to be required.

4.2 Nature of any Associated Demolition Works

There will be no demolition undertaken as part of the proposed works.

4.3 Use of Natural Resources (Land, Soil, Water, Biodiversity)

This section describes the Proposed Works in terms of the use of natural resources, in particular land, soil, water, and biodiversity.

The main use of natural resources for the Permitted Development involves a land take of c. 3.93 ha, across a c. 2.24 km pipeline route. This land take will be contained within an existing area of disturbed land (wayleave) associated with the existing Uisce Eireann 50mm water mains pipeline running parallel to the Proposed Works. This use is permissible under the zoning of the lands within the Wicklow County Development Plan 2022-2028.

Other resources used will be construction materials which will be typical raw materials used in construction of water infrastructure projects. The scale and quantity of the materials used will not be such that would cause concern in relation to significant effects on the environment.

4.3.1 Land and Soil

The Proposed Works involve a relatively minor land take of c. 3.93 ha. The majority of this land is within the existing Right-of-Way (disturbed land) associated with the existing 50mm UE water mains pipeline. Excavation of an 1.3m depth trench will be required to install the foul rising main and water mains pipelines. If any of the excavated material is deemed unsuitable for reuse, then the material will need to be removed offsite for appropriate reuse, recovery, recycling and / or disposal.

No significant ground works are required within the area of the former Fertilizer facility and existing historic landfill. Any works in this area will be undertaken in accordance with existing licence requirements and planning conditions for the permitted facilities. Any required soil excavation for e.g the contractor compound will remain on site for management (re use/disposal) within the context of the permitted facility.

As the excavations are shallow, no bedrock will be encountered.

Should waste soils be encountered on site, all waste soils shall be classified as inert, non-hazardous or hazardous in accordance with the EPA's Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous document (dated 1st June 2015) to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility. Materials that can be reused as a by-product offsite will be notified to the EPA as a by-product. This ensures that waste and other materials removed from the site will have no significant effect on the environment.

Other construction activities will include site storage of aggregate, materials, fuels for construction vehicles. For further detail on the physical characteristics of the Proposed Works please refer to the engineering drawings which accompany the Section 5 Request.

The following table identifies the anticipated types and volumes of raw materials for the construction of the Proposed Works and associated supporting infrastructure.

Table 4-2 Anticipated Construction Raw Materials & Quantities Required

Anticipated Material	Anticipated Quantity
HDPE piping material	4,590 m
Granular bedding material	2,917 m ³
Duct Material (uPVC)	9,180 m

During construction, all construction materials will be sourced from local suppliers, where possible, to minimise the impact of natural resources used in the transportation of materials.

4.3.2 Water Consumption

During construction of the scheme, water will be required for contractor compound office and welfare facilities, this will be provided by a temporary standpipe on the existing 50mm public main in the Avoca River Park Industrial Estate by agreement between the Main Contractor and Uisce Éireann. No significant water demand is expected to arise as a result of the Proposed Works. Water supply during the construction phase may be imported to site via bowsers should the need arise (i.e. for dust-control measures).

The construction phase will not use such a quantity of water to cause concern in relation to significant effects on the environment.

Once the development is completed and the development is operational there will be no water demand associated with the development.

A pre-connection enquiry (Ref. CDS24007212) has been lodged with Uisce Éireann to determine if there is adequate capacity in the existing public wastewater network to cater for the connection to permitted facilities within the Avoca River Park industrial estate via the Proposed Works; Uisce Éireann have advised feasibility without infrastructure upgrade by Uisce Éireann, subject to the completion of the Arklow Wastewater Treatment Plan, which was completed in Q1 2025.

There is no proposed extraction of groundwater at the site during the operational phase.

4.3.3 Biodiversity Resources

Investigations into the implications on existing biodiversity including species and habitats has been undertaken through the Appropriate Assessment (AA) Screening Report and Ecological Impact Assessment prepared by Altamar (2025a, 2025b) and included with the Section 5 Request documentation.

The development site is partially located within the Arklow Town Marsh. However, the development will be contained within an existing wayleave that has been subject to previous infrastructure development due to the installation of the existing Uisce Éireann water main. With reference to Fossitt's Guide to Habitats in Ireland (Fossitt, 2000), the existing habitat types on site are scrub/wet willow-alder-ash woodland (WS1/WN6), marsh (GM1), exposed sand/silt/gravel (ED1/ED3), and built land (BL3). There are no known annexed habitats or species within or adjacent to the Proposed Works area. There are no rare or protected habitats recorded within the study area. Rhododendron (*rhododendron ponticum*), a first schedule invasive species, was widespread throughout the Right-of-Way.

The Appropriate Assessment (AA) Screening Report (Altamar 2025a) notes that '*The construction and operation of the Proposed Works will not impact on the conservation objectives of features of interest of Natura 2000 sites. There is no possibility of significant impacts on Natura 2000 sites, features of interest or site-specific conservation objectives.*' Additionally, as stated in the Ecological Impact Assessment (Altamar, 2025b), '*The construction and operation of the Proposed Works is not predicted to impact on terrestrial, mammalian, avian and aquatic sensitive receptors through the application of standard construction and operational controls. No significant effects on biodiversity are likely.*'

Overall, the Proposed Works are not considered to have any impact on Natura 2000 sites, and no significant impact on biodiversity resources.

The potential impacts with regards to biodiversity are discussed further within the AA Screening Report and Ecological Impact Assessment (Altamar 2023a, 2023b), and in Section 7.2 of this EIA Screening Report.

4.4 Production Of Waste

4.4.1 Construction Phase

A Resource Waste Management Plan (RWMP) has been prepared by AWN Consulting and submitted with the Section 5 Request application. Section 4 of the RWMP sets out the measures used to maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information. The estimated volume of C&D waste generation for the shown in Table 4-4 below (AWN Consulting, 2025).

Table 4-3 Estimated C&D Waste Generation for the Proposed Works

C&D Waste	Material Quantities
Mixed C&D	5
Metals	4.2
Wood	1.2
Plasterboard	0
Concrete	0.9
Other	2.3

During the construction phase, waste will be produced from the excavation of hardcore surfaces, the demolition of the 1 no. outbuilding, surplus materials including granular backfill materials and HDPE piping. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The construction contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

Waste will also be generated from construction workers e.g. organic/food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided onsite during the construction phase. Waste printer/toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices.

If material is removed off-site it could be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Regulation 15 (By-products) (Previously Article 27 and referred to as Article 27 in this report) of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2020, which requires that certain conditions are met and that by-product notifications are made to the EPA via their online notification form. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material.

If any soils/stones are imported onto the site from another construction site as a byproduct, this will also be done in accordance with Article 27. Article 27 will be investigated to see if the material can be imported onto this site for beneficial reuse instead of using virgin materials.

With reference to the OCEMP (DBFL, 2025), no excavated soils will be removed from the Proposed Works area. All excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be disposed of by a licensed waste disposal contractor, with appropriate measures carried out to prevent the spread of invasive rhododendron.

It should be noted that until final materials and detailed construction methodologies have been confirmed it is difficult to predict with a high level of accuracy the construction waste that will be generated from the construction of the Proposed Works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

4.4.2 Operational Phase

Once operational, it is anticipated that negligible amounts of waste will be generated by maintenance staff during their inspections and maintenance works.

These wastes may include organic/food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons) and non-recyclable waste. Waste fuels/oils, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently.

These waste streams are not expected to represent a significant increase from the operational waste requirements of the permitted ICT facilities within the Avoca River Park industrial estate. No operational waste will be stored within the Right-of-Way. Any operational waste generated will be accommodated within the existing waste management systems associated with the permitted ICT facilities. Pollution And Nuisances

4.4.3 Construction Phase

There are potential short-term nuisances such as dust, noise, as well as the potential for pollution of groundwater associated with construction activities. The proposed hours of work on site will be stipulated in any conditions attached to the declaration of exempted development. Any working hours outside the normal construction working hours will be agreed with the planning authority. No activity, which would reasonably be expected to cause annoyance to residents in the vicinity, will take place outside of these hours. If there is any occasion when work must be completed outside these hours advance notice will be provided to the local authority, businesses and residents in the vicinity.

Views of the construction works will be restricted by the construction hoarding, which will be erected around the Site boundary where practicable.

4.4.3.1 Construction Drainage & Wastewater Management

Sediment control in the construction phase is an important consideration to ensure that only high quality, treated runoff leaves the site and no negative impact results from the Proposed Works in terms of water quality discharged in the construction stage. This is especially important with respect to the location of the Proposed Works partially within the Arklow Town Marsh pNHA. General construction activities will require temporary storage of gravel and piping materials, excavated soils, oils, fuels etc. which have the potential to cause localised pollution.

The construction of the Proposed Works will involve excavation of a c. 1.72m wide trench to facilitate the pipeline and ducting installation.

An outline Construction Environmental Management Plan (OCEMP) (DBFL, 2025) will be submitted alongside this Section 5 Request which outlines the various mitigation measures that will be put in place to prevent any surface-water related impacts. The OCEMP will ensure best practice construction with respect to the prevention of runoff, in addition to the storage of any hazardous substances (fuels, chemicals and other construction materials that may pose a risk to the environment) and will be updated and agreed with WCC in light of the conditions attached to a declaration of exempted development.

Silt fencing and silt traps will be in place during trenching which will minimise risks for offsite migration of disturbed soil. Refuelling is primarily undertaken off site and drip trays used for routine maintenance works to minimise potential for any any accidental spills/leaks by construction vehicles.

Foul waste during construction will be temporarily stored and regularly disposed of using appropriate facilities off-site.

With reference to the OCEMP (DBFL, 2025), the construction of the Proposed Works will additionally involve the stockpiling of excavated soils for reuse as backfill. All stockpiling will be in accordance with the relevant TII Specifications for Road Works. Stockpiling of loose construction materials will be located a minimum of 50m from watercourses within the construction compound. Temporary stockpiling of excavated soils will be managed at intervals along but within the Right of Way alongside the construction works and will be appropriately covered with a protective membrane.

All excavations will be managed to minimise the generation of silt laden run off or release of runoff. As stated in the OCEMP (DBFL, 2025), trenched double silt fencing is to be provided at the top of the Shelton Abbey canal embankment, immediately to the north of a 1m vegetation buffer, to protect the watercourse. Additional trenched silt fencing will be provided at the northern edge of the existing right of way to protect the marshlands.

Construction works will take place in staggered 50m segments, allowing for speedy infilling and overall minimising requirement for stockpiles.

4.4.3.2 Construction Traffic Management

During the construction phase (c. 12 -16 weeks) of the Proposed Works, there will be additional traffic movements to/from the site from construction personnel, security staff, professional staff (i.e. design team, utility companies), excavation plant, dumper trucks and deliveries/removal of materials (waste/spoil). It is anticipated that construction-related HGV movements are expected to remain modest and within the capacity of the local road network, with all traffic accessing the site via the designated site entrance and haul route. The very moderate scale of the Proposed Works will not give rise to any significant traffic-related impacts to air or noise quality.

The OCEMP (DBFL, 2025) outlines construction phase traffic mitigation, including the designated haul route, and management of air quality control (dust), noise, surface water runoff and traffic (deliveries) that will be undertaken during the construction phase. All mitigation measures outlined therein will be implemented, as well as any additional measures required pursuant to conditions which may be imposed.

The OCEMP will be updated prior to commencement of construction and will be maintained by the contractors during the construction phase and will cover all potentially polluting activities and include an emergency response procedure. All personnel working on the construction site will be trained in the implementation of the plan and procedures.

After the implementation of the OCMP, pollution and nuisances during construction are not considered likely to have the potential to cause significant pollution and nuisance effects.

4.4.4 Operational Phase

4.4.4.1 Drainage & Wastewater Management

Once operational, the proposed foul rising main will discharge to the existing public wastewater network. Discharge from the Proposed Works will be provided for by the existing Arklow WWTP (Reg no. D0006) which will be licensed, controlled and monitored by the EPA via the facility Wastewater Discharge licence.

As noted above, feasibility has been advised via a pre-connection enquiry submitted to Uisce Éireann.

4.4.4.2 Traffic

The Proposed Works, both alone and with the cumulative developments in Section 5.2.2, will not result in any additional traffic movements due to the fact there will be no regular trips associated with the operation of the pipeline. There will be a negligible number of trips associated with infrequent maintenance of the Proposed infrastructure. Traffic impacts are not in themselves a trigger for EIA, and any traffic impacts will be minor.

4.5 Risk of Major Accidents and/or Disasters

The 2014 revision to the EIA Directive introduced the requirement for an assessment of the risk of major accidents and disasters into the scope of an EIA. As explained the recital of the Directive: *'In order to ensure a high level of protection of the environment, precautionary actions need to be taken for certain projects which, because of their vulnerability to major accidents, and/or natural disasters (such as flooding, sea level rise, or earthquakes) are likely to have significant adverse effects on the environment. For such projects, it is important to consider their vulnerability (exposure and resilience) to major accidents and/or disasters, the risk of those accidents and/or disasters occurring and the implications for the likelihood of significant adverse effects on the environment.'*

4.5.1 Landslides, Seismic Activity and Volcanic Activity

There have been no recorded landslide events⁴ at the site. Due to the local topography and the underlying strata, there is a negligible risk of a landslide event occurring at the site. There is a very low risk of seismic activity to the Proposed Works area. There are no active volcanoes in Ireland so there is no risk from volcanic activity.

There is a very low risk of seismic activity to the Proposed Works area according to the information that is currently available⁵. This means that there is less than a 2% chance of potentially-damaging earthquake shaking in the project area in the next 50 years. Based on this information, the impact of earthquake need not be considered in different phases of the project, in particular during design and construction.

There are no active volcanoes in Ireland so there is no risk from volcanic activity.

4.5.2 Flooding/Sea Level Rise (climate change)

The design of the project with respect to the potential risk of flooding on the site was reviewed with regard to incidences of historical, regional and local flooding relevant to the area of the subject site.

Once operational, the Proposed Works will be buried underground, and the risk of flooding at the site will be minimal.

4.5.3 Major Accidents/Hazards

The Proposed Works will not be a Seveso/COMAH facility.

There is one Seveso site within the vicinity of the Proposed Works area. The site is located within the 1,000 m Seveso Buffer Zone for the Sigma Aldrich Ireland facility, a lower tier establishment. The Sigma Aldrich Ireland facility is approximately 400m to the southwest of the Proposed Works at its closest point, therefore the Proposed Works falls within the consultation zone of the Sigma Aldrich Ireland facility.

4.5.4 Proximity to Industrial Emissions Licensed Facilities

Integrated Pollution Control (IPC) and Industrial Emissions (IE) licensed facilities are required to comply with specific licence conditions, including monitoring and reporting on their emissions (such as emissions to air, water, and soil), to ensure that they do not pose a risk to human health or the environment.

As stated in the OCEMP (DBFL, 2025), the Proposed Works areas are directly adjacent to lands which are currently licenced (existing IPC licence P0031-02). This licence covers an area of historical landfill which relates to the former Irish Fertilizer Industries facility licencing the manufacture of artificial fertilisers and inorganic chemicals. This licence was transferred to the Applicant in August 2021, and the Applicant is responsible for the ongoing monitoring at the landfill site. Most of the Proposed Works are entirely

⁴ <https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>

⁵ <https://thinkhazard.org/en/report/119-ireland/EQ>

contained within a Right of Way that is excluded from the license area boundary and will not result in excavations of the capped waste matrix.

The closest other active licensed facility to the Proposed Works area is the Sigma Aldrich Ireland facility (P0089-06), a lower-tier Seveso facility, located approximately 170m to the south.

4.5.5 Minor Accidents/Leaks

There is a potential impact on the receiving environment as a result of minor accidents/leaks of fuel/oils during the construction. However, the implementation of the mitigation measures set out in this report (Section 7, below) and the outline CEMP accompanying the application will ensure that the residual effect on the environment is imperceptible.

4.6 Risks To Human Health

The EC 2017 Guidance on the preparation of the Environmental Impact Assessment Report outlines that human health is a very broad factor that is be highly project dependent. The guidance states that the *'notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the project, effects caused by changes in disease vectors caused by the project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study.'*

The EPA guidelines⁶ clarifies that the *'transposing legislation does not require assessment of land-use planning, demographic issues or detailed socioeconomic analysis. Coverage of these can be provided in a separate Planning Application Report to accompany an application for planning permission. This should be avoided in an EIAR, unless issues such as economic or settlement patterns give rise directly to specific new developments and associated.'*

The characteristics of the Proposed Works, in terms of the risks to human health (for example, due to water contamination or air pollution) have been considered. The primary potential impacts of the Proposed Works on human health would be the potential for increased air pollution, noise, or pollution of groundwater/watercourses as a result of the Proposed Works during the construction phase. Once the Proposed Works are operational there are no potential impacts in respect of traffic related emissions to air.

The OCMP includes best practice construction methodologies for the control of dust generation, traffic (deliveries) and noise during the construction phase. Any impacts associated with construction dust generation, traffic, and noise will be short term.

There will be no interaction between the Proposed Works and local parks.

Geological Survey of Ireland (GSI) data indicates that the site does not lie within a drinking water Source Protection Zone. Source Protection Zone delineation provides an assessment of the land area that contributes groundwater to a borehole or spring. Source reports are undertaken by Geological Survey Ireland. During the construction phase, the site will be serviced by a temporary connection to the existing public water mains. The proposed mitigation measures during the construction phase, including the implementation of a OCMP will ensure that there are no impacts on groundwater.

The OCMP incorporates best practice construction methodologies for the control of dust generation, traffic, and noise during the construction phase. Any impacts associated with construction dust generation, traffic, and noise will be short term.

⁶ EPA (2022) 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports', EPA



The Proposed Works do not pose any significant risk to human health, given its nature, scale and location. The potential impacts likely to affect population and human health have been considered in Section 7.1 below.

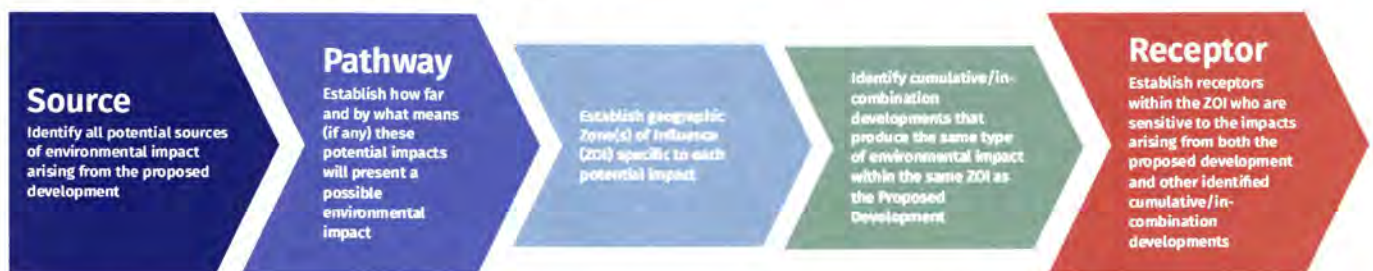
5. ZOI AND CUMULATION WITH OTHER EXISTING OR PROPOSED DEVELOPMENT

Schedule 7 of the Regulations of 2001² sets out the criteria for WCC to determine whether a development would or would not be likely to have significant effects on the environment with due regard to cumulation with other existing development and/or development the subject of a consent for proposed development for the purposes of section 172(1A)(b) of the Act³ and/or development the subject of any development consent for the purposes of the Environmental Impact Assessment Directive by or under any other enactment.

As part of the assessment of the effects of the Proposed Works, account has been taken of other existing, permitted, or planned development within the surrounding area that have the potential to combine with the Proposed Works and result in likely significant cumulative effects. Cumulative effects are the effects arising from the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.

The identification and preliminary assessment of potential cumulative effects on the environment is facilitated via the Source-Pathway-Receptor (SPR) model which is a multi-step process (Figure 5-1). The SPR tool is the most cautious means of assessment which ensures that all possible impacts are identified at a very early stage thus enabling further studies, mitigation measures or ameliorative actions to be put in place. The inherent use of the precautionary principle within the SPR methodology means that all potential for environmental impacts can be identified at a preliminary stage without any need for detailed studies, but rather upon available desktop information.

Figure 5-1 Source Pathway Receptor Model



A critical step in both assessing the Proposed Works and in determining what cumulative developments may contribute to this assessment is to establish the Zone of Influence (ZOI) for the Proposed Works. A ZOI is unique to each type of project and the environment with which it interacts.

5.1 Proposed Works ZOI

An integral part of the SPR methodology is to establish a Zone of Influence (ZOI) for each potential source of environmental impact. A ZOI is the furthest geographical extent that a particular impact from a proposed development could extend.

For most developments there are many potential ZOIs, each one specific to the identified potential impact; for example, a water-borne pollutant may result in a long linear ZOI, while an air-borne pollutant may result in a more circular ZOI much closer to the proposed developments. It is also possible for proposed developments that there can be many different water-borne ZOIs dependent upon many different variables such as type of pollutant, time and means of release, the interaction of that pollutant with the water column and the hydrological regime at the time of release.

It is the geographical extent of this ZOI that establishes what existing or proposed developments have the potential to act cumulatively and whether there is a complete SPR link.

In considering the characteristics of the Proposed Works (Section 4) and the potential for it to act cumulatively with other developments it can be established that the primary outward emissions are related to the construction phase, namely:

- ▶ Noise generation during construction
- ▶ Dust generation during construction
- ▶ Traffic generation during construction
- ▶ Stormwater runoff during construction

There are no anticipated outward emissions beyond the site boundary associated with the operational phase of the Proposed Works.

In terms of construction dust, based on the Institute of Air Quality Management (IAQM) document '*Guidance on the Assessment of Dust from Demolition and Construction* (version 2.2)', 2024 this tends to be deposited within 250 m of construction sites, with the majority of the deposition occurring within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity.

With regard to noise during construction and operation of the Proposed Works, while maintaining the noise criteria set out in *British Standard BS 5228 – 1: 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Noise* it is anticipated that for the noise generated by construction equipment on site and for operational plant there is no anticipated measurable impact beyond a precautionary study area of 500 m.

As described in Section 4.5.1.2, and also within the OCEMP submitted with this Section 5 Request (DBFL, 2025), there is no significant traffic generation associated with the construction or operation of the Proposed Works due to their scale, duration, and nature. Any traffic generation is to be managed according to the measures set out within the OCEMP.

As described in Section 4.5.1.1, and also within the OCEMP, the stormwater management controls during construction controls will result in no discernible outward emission of stormwater runoff emissions beyond the site boundary.

Taking the above into account it can be stated that the ZOI for the Proposed Works in terms of outward emissions is a maximum **500 m** radius of the Site Boundary.

5.2 Identification of Cumulative/In Combination Development

5.2.1 Existing Cumulative Development

The development site is located in the townlands of Shelton Abbey and Marsh, Arklow, County Wicklow. The development site is located within the WCC local authority area. The development site exists at present as a Right of Way transversing greenfield lands zoned as a proposed Natural Heritage Area. There is an existing Uisce Éireann (UÉ) mains water pipeline within the development area; this is to be maintained as-is and there will be no disruption to supply.

The development site is located largely within the Arklow Marsh pNHA in the eastern portion, and within lands zoned for development within the Avoca River Park Industrial Estate in the western portion, including a number of planned and permitted developments. Residential and commercial areas associated with the built-up area of Arklow are located to the south and east of the Proposed Works.

The impact of all existing developments within the ZOI, including the activities currently permitted within the lands of the Proposed Works are already present within the environment and are described by the existing environmental baseline conditions. The current baseline conditions are established primarily through a review of current desktop sources, sometimes augmented where necessary via independent

surveys. Any statements contained within this report as to the likely impact of the Proposed Works upon the environment are by default also a statement as to the likely accumulation of impacts arising from the Proposed Works with those impacts already in existence.

5.2.2 Cumulative Development Not Yet Existing

There are three main types of cumulative development that are not yet existing;

- ▶ not yet operational – this is development for which construction is complete but the operational impacts are not yet captured in the existing environmental baseline;
- ▶ not yet constructed – this is development that is under construction, but not yet operational; and
- ▶ not yet commenced – this is development where neither the construction nor the operational phase have commenced.

Any 'not yet operational' cumulative developments are excluded from this assessment as there is no potential for the Proposed Works to act cumulatively with them in light of the fact that there are no discernible outward emissions associated with the Proposed Works.

It is imperative to make clear that not all other not yet existing developments within a ZOI are capable of combining with the Proposed Works to result in potential cumulative effects. It is the geographical extent of the ZOI for each potential source that establishes what not yet existing developments have the potential to act cumulatively and whether there is a complete SPR link. When assessing the Proposed Works cumulatively with other plans or projects, it is only not yet existing plans or projects that are/will be responsible for a similar or interactive impact as the Proposed Works within the ZOI that have the potential to act cumulatively with the Proposed Works.

In order for there to be a potential cumulative effect all three elements of the SPR elements need to be present. If there is no pathway or functional link (direct or indirect) between the Proposed Works and a receptor, there is no potential for effect. Additionally, if there is no receptor within the area of a potential impact, there is similarly no effect as it does not cause harm to the environment due to the lack of a receptor.

In establishing what not yet existing cumulative development need to be assessed a geographical area needs to be delineated. The size and nature of this geographical area is determined by the ZOI for the Proposed Works. In this instance the maximum radius for not yet existing construction activities that may give rise to cumulative construction-noise impacts is 1 km from the site. (ie 500m due to the Proposed Works and a further 500 m to capture any potentially overlapping not yet existing cumulative developments). Similarly, the maximum radius for not yet existing construction activities that may give rise to cumulative construction-dust impacts is 500 m from the site. (ie 250m due to the Proposed Works and a further 250m to capture any potentially overlapping not yet existing cumulative developments).

Having established that the geographical area of inquiry for potential not yet existing cumulative developments is 1 km, the final step is to determine any new or proposed developments that would be producing construction related dust and noise emissions during the same construction period as the Proposed Works within a 1 km radius of the Site boundary.

The identification of relevant cumulative developments follows a two-fold approach. Firstly, a comprehensive search is undertaken to identify all developments within 1 km of the Proposed Works site. Subsequently, a review of the magnitude, size, scale, location and current status of these developments is undertaken to assess their potential to contribute to significant cumulative effects with the Proposed Works. This secondary stage is conducted in alignment with the 2017 guidance from the European Commission⁷, which underscores the necessity to focus on effects that are either inherently significant or possess the potential for significance. This comprehensive review is crucial in the context of assessing the

⁷ EC (2017) Environmental Impact Assessment of Projects – Guidance on Screening. European Commission

potential cumulative effects of a proposed project. It aids in gauging the extent to which these existing and future undertakings might interact with the Proposed Works, and allow for the exclusion of insignificant developments from any further consideration. This strategic approach ensures that resources are not expended on negligible or inconsequential effects.

The initial stage of this process is facilitated through the utilisation of the planning search tools listed below to identify both permitted and submitted planning applications within 1 km of the Proposed Works whose expiry date had still not expired by 15 Aug 2025, being the time of this assessment. This is considered to be an overcautious approach given that this approach may identify not yet existing developments whose construction period will in fact be complete prior to the construction period for the Proposed Works. A combination of online mapping tools was used for this search including:

- ▶ The Department of Housing, Local Government and Heritage EIA Portal⁸;
- ▶ An Bord Pleanála Map Search⁹; and
- ▶ My Plan National Planning Application Map Viewer¹⁰.

The review of the online planning tool noted a large number of insignificant small extensions (<100 m²), changes of use, internal and façade alterations, telecommunications aerials, advertisements, retention and other minor alterations to sites within the surrounding area. These inconsequential permissions were omitted from the list of potential cumulative developments as they are for established existing developments within the vicinity of the development. These have been, where relevant, considered as a part of the overall project impact.

Appendix A documents the relevant cumulative developments within 1 km of the subject site. Appendix A is not intended to be an exhaustive list of all cumulative developments, the intent is to provide the Competent Authority, and the public, with context for their Screening Determination by outlining the relevant not yet existing cumulative development that could give rise to likely significant cumulative effects in combination with the Proposed Works.

These not yet existing cumulative developments have been, where relevant, considered as a part of the overall project impact in Section 7 and specifically in Section 7.8.

⁸ <https://housinggov.ie/maps.arcgis.com/apps/webappviewer/index.html?id=d7d5a3d48f104ecbb206e7e5f84b71f1>

⁹ <https://www.pleanala.ie/en-ie/Map-search>

¹⁰ <https://www.myplan.ie/national-planning-application-map-viewer/>

6. LOCATION AND CONTEXT OF THE PROPOSED WORKS

6.1 Existing and Approved Land Use

The Proposed Works are located in the townlands of Shelton Abbey and Marsh, Arklow. The development site is bounded the Avoca River Park Industrial Estate (including a number of planned and permitted developments) to the west, the built-up area of Arklow to the east, and the Arklow Town Marsh pNHA to the north and south.

The wider area is characterised by a variety of employment, agricultural, open space, and residential uses. The development site traverses a number of zoning designations. The southern portion of the Proposed Works will be located in lands zoned as OS2 'Open Space' and the Arklow Town Marsh pNHA. The northern portion of the development site traverses lands zoned as 'E1 Employment.'

Within the Arklow and Environs Local Area Plan 2018-2024, is is stated as a heritage objective *'To maintain the favourable conservation status of all proposed and future Natural Heritage Areas (NHAs) in the plan area in particular the Arklow Marsh and to support environmentally sensitive measures to enhance the understanding and enjoyment of such natural areas.'* The plan also states that *'The marsh is the principal wetland habitat in the area, providing an important flood control role and supporting a variety of plant and animal life, in particular reed species and bird life.'*

The eastern portion of the site, which includes the Arklow Town Marsh, is zones as 'OS2, Open Space 2.' Acceptable uses for 'OS2-designated lands are described as *'uses that protect and enhance the function of these areas as flood plains, buffer zones along watercourses and rivers, green breaks between built up areas, green corridors and areas of natural biodiversity. As these open lands are not identified or deemed necessary for development for recreational purposes, other uses that are deemed compatible with proper planning and sustainable development may be open for consideration where they do not undermine the purpose of this zoning.'*

The Proposed Works comprise the installation of water infrastructure that will enable the development of the Avoca River Park Industrial Estate. The development will be entirely underground during the operational phase. As the development will be entirely contained within the existing developed wayleave that traverses the Arklow Town Marsh pNHA, with appropriate mitigations there will be no adverse impacts to the pNHA. This development can be considered to be compatible with proper planning and sustainable development, while not undermining the purpose of the OS2 zoning.

The subject is site is therefore well suited for the Proposed Works, which is permissible under the zoning of the lands within the Wicklow County Development Plan 2022-2028, and the Arklow and Environs Local Area Plan 2018-2024. There is minimal landscaping on the site as the current character of the site.

Several existing wayleaves, relating to existing and planned industrial estate roads and infrastructure traverse the Site. The development site is contained within existing Right-of-Ways that transverses the Avoca Marsh pNHA.

Current land use in the vicinity of the site is predominantly commercial and residential in nature, along with transport arteries. The development site is bisected by the M11 motorway.

6.2 Relative Abundance, Availability, Quality and Regenerative Capacity of Natural Resources in The Area and its Underground

6.2.1 Hydrogeology

The GSI (2023) National Bedrock Aquifer Map classifies the bedrock aquifer beneath the subject site as a 'LI, Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones'. The Proposed Works are within the 'Wicklow' groundwater body (GWB) and is classified as 'Poorly productive bedrock'. Presently, the groundwater body in the region of the site (Dublin GWB) is classified under the WFD Status 2016-2021 (EPA 2023) as 'Good' status. The WFD Risk Score is classified as 'At Risk'.

The GSI/ Teagasc (2023) mapping database of the quaternary sediments in the area of the subject site indicates only one subsoil type in the Proposed Works area, Alluvium (A).

Mapping from the Geological Society of Ireland (GSI 2023) indicates the bedrock underlying the site is part of the Kilmacrea Formation (code OCKILM) and is made up of dark grey slate and minor pale sandstone.

The GSI Well Card Index is a record of wells drilled in Ireland, water supply and site investigation boreholes. It is noted that this record is not comprehensive as licensing of wells is not currently a requirement in the Republic of Ireland. This current index does not show any wells drilled or springs at the site or surrounding area. The site is not located near any public groundwater supplies or group schemes. There are no groundwater source protection zones in the immediate vicinity of the site.

There are no sensitive soil receptors, no identified areas of geological heritage or groundwater supplies in the vicinity of the site boundary.

6.2.2 Hydrology

The Proposed Works are in the Ovoca-Vartry catchment (Hydrometric Area 10) and the Avoca River (Avoca_SC_020) sub catchment. According to the EPA river network (EPA maps, <https://gis.epa.ie/EPAMaps/>), the nearest surface water receptor is a drainage feature known as the Shelton Abbey Canal, which runs along the site boundary from the Avoca River Park Industrial Estate through the former landfill and through the marshland, discharging at Arklow to the Irish Sea. This is associated with the Avoca_030 River waterbody, WFD Code IE_EA_10A031140. The easternmost portion of the Proposed Works will cross under the Shelton Abbey Canal.

The Avoca River (Avoca_030; IE_EA_10A031140) also runs parallel to the Proposed Works area, c. 125m to the south at its nearest point. is the nearest surface water receptor. The river discharges into the Avoca Estuary (IE_EA_150_0100). From here, the Avoca River ultimately discharges into the Irish Sea at Arklow Harbour, approximately 1.5km east of the Proposed Works site.

The Environmental Protection Agency (EPA 2023) on-line mapping presents the available water quality status information for water bodies in Ireland. The Avoca River (Avoca_030) has a WFD Status 2016-2021 of 'Moderate' and a WFD Risk Score of 'At risk'. The Transitional Waterbody Avoca Estuary has a WFD status (2016-2021) of 'Moderate' and a WFD risk score of 'At risk'. The Coastal Waterbody Southwester Irish Sea – Brittas Bay (HA 10) has a WFD status (2016-2021) of 'High' and a WFD risk score of 'not at risk.' The ecological status (which comprises biological and chemical status) of transitional and coastal water bodies during 2016-2021 for Brittas Bay is classed as 'Good'. The most recent surface water quality data for the Avoca Estuary and Brittas Bay on trophic status of estuarine and coastal waters indicate that they are 'Unpolluted' (based on Water Quality in 2021, EPA, 2022). Under the 2015 'Trophic Status Assessment Scheme' classification of the EPA, 'Unpolluted' means there have been no breaches of the EPA's threshold values for nutrient enrichment, accelerated plant growth, or disturbance of the level of dissolved oxygen normally present (refer to www.catchments.ie).

Based on the TII methodology for rating the importance of hydrological features, which is based on whether the feature has a high, medium or low quality or value on an international, regional or local scale, the importance of the hydrological features at this Site is rated as **medium-high importance**. This is based on the assessment that the attribute has a high-quality significance or value on a national scale. The Arklow Town Marsh is the receiving waterbody for the Site, it is a nationally significant wetland and it is a designated pNHA under the Wicklow County Development Plan 2022-2028.

The development resides within lands associated with a 1% Annual Exceedance Potential (AEP) (Flood Zone A) and 0.1% AEP (Flood Zone B). Due to the nature of the Proposed Works, fluvial and coastal flood risk is not expected to impact the Proposed Works. The western portion of the Proposed Works, within the Avoca River Park Industrial Estate, is situated within Flood Zone C.

6.2.3 Biodiversity and Areas of Conservation

The potential ecological impacts of Proposed Works have been considered in terms of the sensitivity of the location through the Appropriate Assessment (AA) Screening Report and Ecological Impact Assessment (Altamar 2025) that have been included with the Section 5 Request documentation.

There is a total of 3 no. Special Areas of Conservation (SAC) located within 15 km of the Proposed Works (see Table 6-1, below). No Special Protection Areas (SPA) are located within 15km of the Proposed Works. The Proposed Works are partially located within an existing Right-of-Way that traverses the Arklow Town Marsh pNHA.

Table 6-1 European Sites Located Within the Potential Zone of Influence of the Proposed Works

Site Name	Distance
Buckroney Brittas Dunes and Fen SAC	4.7 km
Kilpatrick Sandhills SAC	6.9 km
Slaney River Valley SAC	12.7 km
Magherabeg Dunes SAC	14.5 km
Vale of Clara (Rathdrum Wood) SAC	14.5 km

The accompanying AA Screening Report (Altamar 2025) has assessed the potential for significant effects of the construction and operational phases of the Proposed Works on the Arklow Town Marsh pNHA and Natura 2000 sites, including any habitat loss/alteration, habitat/species fragmentation, disturbance and/or displacement of species, change in population density and changes in water quality. The Appropriate Assessment (AA) Screening Report (Altamar 2025) notes that surface and foul water discharge from the Proposed Works will be treated at Arklow Wastewater Treatment Plant (WWTP), which is under license, before discharging to the Irish Sea. The AA Screening Report notes that *'Having taken into consideration the lack of effluent or additional surface water discharge from the Proposed Works works, the distance between the Proposed Works site to designated conservation sites, lack of direct hydrological pathway or biodiversity corridor link to conservation sites and the dilution effect of surface runoff, it is concluded that this development would not give rise to any significant effects to designated sites.'*

The AA Screening Report (Altamar 2025) concludes that:

'The construction and operation of the Proposed Works will not impact on the conservation objectives of features of interest of Natura 2000 sites. There is no possibility of significant impacts on Natura 2000 sites, features of interest or site-specific conservation objectives.'

Having taken into consideration the proposed construction methodology, including that construction in the Arklow Town Marsh will be limited to within the existing wayleave, that there will be no storage or removal of soil/sediment from the marsh, no significant dewatering, the small numbers of construction plant to be used, and the short 12-week timeline for construction, it is concluded that the Proposed Works would not

give rise to any significant effects to designated sites. The construction and operation of the Proposed Works will not impact on the conservation objectives of qualifying interests of European and National sites.

A number of protected habitat types were recorded in the study area. The Site was assessed as having limited and decreasing biodiversity value due to the extensive presence of invasive rhododendron throughout the right-of-way. No protected habitats or species of conservation importance were located within the Study Area. None of the qualifying habitats or species of the European sites considered in the potential zone of impact, i.e. the geographical area over which a proposed development could affect the receiving environment in a way that could have significant effects on a European site, occur under the footprint of the proposed works areas. The Proposed Works areas within the wetland are contained within the existing wayleave/Right-of-Way which contains existing infrastructure pipelines under- and above-ground.

6.3 Absorption Capacity of The Natural Environment

The Proposed Works due to their size and localised nature will not have any significant negative effect on wetlands, riparian areas, river mouths, coastal zones and the marine environment, mountain and forest areas, nature reserves and parks, or densely populated areas.

6.3.1 Wetlands, riparian areas, river mouths

The Proposed Works are located within the Arklow Town Marsh pNHA (site code MIW_WW193), a nationally important wetland area associated with the riparian zone of the Avoca River. There is a natural riparian zone associated with this stretch of the river, including the Avoca Town Marsh. The Avoca Town Marsh is a 'large reedbed with scattered Salix scrub adjoining the Avoca River. There has been recent infilling and development along the northern edge of the site with historic infilling at the western end.' The Avoca River mouth is c. 1.5km downstream of the Proposed Works.

6.3.2 Coastal zones and the marine environment

The Proposed Works are not situated on a coastline or within the marine environment. The closest coastal waterbody is 0.7km (Southwestern Irish Sea – Brittas Bay HA 10) from the site. There is a direct hydrological connection with the Avoca River, which discharges via the Avoca Estuary to Brittas Bay.

6.3.3 Mountain and forest areas

The Proposed Works are not located within a mountainous area, the closest mountain range is the Wicklow Mountains, c. 22km from the Site.

Consultation of the NPWS Woodlands Monitoring survey¹¹ reveals that the Kilcarra West Ancient and Long-Established Woodland is within the ZOI, in addition to an oak-birch-holly woodland and the Shelton North woodland. There are no further NSNW (National Survey of Native Woodlands) Woodlands, Ancient and Long-established Woodland, or native Juniper formations within the ZOI. The Proposed Works are also not located within or adjoining a Native Woodland Trust, the closest Native Woodland trust is c. 24 km from the Site.

6.3.4 Nature reserves and parks

National Parks and Wildlife database¹² shows that the site is not located within or adjoining any Nature Reserves. The closest Nature Reserve is c. 17km from the proposed Site.

¹¹ <https://maps.biodiversityireland.ie/Map>

¹² <https://www.npws.ie/nature-reserves>

6.3.5 Protected areas

The Proposed Works are not located within or adjacent to areas classified or protected under legislation, including Natura 2000 areas designated pursuant to the Habitats Directive¹⁸ and the Birds Directive¹³. The Proposed Works are partially located within lands designated as the Arklow Town Marsh pNHA, however, the Proposed Works are entirely contained within an existing Right-of-Way that traverses the marsh.

The potential ecological impacts of development have been considered in terms of the sensitivity of the location through the Appropriate Assessment (AA) Screening Report (Altemar, 2025) and this concluded that there is no connectivity to any Natura 2000 sites within the potential zone of Influence.

6.3.6 EU environmental quality status

The Proposed Works are located within or adjacent to an area in which there has already been a failure to meet the environmental quality standards laid down in legislation of the European Union and relevant to the project, or in which it is considered that there is such a failure.

Sections 6.2.1 and 6.2.2 of this report have shown that the Avoca River and Avoca Estuary, which are hydrologically connected to the Proposed Works, are currently "at risk" of reaching applicable EU quality status. The Appropriate Assessment¹⁴ undertaken by Altemar Marine and Environmental Consultancy and the detailed construction methodology within the Construction Environmental Management Plan have been submitted with this Section 5 Request and show that the Proposed Works will not result in any emissions to land or water that could worsen the ability for the Avoca River and Avoca Estuary to attain good waterbody status.

6.3.7 Densely populated areas

The Proposed Works are not located within a densely populated area. Section 5.1 of this report shows that the maximum ZOI for outward effects from the Proposed Works is 500m. Section 5.2 and Appendix A of this report identifies all potential cumulative developments.

The Proposed Works will be located within the townlands of Shelton Abbey and Marsh, and will stretch 2.6km from Northwest to Southeast, traversing between the Avoca River Park Industrial Estate and the built-up area of Arklow town. The predominant land use surrounding the site is open space, with some residential and industrial.

Within the ZOI, the nearest residential locations are a number of houses located directly adjacent to the south-eastern end point of the Proposed Works Area along Ferrybank road in Arklow. There are further residential and commercial areas to the east, south, and north of the Proposed Works area. Residential areas to the south of the Proposed Works area are separated from the site by the Avoca River.

St. Joseph's National School, St. Mary's College, Gaelcolaiste na Mara, St. John's Senior National School, SS Michael and Peter Junior School, Arklow CBS, and Glenart College are located within the 1km ZOI of the Proposed Works.

The Proposed Works area is located within the Electoral Divisions of Kilbride and Arklow No. 2 Urban. The latest census data (2022) indicates that Kilbride has a population of 928, which Arklow No. 2 Urban has a population of 3023, which are collectively 2.5% of the total County Wicklow population. The 2022 Census indicated a stable residential population with a 4.4% increase in population for Kilbride ED, and an increase of 0.3% in population for Arklow No. 2 Urban, from 2016.

Recreational facilities within the ZOI include:

¹³ 97/49/EC

¹⁴ 2000/60/EC

- ▶ Riverwalk Trail and Garden c.310m southwest
- ▶ Arklow Geraldines Ballymoney GAA Club c.470m southwest
- ▶ St Marys Park c.400m south
- ▶ Arklow Duckpond and Track c.550 m east
- ▶ Arklow North Beach c. 700m east

6.3.8 Landscapes and sites of historical, cultural or archaeological significance

Consultations with the Wicklow County Development Plan 2022-2028 confirm that the development site is not located within or adjoining an Architectural or General Conservation Area; and is not covered by protected views, scenic routes or viewpoints.

The subject site is identified in the WCDP as being within the Arklow Town and Environs 'Urban Area' landscape category. The site is not located within a designated area of landscape character.

EPA maps¹⁵ indicates that the closest Record of Monument and Place (RMP) is a graveyard (Code W1040-029008) and a Cistercian monks' religious house (Code: W1040-029004) along the Ferrybank road, c. 25 metres from the eastern end point of the Proposed Works foul water main. Additionally, a Bronze Age habitation site (Code: W1040-048) is located c. 245m to the north-east of the Proposed Works route, adjacent to the M11 Arklow Bypass.

¹⁵ <https://gis.epa.ie/EPAMaps/SEA>

7. TYPES AND CHARACTERISTICS OF POTENTIAL IMPACTS AND MITIGATION

This section sets out the likely significant effects on the environment of Proposed Works in relation to criteria set out under paragraphs 1 and 2 (as set out in Sections 4 and 6 above), with regard to the impact of the project on the factors specified in paragraph (b)(i)(I) to (V) of the definition of '*environmental impact assessment report*' in section 171A of the Act³ (as amended).

The quality, magnitude and duration of potential impacts are defined in accordance with the criteria provided in the *Guidelines on Information to be Contained in Environmental Impact Assessment Reports* (EPA 2022) and these criteria are duplicated in Table 7-1 and assessed in Section 7.

Table 7-1 Schedule of Impacts following EPA Guidelines

Characteristic	Term	Description
Quality of Effects	Positive	A change which improves the quality of the environment
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse	A change which reduces the quality of the environment
Describing the Significance of Effects	Imperceptible	An effect capable of measurement but without significant consequences
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
	Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
	Significant Effects	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
	Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects	An effect which obliterates sensitive characteristics
Describing the Extent and Context of Effects	Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Describing the Probability of Effects	Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Duration and Frequency of Effects	Momentary Effects	Effects lasting from seconds to minutes
	Brief Effects	Effects lasting less than a day
	Temporary Effects	Effects lasting less than a year
	Short-term Effects	Effects lasting one to seven years.
	Medium-term Effects	Effects lasting seven to fifteen years
	Long-term Effects	Effects lasting fifteen to sixty years
	Permanent Effects	Effects lasting over sixty years

	Reversible Effects	Effects that can be undone, for example through remediation or restoration
	Frequency of Effects	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Describing the Type of Effects ^a	Indirect Effects (a.k.a secondary or Off-site effects)	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do Nothing Effects	The environment as it would be in the future should the subject project not be carried out
	'Worst case' Effects	The effects arising from a project in the case where mitigation measures substantially fail
	Indeterminable Effects	When the full consequences of a change in the environment cannot be described
	Irreversible Effects	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost
	Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect
	Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of Sox and NOx to produce smog)

- a. For the purposes of facilitating the Competent Authority in conducting Environmental Impact Assessment as defined by Annex 1 of the EU Directive¹⁶, the terms 'imperceptible effects', 'not significant effects', 'slight effects', and 'moderate effects' used within this report, while exhibiting varying degrees of impact, are all considered to be without significant consequence.

7.1 Population And Human Health

7.1.1 Construction Phase

The potential impacts of the Proposed Works on population and human health would be nuisances such as increased air pollution (dust), noise, traffic, and visual impact of the construction phase. The likely potential impact of the Proposed Works with respect to population and human health during the construction phase can be considered to be ***negative, imperceptible - not significant*** and ***temporary***.

These potential short-term impacts during the construction will be mitigated in accordance with the OCMP and through implementation of binding hours of construction.

There is no significant risk of pollution of soil, groundwater or watercourses associated with the Proposed Works. The construction phase of the Proposed Works will provide for the temporary employment of construction workers which will provide benefits for local businesses providing retail or other services to construction workers and potential additional employment in the area.

The OCMP sets out mitigation measures in the form of requirements and standards in relation to construction noise, traffic, and dust generation that must be met during the construction phase. The accompanying OCMP notes that the mitigation and safety measures will be put in place to ensure a responsibly managed construction process. All mitigation measures outlined therein will be implemented, as well as any additional measures required pursuant to conditions which may be imposed.

¹⁶ European Union Environmental Impact Assessment (EIA) Directive 2011/92/EU as amended by 2014/52/EU

The residual impact of the Proposed Works with respect to population human health during the construction phase after the implementation of mitigation measures set out in this report and the OCMP, is **negative, not significant** and **temporary**.

Having regard to the foregoing, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of population and human health impacts during the construction phase. Therefore, a requirement for subthreshold EIA does not arise.

7.1.2 Operational Phase

Upon completion, the operational phase will provide an important material asset for the area in terms of improved water services infrastructure. The Proposed Works provide foul rising main, watermains, and fibre ducting infrastructure to the Avoca River Park Industrial Estate, replacing the current septic tank wastewater system.

During the operational phase, the Proposed Works pipeline will be buried underground and there will be no impacts on Human Health and Populations. The Proposed Works will not require any staff to operate; it is anticipated that maintenance staff will carry out routine inspection of this infrastructure.

The potential impact of the Proposed Works is **neutral, imperceptible**, and **long-term**. There is no likelihood of significant effects on the environment arising from the Proposed Works in respect of population and human health impacts during the operational phase. Therefore, a requirement for subthreshold EIA does not arise.

7.2 Biodiversity

The potential impact from the Proposed Works on biodiversity with particular attention to the Arklow Town Marsh proposed Natural Heritage Area to species and habitats protected under the Habitats Directive¹⁷ and the Birds Directive¹⁸ has been considered as a part of the AA Screening Report and Ecological Impact Assessment prepared by Altamar (2025) and included with the Section 5 Request documentation. These reports assessed the potential for significant effects of the construction and operational phases of the Proposed Works on Natura 2000 sites and habitat loss/alteration, habitat/species fragmentation, disturbance and/or displacement of species, change in population density and changes in water quality.

7.2.1 Construction Phase

The Appropriate Assessment (AA) Screening Report (Altamar, 2025a) notes that no Natura 2000 sites are within the zone of influence of the Proposed Works, and that there is no possibility of significant impacts on Natura 2000 sites, features of interest, or site-specific conservation measures. The Ecological Impact Assessment (Altamar, 2025b) notes that the Proposed Works runs through the Arklow Town Marsh pNHA from west to east. However, the Proposed Works are entirely contained within an existing right-of-way that has already been subject to infrastructure development.

The Ecological Impact Assessment notes that the implementation of construction phase mitigation measures outlined in the OCMP (DBFL, 2025) and this report, will prevent contamination to surface water run-off to the Arklow Town Marsh and Avoca River tributaries.

The presence of invasive rhododendron was recorded throughout the Right-of-Way. In accordance with the OCMP, clearance and prevention of the spread of rhododendron will be undertaken in line with the TII guidelines, *'The Management of Noxious Weeds and Non-Native Invasive Plant Species on National*

¹⁷ 92/43/EEC

¹⁸ 2009/147/EC

Roads. The use of light outside of daylight hours will be avoided, in order to protect any bats that may be foraging within the marsh area.

The Ecological Impact Assessment concludes that *'The construction and operation of the Proposed Works is not predicted to impact on terrestrial, mammalian, avian and aquatic sensitive receptors through the application of standard construction and operational controls. No significant effects on biodiversity are likely.'*

On the basis of the foregoing, and with regard to the evidence set out within the AA Screening Report, the potential effects on local biodiversity and ecology are ***negative - neutral, not significant, temporary, localised, and unlikely*** for the construction phase.

Having regard to the foregoing, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of biodiversity impacts during the construction phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.2.2 Operational Phase

The accompanying AA Screening Report (Altamar, 2025) submitted with the Section 5 Request documentation have assessed the potential for significant impacts of the operational phase of the Proposed Works with regards to biodiversity.

During the operational phase, the Proposed Works pipeline will be buried underground and there will be limited potential for impacts on local biodiversity, ecology, and the Arklow Marsh pNHA.

The AA Screening Report notes that *'Having taken into consideration foul wastewater facilitation, the lack of impermeable surfaces associated with the development, and vegetative regeneration following construction, it is concluded that the operation of this development would not give rise to any significant effect on any designated sites. No impact is foreseen in relation to designated conservation sites from the operation of the Proposed Works.'* In particular, the clearance of invasive rhododendron will allow neutral/positive impacts on flora diversity following regrowth/recolonisation along the right-of-way.

On the basis of the above with regard to the evidence set out within the AA Screening Report, the potential effects on local biodiversity and ecology are ***neutral - positive, slight, and short- to long-term*** for the operational phase.

Having regard to the foregoing, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of biodiversity impacts during the operational phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.3 Land, Soils, Geology, Hydrogeology, Hydrology

7.3.1 Construction Phase

7.3.1.1 Potential for increased sediment and runoff from excavation, soil handling, removal and compaction

The construction phase will primarily consist of the staggered excavation of 2 no. parallel c 1.3m depth trenches to facilitate the installation of the foul rising and water mains pipelines and fibre ducting. Construction works will take place within an existing 8m width Right of Way.

There is the potential for contaminated surface water run-off from the trench excavations during the construction phase which may contain increased silt levels or become polluted from a localised leak from a construction vehicle.

Run-off water containing silt will be contained on-site and treated to ensure adequate silt removal. As stated in the OCEMP (DBFL, 2025), silt reduction measures on site will include a combination of silt fencing and silt traps to prevent any run-off from entering the adjacent watercourse.

Movement of material will be minimised to reduce the degradation of soil structure and generation of dust. Construction works will be carried out with the least disturbance of soil feasible. Excavations (for a max trench opening length of 50m) will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. Excavated soils will be replaced on top of the fill layer; excess soil may form a raised mound.

There is no plan to remove material off site. All excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be disposed of by a suitably permitted/licensed waste contractor.

Stockpiles of soil and construction aggregate can have the potential to cause negative impacts on air and water quality. The effects of soil stripping and stockpiling will be mitigated against through the implementation of appropriate earthworks handling protocol during construction.

Some stockpiling of soil and construction materials will be required during the construction phase but infilling will be undertaken quickly to minimise requirement for any significant stockpiling requirement along the Right of Way. Stockpiling of infill materials will be kept to a minimum of 50m from watercourses in the construction compound area. Stockpiling will be managed in the Right of Way alongside the construction works and will be appropriately covered with a protective membrane.

In respect of the foregoing, and the measures set out in the OCEMP prepared by DBFL Consulting Engineers, and the AA Screening prepared by Altamar (2025a) the residual impact as a result of the potential for increased sediment and runoff from excavation works on, land, soils, geology, hydrogeology, and hydrology during construction is considered to be ***negative, not significant, and temporary.***

7.3.1.2 Potential for contamination from accidental spills and leaks

There is potential for water (rainfall and/or discontinuous perched groundwater) to become contaminated with pollutants associated with construction activity. Contaminated water which arises from construction sites can pose a risk to water quality for the duration of the construction if contaminated water is allowed percolate to the aquifer or accidental discharges into surface water unmitigated.

The potential impacts during the construction phase are required to be mitigated by best practice construction with respect to storage of any hazardous substances (fuels, chemicals and other construction materials that may pose a risk to the environment). As stated in the OCEMP, (DBFL, 2025), refuelling will take place within the construction compound, and no refuelling will take place within the Right of Way. All fuels, oils, solvents, and paints will be stored in specially constructed bunded areas. Vehicle fuels are to be stored in mobile double-skinned tanks. Spill kits and hydrocarbon absorbent packs are to be stored in the construction compound and emergency spill procedures will be put in place.

In respect of the foregoing, the residual impact in respect of the potential for impacts related to contamination from accidental spills on soils, geology, hydrogeology, and hydrology during construction is considered to be ***negative, not significant and temporary.***

7.3.1.3 Dewatering

No significant dewatering is expected to be undertaken during the construction phase. The construction phase is expected to be 12 weeks and will occur during summer when the local water table is lower to eliminate as far as possible the need for localised dewatering.

In respect of the foregoing, the residual impact in respect of the potential for impacts related to dewatering on, soils, geology, hydrogeology, and hydrology during construction is considered to be ***neutral, not significant*** and ***temporary***.

7.3.1.4 Foul water & Waste Supply during construction

Welfare facilities will be provided for the contractors at the construction compound during the construction works. During construction, portable sanitary facilities will be provided with waste collected and disposed of appropriately. There are no predicted adverse impacts on wastewater during construction.

No silty or contaminated water from the construction works will be discharged to any stormwater network.

With due consideration to the characteristics of the Proposed Works and the site location, there are ***no likely potential significant impacts*** of the Proposed Works in relation to utilities during construction, under the environmental factor of land, soils, geology, hydrogeology, and hydrology.

7.3.1.5 Potential for impacts on Water Framework Directive status

There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the WFD status in the long-term.

The Proposed Works will not impact on trends in water quality and overall WFD status assessment of the surface water body (Avoca River (Avoca River_030, EU_CD: IE_EA_10A031140), nor the groundwater body (Wicklow (EU Code: IE_EA_G_076)). The Proposed Works will not cause a deterioration in status in any water body, and not prevent it from achieving 'Good Ecological Status' (GES) and 'Good Chemical Status' (GCS).

There is no potential impact on Water Framework Directive status of the surface water bodies and groundwater bodies, therefore no specific mitigation measures are required.

7.3.1.6 Conclusions

Having regard to Sections 7.3.1.1 to 7.3.1.5, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of land, soils, geology, hydrogeology and hydrology impacts during the construction phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.3.2 Operational Phase

Once operational, the Proposed Works will consist of a pipeline that will be buried underground. There will be no impacts on land, soils, geology, hydrogeology and hydrology.

7.3.2.1 Flood Risk

The subject lands have been analysed for risks from flooding from fluvial flooding, pluvial flooding, and flooding from groundwater ingress. Excavation of a trench in 50 m intervals will have no effect on off site flooding. With reference to section 6.2.2, there is no flood risk associated with the Proposed Works due to the nature of the project.

The Proposed Works site has overlap in its eastern portion with the Permitted Arklow Flood Relief Scheme (ACP Reg. Ref. YA27.310368), which consists of engineering works along the Avoca River and its surrounds, to mitigate flood risk in the Arklow town area. Consultation has been undertaken by the Proposed Works design team and WCC Flood Relief Scheme design team, and will continue throughout the construction phase to ensure there is no impact to the Flood Relief Scheme.

It is therefore AWN Consulting's opinion that the risk of flooding at this site in flood events is minimal.

The residual impact on land, soils, geology, hydrogeology, and hydrology during operation is considered to be **neutral, imperceptible** and **temporary**.

7.3.2.2 Potential for impacts on Water Framework Directive status

Once operational, the Proposed Works will consist of a pipeline buried underground. There is no potential of accidental discharges during the operational phase. There is no potential impact on Water Framework Directive status of the surface water bodies and groundwater bodies, therefore no specific mitigation measures are required.

7.3.2.3 Conclusions

Having regard to Sections 7.3.2.1 to 7.3.2.2, there will be no impacts on the environment arising from the Proposed Works in respect of land, soils, geology, hydrogeology and hydrology impacts during the operational phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.4 Air Quality, Climate, Noise and Vibration

7.4.1 Construction Phase

7.4.1.1 Air Quality and Climate

Construction stage traffic and embodied energy of construction materials are expected to be the dominant source of greenhouse gas emissions as a result of the construction phase of the development. Construction vehicles, generators etc., may give rise to some CO₂ and NO₂ emissions. However, due to the temporary nature of these works (the construction phase is estimated to be 12 -16 no. weeks and a maximum of 15 no. construction workers are estimated to be on site), the impact on climate will be **imperceptible** and **temporary**.

Nevertheless, some site-specific mitigation measures, contained within the OCEMP (DBFL, 2025) will be implemented during the construction phase of the Proposed Works to ensure emissions are reduced further - in particular the prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. The appointed contractor will be required to use biofuels in place of fossil fuels as far as is practicable.

The greatest potential impact on air quality during the construction phase of the Proposed Works is from construction dust emissions and the potential for nuisance dust and PM₁₀/PM_{2.5} emissions. While construction dust tends to be deposited within 250 m of a construction site, the majority of the deposition occurs within the first 50 m¹⁹. No significant generation of dust is expected as a result of the Proposed Works, due to the nature of the development and the chosen construction methodologies.

There is potential for minor degradation of the air quality (dust) in a very localised area during certain parts of the construction processes, due to the separation distance between the site and nearby sensitive receptors located to the immediate east of the Proposed Works on Ferrybank road. These sensitive receptors are located within 250 m of the development site. Therefore, during construction, there is limited potential for dust impacts on these sensitive receptors which would be considered in the absence of mitigation **negative, not significant, and temporary**.

The pro-active control of fugitive dust will ensure the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released. The main contractor will be responsible

¹⁹ IAQM (2024) Guidance on the Assessment of Dust from Demolition and Construction (version 2.2), Institute of Air Quality Management 2024

for the coordination, implementation and ongoing monitoring of a Dust Management Plan. The key aspects of controlling dust are listed below and have been incorporated into the OCEMP (DBFL, 2025).

- ▶ The development of a documented system for managing site practices with regard to dust control;
- ▶ Spraying of exposed earthwork activities and site haul roads during dry weather;
- ▶ Provision of wheel wash at exit points;
- ▶ Covering and dampening of stockpiles;
- ▶ Control of vehicle speeds, speed restrictions and vehicle access; and
- ▶ Sweeping of hard surfaced roads.
- ▶ Erection of 2.4m high hoarding where possible

The residual effects on air quality and climate will be **negative, imperceptible, and temporary** during the construction phase.

7.4.1.2 Noise and Vibration

During the construction phase there is potential for temporary impacts on the nearest residential properties due to noise emissions from the plant equipment required for construction.

The magnitude of noise generated will be dependent on a number of factors including the proximity of noise sensitive receptors, construction methods employed, the selection of plant and the construction programming. A variety of items of construction methods and plant items will be required during the various phases of the construction project. Noise will be generated primarily from the onsite construction activity, however noise can be generated during haulage of construction and waste materials to and from site.

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project.

The application of avoidance measures, such as binding hours of construction, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact will not be excessively intrusive. Any impacts will be short term in duration for the construction phase. As noted in the OCEMP (DBFL, 2025), all works shall be carried out with compliance with relevant legislation and regulations in relation to noise and vibration. Vibrations shall be monitored in accordance with BS 7385-1:1990 'Evaluation and Measurement for Vibration in Buildings' with a limit of 5mm/s ppv.

Noise and vibration effects on the environment following the implementation of standard construction mitigation measures, as set out in the OCEMP, the residual impact can be characterised as **negative, imperceptible, and temporary** for the construction phase.

7.4.1.3 Conclusions

Having regard to Sections 7.4.1.1 and 7.4.1.2, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of air quality, climate, noise and vibration impacts during the construction phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.4.2 Operational Phase

7.4.2.1 Air Quality and Climate

In relation to the operational phase of the Proposed Works, the development will not result in any emissions of air quality pollutants or greenhouse gases once operational. Therefore, the potential impact to air quality from the operational phase of the Proposed Works is expected to be **neutral, imperceptible, and long-term**. Therefore, no site-specific mitigation measures are required.

Current EPA guidance states that a development may have an influence on global climate where it represents '*a significant proportion of the national contribution to greenhouse gases*' (EPA, 2003). The '*Guidelines on the Information to be Contained in Environmental Impact Assessment Reports*' (EPA 2022) states that impacts relevant to adaptation to climate change should be assessed and that projects should be assessed in terms of their vulnerability to climate change. The impact to climate from the operational phase of the proposed Project is expected to be imperceptible in terms of national CO₂ emissions and Ireland's agreed limit under the Kyoto Protocol (Framework Convention on Climate Change, 1997, 1999) and the EU Effort Sharing Agreement ('20-20-20' Targets). The Proposed Works will not result in any impacts relevant to climate adaptation, including the Arklow Flood Relief Scheme as detailed above, therefore the project will not be vulnerable to climate change.

7.4.2.2 Noise and Vibration

During the operational phase, potential noise sources are considered to be limited to infrequent maintenance activities, loading/unloading activity, and additional vehicles on the existing road system. None of these will increase the existing noise climate sufficiently so as to be likely to cause disturbance.

In relation to the operational phase of the proposed project, the proposed project will not result in any significant noise missions once operational. Therefore, the impact due to noise from the operational phase of the Proposed Works is expected to be *neutral, imperceptible, and long-term*.

7.4.2.3 Conclusions

Having regard to Sections 7.4.2.1 to 7.4.2.2, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of air quality, climate, noise and vibration impacts during the operational phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.5 Material Assets (including Waste Management and Traffic)

The Proposed Works will have an impact upon other material assets and 'built services and infrastructure' (set out in the EPA Guidelines 2022) such as foul drainage stormwater drainage, potable water supplies and electricity supply.

7.5.1 Construction Phase

7.5.1.1 Utilities: Foul Sewer, Stormwater, Potable Water and Electricity

Welfare facilities (canteens, toilets etc.) will be available within the construction compound on site.

Portable sanitary facilities will be provided with waste collected and disposed of appropriately. There are no predicted adverse impacts on wastewater during construction.

No silty or contaminated water from the construction works will be discharged to any stormwater network.

The construction phase will not use such a quantity of water to cause concern in relation to significant effects on the environment.

Excavation of the trench for the Proposed foul rising and water mains pipelines will run parallel to an existing UÉ water mains pipeline. A pre-construction consultation was undertaken with Uisce Éireann, and there will be no disruption to the mains water supply pipeline during the construction phase.

Electrical connections will be made by suitably qualified personnel following consultation with the relevant authorities and will be cognisant of subsequent construction works. High voltage connections will be established for heavy duty equipment and site facilities, as required. All electrical works, including connection to the ESB network will be carried out by a suitably qualified contractor. The power and

electrical supply requirements during construction are minor, and there is no potential impact anticipated on existing users.

In respect of the foregoing, the predicted impacts upon foul sewer, stormwater and potable water and electricity supply are considered to be **neutral, imperceptible**, and **short-term** in nature.

7.5.1.2 Waste and Waste Management

As noted in Section 4.4.1 there will be some waste materials produced in the construction of the Proposed Works which will be disposed of using licensed waste disposal facilities and contractors. The scale of the waste production in conjunction with the use of licensed waste disposal facilities and contractors does not cause concern for likely significant effects on the environment.

The accompanying Resource Waste Management Plan (RWMP) prepared by AWN Consulting (2025) details the methodologies employed for the control, management, monitoring and disposal of waste from the site. Other than materials associated with materials necessary for construction (the excavation of the trench and installation of the foul rising and water mains pipelines), the Proposed Works will not produce significant volumes of waste.

All waste arising during the construction phase will be managed and disposed of in a way that ensures the provisions of the Waste Management Act 1996 as amended and associated regulations, the National Waste Management Plan for a Circular Economy 2024 – 2030, and the Eastern Midlands Region Waste Management Plan 2015-2021 are adhered to. In the event there is excess material with no defined purpose, it will be transported to an authorised soil recovery site or notified to the EPA as a by-product when it will be beneficially used. Waste during construction will be managed in accordance with the RWMP, as well as any subsequent conditions.

It is considered that the Proposed Works will not have any significant impact in terms of resources or waste generation.

A carefully planned approach to waste management as set out in the RWMP and summarised in Section 4.4 will ensure that the impact on the environment will be **neutral, temporary** and **imperceptible**.

7.5.1.3 Traffic

As noted in the OCEMP (DBFL, 2025), a Construction Traffic Manager will be appointed by the construction contractor. The Construction Traffic Manager will be required to coordinate and schedule all deliveries to the site, ensure that roadways are kept clear of mud and debris, advise haulage contractors on routes and ensure adherence with good traffic management principles.

An outline scheme for temporary management of public and construction traffic within the site area is outlined in the OCEMP (DBFL, 2025).

Following the implementation of measures outlined in the OCEMP, the potential impacts on traffic and transportation are **negative, not significant** and **temporary** for the construction phase.

7.5.1.4 Conclusions

Having regard to Sections 7.5.1.1 to 7.5.1.3, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of material assets impacts during the construction phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.5.2 Operational Phase

7.5.2.1 Utilities: Foul Sewer, Stormwater, Potable Water and Electricity

The Proposed Works does not require an operational electrical supply and there is no water, hardstanding, or surface water generation as part of the Proposed Works.

The Proposed Works comprise a foul and water mains pipeline that will enhance the existing water utility infrastructure for the Avoca River Park Industrial Estate. The pipeline will connect to the existing UÉ foul water/sewer mains along the Ferrybank road. A pre-connection enquiry/consultation has been undertaken with Uisce Éireann to determine if there is adequate capacity in the existing public network to cater for the increased volume of wastewater associated with the Proposed foul water pipeline. The recently completed Arklow Waste Water Treatment plant has significantly enhanced the wastewater treatment capacity in the local public network, and Uisce Éireann have advised feasibility without further infrastructure upgrade by Uisce Éireann.

The Proposed Works additionally provides fibre cable ducting connections from Arklow Town to the Avoca River Park Industrial Estate.

In respect of the foregoing, the predicted impacts upon foul sewer, stormwater, potable water and electricity supply are considered to be **neutral, not significant** and **long-term** in nature.

7.5.2.2 Waste and Waste Management

Once operational, it is anticipated that negligible amounts of waste will be generated by maintenance staff during their inspections and maintenance works. These are expected to be accommodated within the existing waste management facilities in the Avoca River Park Industrial Estate. As such, no further structured approach to waste is necessary. Overall the impact of the development in the operational phase on the environment will be **long-term, neutral** and **imperceptible**.

7.5.2.3 Traffic

The Proposed Works will have an imperceptible impact on the road network, in particular to the junctions in the proximity of the development.

During the operational phase, increases in traffic are considered to be limited to infrequent maintenance activities resulting in additional vehicles on the existing road system. As such, no regular traffic trips are expected, and where they do occur they would be small in number. The numbers would be significantly below the 10% threshold for further assessment set out in the TII Traffic and Transport Guidelines (May 2014).

On the basis of the above, the impact of the development will be **long term, imperceptible**, and **neutral**.

7.5.2.4 Conclusions

Having regard to Sections 7.5.2.1 to 7.5.2.3, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of material assets impacts during the operational phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.6 Cultural Heritage and Archaeology

7.6.1 Construction Phase

Section 6.3.8 describes cultural heritage and archaeology of the ZOI for the Proposed Works. Given that no recorded archaeological or architectural heritage sites will be impacted on by the proposed

development, the majority of the development will be undertaken within previously disturbed land, and the depth of excavations will be shallow (c. 1.3m), no further mitigation is recommended.

It is considered that there will be no significant impact to any recorded archaeological or architectural heritage sites arising from the construction phase of the Proposed Works.

The construction phase of the Proposed Works, due to its temporary nature, does not give rise to any impact on cultural heritage.

Having regard to the foregoing, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of cultural heritage and archaeology during the construction phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.6.2 Operational Phase

Once operational, the Proposed Works will be fully buried underground. There will be no impacts on archaeological and cultural heritage.

Having regard to the foregoing, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of cultural heritage and archaeology impacts during the operational phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.7 Landscape And Visual Impact

7.7.1 Construction Phase

The change of use of the site from its existing use to that of a construction site will give rise to short term and substantially localised effects on landscape character. The initial construction operations created by the clearance of the site and the construction of the Proposed Works will give rise to temporary impacts on the landscape character, through the introduction of machinery and ancillary works etc. These impacts will be screened significantly by surrounding vegetation, in addition to c. 2.4m high hoarding erected where practicable.

The residual impact on landscape and visual impact during construction will be *temporary not significant* and *neutral*.

Having regard to the foregoing, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of landscape and visual impacts during the construction phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.7.2 Operational Phase

Once operational, the Proposed Works will be fully buried underground. There will be no impact to landscapes and visual impact.

Having regard to the foregoing, there is no likelihood of significant effects on the environment arising from the Proposed Works in respect of landscape and visual impacts during the operational phase. Therefore, a requirement for sub-threshold EIA does not arise.

7.8 Cumulative Impact

As part of the assessment of the Proposed Works, the likelihood of potential cumulative impact of the Proposed Works has been considered with any future development (as far as practically possible) and the cumulative impacts with developments in the locality (including planned, permitted and committed developments).

As outlined in Section 5, above, a list of notable consented and planned developments located within 1km²⁰ of the development site is included in Appendix A of this report.

Cumulative impacts are those impacts that relate to incremental / additive impacts of the planned development in addition to historical, present or foreseeable future actions. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects.

7.8.1 Construction Phase

There is potential for cumulative effects, in respect of soils, hydrology, biodiversity, and traffic during the construction phase with the following Proposed Works, located within 1km of the development site with the cumulative developments contained in Appendix A. Due to the temporary duration of the Proposed Works construction phase (c. 12-16 weeks), a number of the developments contained within Appendix A are considered highly unlikely to be constructed simultaneously with the Proposed Works. Where these developments have been excluded, this has been noted in Appendix A.

During a simultaneous construction phase of the Proposed Works and committed developments outlined above, there is potential for cumulative impacts on noise, dust generation, soils, hydrology, biodiversity, and traffic in the absence of mitigation. Mitigation measures are included in the design of each development with soils, hydrology, biodiversity, and traffic management. Mitigation measures regarding soils, hydrology, biodiversity, bats and traffic management during the construction phase of the Proposed Works are included within the OCMP and Bat Fauna Survey submitted with the Section 5 Request documentation and are also outlined in Section 7 of this EIA Screening report.

Mitigation measures for the relevant cumulative developments identified in Appendix A are set out as follows:

- ▶ **WCC Reg. Ref.: 211080** Construction phase mitigation measures regarding noise, dust, soils, hydrology, biodiversity, and traffic management are set out in the Environmental Impact Assessment Report submitted with this planning application. Conditions 7 and 8 of the GOP require full implementation of mitigation measures set out in the EIAR in addition to the development and implementation of a Construction Environmental Management Plan (CEMP).
- ▶ **An Coimisiún Pleanála Reg. Ref.: VA27.310090** Construction phase mitigation measures regarding noise, dust, soils, hydrology, biodiversity, and traffic are set out in the Environmental Impact Assessment Report submitted with this planning application. Condition 2 of the Board Order requires adherence to these mitigation measures, Condition 3 requires adherence to the mitigation measures set out in the Natura Impact Statement, and Condition 7 requires the development and implementation of a Construction Management Plan.
- ▶ **WCC Reg. Ref. 22/433:** Construction phase mitigation measures regarding noise, dust, traffic, biodiversity, hydrology, and soils are set out in the Environmental Impact Assessment Screening Report submitted with this planning application. Condition 2 of the grant of permission requires the development and implementation of a Construction Environmental Management Plan.
- ▶ **An Coimisiún Pleanála Reg. Ref.: YA27.310368** Construction phase mitigation measures regarding noise, dust, traffic, biodiversity, hydrology, soils, and flood risk are set out the Environmental Impact Assessment Report submitted alongside the planning application. Condition 2 and 3 require adherence to the mitigation measures set out in the EIAR and a Construction Environmental Management Plan. Conditions 4, 5, and 6 set out additional mitigations regarding biodiversity and ecology.
- ▶ **WCC Reg. Ref. 23/60032, ACP Reg. Ref. 318443-23:** Construction phase mitigation measures regarding noise, dust, traffic, biodiversity, hydrology, soils, dust, and noise are set out in the Ecological

²⁰ The maximum areal extent from the Proposed Development Site for cumulative 'not yet existing' developments to exist as detailed in Section 5.2.2.

Impact Assessment and Appropriate Assessment Screening submitted alongside the planning application. Condition X of the Board Order requires development and adherence to a Construction Environmental Management Plan and Resource Waste Management Plan.

- ▶ **WCC Reg. Ref. 23/756, ACP Reg. Ref. PL27.319604:** Construction phase mitigation measures regarding noise, dust, soils, hydrology, and traffic management are set out in the Construction Management Plan and AA Screening submitted alongside the planning application. Condition 13 of the final grant of permission from An Coimisiún Pleanála requires the development and implementation of a Construction and Environmental Management Plan.
- ▶ **WCC Reg. Ref. 23/381, ACP Reg. Ref. 317937:** Construction phase mitigation measures regarding noise, dust, soils, hydrology, and traffic management are set out in the Appropriate Assessment Screening Report, Flood Risk Assessment, and Outline Construction Environmental Management Plan submitted alongside the planning application. Condition 10 of the Board Order requires the development and adherence to a full Construction Environmental Management Plan.
- ▶ **WCC Reg. Ref. 23/843:** Construction phase mitigation measures regarding noise, dust, traffic, biodiversity, hydrology, and soils are contained within the EIA Screening Report and outline Construction Environmental Management report submitted alongside this planning application.
- ▶ **WCC Reg. Ref. 24/60284:** Construction phase mitigation measures regarding traffic, biodiversity, hydrology, soils, dust, and noise are included in the AA Screening Report, Noise and Vibration Impact Assessment, Traffic and Transport Assessment, Construction and Demolition Waste Management Plan, and Construction Environmental Management Plan submitted alongside the planning application and as part of Further Information submissions.
- ▶ **WCC Reg. Ref. 25/60594:** Construction phase mitigation measures regarding noise, dust, traffic, biodiversity, hydrology, and soils are set out in the EIAR, Traffic Management Plan, Appropriate Assessment Screening Report, Biodiversity Management Plan, and Outline Construction Environmental Management Plan submitted alongside this planning application. This development has not yet been granted permission.
- ▶ **WCC Reg. Ref. 25/60387:** This planning application amends WCC Reg. Ref. 23/756. Construction phase mitigation measures regarding noise, dust, traffic, biodiversity, hydrology, and soils are set out in the EIAR, AA Screening, Construction Environmental Management Plan, Hydrological and Hydrogeological Assessment, and Traffic Assessment included alongside this planning application. This development has been refused permission; the decision has been appealed to An Coimisiún Pleanála.

In addition to the above developments, there potential for cumulative impacts on noise and dust generation for the Proposed Works during the construction phase. Mitigation measures regarding noise and dust are included in the OCEMP and are also outlined in Section 7.4.1 of this report. Each of the permitted developments identified in Appendix A is subject to EIA and/or planning conditions which include appropriate mitigation measures to minimise these environmental impacts.

Provided the mitigation measures stipulated in the planning conditions for each of the cumulative developments in Appendix A are implemented, there will be **neutral, not significant** and **temporary** cumulative impacts on biodiversity, traffic, soils, or hydrology during the simultaneous construction phases of the Proposed and cumulative developments.

The Appropriate Assessment (AA) Screening Report prepared by Altamar and submitted as part of this Section 5 Request has considered the Proposed Works and the cumulative developments in Appendix A. This step aims to identify at this early stage any possible significant in-combination effects of the Proposed Works with other such plans and projects on European sites, and concluded there is no potential for in-combination effects on European sites.

Based on the assessment of the environmental sensitivities in the existing environment and consideration of potential cumulative construction impacts, it is concluded that there is no likelihood of significant effects, therefore a requirement for sub-threshold EIA does not arise.

7.8.2 Operational Phase

No significant operational effects are expected for the Operation Phase of the Proposed Works, therefore there is no potential for cumulative effects with the cumulative developments contained in Appendix A.

Based on the assessment of the environmental sensitivities in the existing environment and consideration of potential cumulative operational impacts, it is concluded that there is no likelihood of significant effects between the Proposed Works and the cumulative developments in Appendix A, therefore a requirement for sub-threshold EIA does not arise.

7.8.3 Conclusions

All identified cumulative development will be required to incorporate appropriate mitigation measures (e.g. noise management, stormwater management, foul water management, traffic management, mobility management, landscape, etc) via their planning permission and as such any cumulative development in Appendix A will not have a significant effect on human health, biodiversity, material assets, land, soils, geology, hydrogeology, and hydrology, landscape and cultural heritage.

Any future development not yet known on the surrounding lands should be cognisant with the zoning and will be subject to EIA Screening/EIA and/or planning conditions which include appropriate mitigation measures to minimise environmental impacts.

Based on the assessment of the environmental sensitivities in the existing environment and consideration of potential cumulative impacts, it is concluded that there is no likelihood of significant effects, therefore a requirement for sub-threshold EIA does not arise.

7.9 Interactions

This section of the EIA Screening Report in accordance with the guidance, considers the potential interactions and inter-relationships between the environmental factors discussed in Sections 7.1 to 7.8.7.8 and presents these findings for both the construction and the operational phase of the Proposed Works. The interaction of the impacts, described in Sections 7.1 to 7.8 would not give rise to any significant negative impacts on the environment.

7.9.1 Potential Negative Interactions

The construction phase of the Proposed Works has the potential (without mitigation) to negatively impact on the water quality via through poorly managed surface water run-off, producing an interaction between land, soil, geology, hydrogeology and hydrology and biodiversity.

During construction there is a temporary adverse potential for generation of dust during excavation works and as such a potential an interaction in terms of air quality on human health and biodiversity.

There is also a potential interaction between construction noise and vibration, and temporary negative impacts on human health and biodiversity.

The construction phase will be noticeable for c. 12-16 weeks resulting in temporary negative interactions between human health and visual impact.

The additional traffic expected during the construction phase may have a temporary negative effect on residential amenity and human health. These impacts may include increased vehicle movements associated with construction staff travelling to/from the site, increased vehicle movements consisting of HGV and construction plant that may result in traffic congestion on roads, increased queuing and congestion, increased conflict between pedestrians/cyclists and vehicular traffic and severance of pedestrian and cycle routes.

These potential negative interactions are temporary and associated with the construction phase. The OCMP has outlined mitigation measures to ensure that pollution and nuisances arising from site clearance and construction activities is prevented where possible and managed in accordance with best practice and any subsequent conditions relevant to the Proposed Works. These interactions are as such considered to be **neutral, not significant** and **temporary**.

7.9.2 Potential Neutral Interactions

Air quality and climate have interactions due to the emissions from the burning of fossil fuels associated with vehicles and machinery during the construction phases generating both air quality and climate impacts. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles (including CO₂ a greenhouse gas) increase. The impacts of the Proposed Works on air quality is related to changes to annual average daily traffic (AADT) on roads close to the site. The Proposed Works will not result in AADT increases greater than or equal to 1,000 vehicles or 200 heavy duty vehicles and as such is not defined²¹ as being affected by air quality.

There is also potential for interactions between Noise and Vibration and Traffic during the construction phase, however considering that for an increase in traffic noise levels by 1 dB, traffic volumes would need to increase by the order of 25% or greater²² there will be no perceptible increase in noise and vibration levels.

During the construction phase, excavated soil and stone will be generated from the excavations required to facilitate site levelling, construction of new foundations and installations of site services. Where material cannot be reused onsite it will be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in the OCMP and the RWMP will ensure the effect is neutral.

These potential neutral interactions are considered to be **neutral, imperceptible** and **short term**.

7.9.3 Potential Positive Impacts

The Operational Phase of the Proposed Works has potential for a positive interaction with material assets, and receiving soils and waterbodies. The Proposed Works foul rising pipeline will replace the current septic tank foul water system within the Avoca River Park Industrial Estate. The improved wastewater infrastructure will remove the requirement for on-site treatment of foul water relying on natural attenuation within the soil and dilution within the aquifer.

These potential positive interactions are considered to be **positive, slight** and **long term**.

²¹ TII Guidance (2022) *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106*.

²² DMRB Noise and Vibration (UKHA 2020), Volume 11, Section 3, Part 7. In order to increase traffic noise levels by 1 dB traffic volumes would need to increase by the order of 25%

Table 7-2 Summary of Interactions Between the Environmental Factors

	Population & Human Health		Biodiversity		Land, Soils, Geology, Hydrogeology, Hydrology		Air Quality & Climate		Noise & Vibration		Landscape & Visual Impact		Archaeological Architectural & Cultural Heritage		Material Assets (including Transport & Waste)			
	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.	Con.	Op.		
Population & Human Health					o	o	—	o	—	o	—	o			—	o		
Biodiversity					—	o	—		—	o		+			—	o		
Land, Soils, Geology, Hydrogeology, Hydrology											—	o	o		o	o		
Air Quality & Climate											—	o			—	o		
Noise & Vibration											—	o						
Landscape & Visual Impact																		
Archaeological Architectural and Cultural Heritage																		
Material Assets (including Transport & Waste)																		
					+													

Con.	Construction Phase
Op.	Operational Phase
	No Interaction

+	Positive Interaction
o	Neutral Interaction
—	Negative Interaction

7.10 Transboundary Effects

The ZOI for the Proposed Works will not result in any significant transboundary effects.

8. FINDINGS AND CONCLUSIONS

The Proposed Works and component parts have been considered against the thresholds outlined in Schedule 5 in the Planning and Development Regulations 2001 (as amended). On the basis of the evaluation set out in Section 3 an EIA for the Proposed Works is not mandatory; the Proposed Works are considered to be a sub-threshold development and therefore there is discretion over the need to undertake EIA and seek the submission of an EIAR with the Section 5 Request.

This EIA Screening Report provides the information required under Schedule 7A to demonstrate the likely effects on the environment, having regard to the criteria set out in Schedule 7 of the Planning and Development Regulations 2001, as amended. This report considers whether as per the Commission Guidance²³, the EPA Guidance⁶, and the OPR Practice Note²⁴ the Proposed Works *'is likely to have significant effects on the environment'* as per the criteria set out in Schedule 7².

WCC is required to assess whether the Proposed Works are likely to have significant effects on the environment in order to determine whether EIA and the submission of an EIA Report is required. The information necessary to deliver a Screening Determination has been provided in this report and the methodology used has been informed by the available guidance, legislation and Directives.

AWN has considered the Proposed Works and assessed the potential for significant environmental effects and the need for EIA, which is documented in Sections 6 and 7. The continued implementation of the OCMP mitigation measures and compliance with any conditions will prevent potential short-term nuisances (such as runoff, dust, noise and vibration, and traffic). As drainage and attenuation is in place there is no risk for water contamination or offsite flooding.

The Appropriate Assessment (AA) Screening Report (Altemar, 2025) noted that there is no connectivity to any European sites within the potential zone of Influence.

It is concluded, based on the evidence documented in Sections 4, 6 and 7, that this Schedule 5, Part 2, Class 15² project is **not** considered likely to have significant effects on the environment (direct, indirect or cumulatively with other development), having regard to the criteria set out in Schedule 7², and therefore it is considered that Environmental Impact Assessment (EIA) is **not required** in this instance.

²³ EU (2017) Environmental Impact Assessment of Projects – Guidance on Screening. (2017). European Commission.

²⁴ OPR (2021) Environmental Impact Assessment Screening, OPR Practice Note PN02, Office of the Planning Regulator, 2021

9. REFERENCES

- ▶ EU (2017a) Environmental Impact Assessment of Projects Guidance on Screening. EU Luxembourg: 2017.
- ▶ EU (2017b) Guidance on the preparation of the Environmental Impact Assessment Report. EU Luxembourg: 2017.
- ▶ EC (2017) Environmental Impact Assessment of Projects – Guidance on Screening. European Commission.
- ▶ EC (2021) Commission notice regarding application of the Environmental Impact Assessment Directive (Directive 2011/92/EU of the European Parliament and of the Council, as amended by Directive 2014/52/EU) to changes and extension of projects - Annex I.24 and Annex II.13(a), including main concepts and principles related to these (2021/C 486/01)
- ▶ DHPLG (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. Department of Housing, Planning and Local Government.
- ▶ EC (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report, European Commission, 2017 <http://ec.europa.eu/environment/eia/eia-support.htm>
- ▶ EU (2024) Interpretation of definitions of project categories of annex I and II of the EIA Directive. European Commission
- ▶ OPR (2021) Environmental Impact Assessment Screening, OPR Practice Note PN02 (Office of the Planning Regulator).
- ▶ EPA (2022) Environmental Protection Agency. Guidelines on the Information to be contained in Environmental Impact Assessment Reports. EPA.
- ▶ TII (2011) Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes. Transport Infrastructure Ireland
- ▶ Resource Waste Management Plan, Infrastructure Connections Arklow to Avoca River Park. AWN Consulting, 2025.
- ▶ Outline Construction Environmental Management Plan, Dub20 Infrastructure. DBFL Consulting Engineers, 2025.
- ▶ Appropriate Assessment Screening for proposed works between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow. Altamar, 2025a
- ▶ Ecological Impact Assessment (EcIA) for proposed works between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow. Altamar, 2025b.

APPENDIX A. CUMULATIVE DEVELOPMENTS

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
20662 Vale Road, Arklow, Co. Wicklow	1) A portal frame structure 20 metres long by 14 metres wide by 7.5 metres high (floor area 280m ²). The building will be used as a store to house spare parts and maintenance equipment. 2) A single storey office 5.0m by 3.5m within the proposed store to keep records and specification details of the spare parts and equipment stored. 3) Associated site works.	Grant Permission	08/10/2020	Project has been constructed and is operational.

201285 Avoca River Park, Shelton Abbey & Kilbride, Arklow, Co. Wicklow	1. Demolition of existing ind building units totalling (C.2784.4m2) comprising of a c.7.1m high Overall Main Building (c.2460m2), a c.4.2m high Sub-station (c. 107.3m2), a c.3.6m high Guardhouse (c.106.2m2), a c.3.6m high East-Building (c.39.1m2), c.5m high Water Tank (c.56.8m2) &c.2.6m high Pump House Building (c.15.1m2), assoc works. 2. Dev of 3 no. Data Centre Buildings, ancillary offices & plant comprising of: Data Centre Building A, - a single storey Data Centre Building, with mezzanine 1st floor level offices (GFA c.10,564m2, building height c.13,658m & structures c.15,137m), made up of 2 no. Data Halls & loading areas with assoc 2 no. Dock Levellers & including 10 no. c.14m high flues, & adjacent 1 no. Standby Power Generation Compounds, consisting of 10 no. HV Diesel Generators &belly tanks (GFA c.530 m2), 1 no. storage fuel tank (GFA c.15m2). Data Centre Building B – a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m2, building height c.13,658m &structures c.15,137m), made up of 4 no. Data Halls &loading areas with associated 2 no. Dock Levellers &including 20 no. c.14m high flues, &adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. HV diesel Generators &belly tanks (GFA c.1,060 m2), 2 no. storage fuel tanks (GFA c.30m2). Data Centre Building C – a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m2, building height c.13,658m & structures c.15,137m), made up of 4 no. Data Halls & loading areas with associated 2 no. Dock Levellers &including 20 no. c.14m high flues, &adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. HV Diesel Generators & belly tanks (GFA c.1,060 m2), 2 no. storage fuel tanks (GFA c.30m2). 3. Upgrading of existing 110 kV Substation to comprise of Compound (c. 8539m2) consisting of 11 kV GIS Switch Room (GFA c.708m2), &4 no. External Transformers (GFA c.550m2), a grid connection, security fence & all assoc works & services. 4. Dev of 1 no. Fire Hydrant Pump Hse (GFA c.129m2) with Sprinkler Tank (c.49m2), 1 no. single	Grant Permission	22/03/2021	Project was superseded by WCC Reg. Ref. 2372; detailed below.
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Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	storey Security Guard Hse (GFA c.48m ²) & 2 no. vehicular accesses, internal access rds & 224 no. surface car parking spaces. 5. An upgraded attenuation basin, a proposed ww treatment plant & polishing filter. 6. All assoc site services, with c.2.7m high palisade fence, landscaping, boundary & all assoc site development works above & below ground. An EIAR has been prepared in respect of the proposed dev.			
VA27.310090 In the townlands of Johnstown North, Johnstown South, Seabank, Ballymoney, Killiniskyduff, Templerainy, Coolboy, Kilbride, Shelton Abbey, Ballyraine Lower and Ballyraine Middle in County Wicklow	Proposed development will comprise of onshore grid infrastructure including 220kV export cable circuits and fibre optic cables, new 220kV GIS substation at Shelton Abbey and overhead line connection and all associated ancillary works.	Grant Permission	26/05/2022	N/A
211080	Full ten-year planning permission for development on this site located at Avoca River Park, Arklow, Co. Wicklow. The proposed development is to be located within the townlands of Shelton Abbey and Marsh. The site is bound to the west by the site of a permitted	Grant Permission	15/06/2022	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
Avoca River Park, Arklow, Co. Wicklow	data storage facility development (permitted under Reg. Ref.: 201285), to the north by the access road to Avoca River Park, to the south by undeveloped lands and to the east by undeveloped lands beyond which is the M11 motorway. The proposed development consists of the following: ▶ All site clearance and enabling works required to facilitate the development. ▶ Construction of 2 no. energy centre buildings (Energy Centre 1 and Energy Centre 2) each with a height to parapet level of c. 13.85 metres. ▶ Energy Centre 1 will comprise a gross floor area (GFA) of 5,965 sq.m. within a single storey building and will accommodate 12 no. generators. 4 no. flues 33 metres in height will be accommodated along with south-western elevation of the building. ▶ Energy Centre 2 will comprise a GFA of 9,180 sq.m. within a single storey building and will accommodate 18 no. generators. 6 no. flues 33 metres in height will be accommodated along the south-western elevation of the building. ▶ Construction of a battery compound to provide electricity storage and backup power, located to the northeast of Energy Centre 2, to comprise 27 no. battery arrays within a compound area of c. 0.7 hectares. A single storey MV switch-room building (c.			

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	181 sq.m. GFA) will be provided to the west of the battery compound. ▶ Provision of a transformer compound (to the northwest of Energy Centre 1), along with a welfare building (c.38 sq.m. GFA). ▶ Provision of fuel storage tanks (2 no.) within a bunded compound to the north of Energy Centre 2. ▶ Construction of a new access from the existing estate access road to the north of the site, internal road network and circulation areas, footpaths, provision of 6 no. car parking spaces and 4 no. cycle parking spaces. ▶ Landscaping and planting, boundary treatments, lighting, security fencing and all associated ancillary and site works including underground foul and storm water drainage network (including on-site wastewater treatment system) and utility cables.			
YA27.310368 Arklow Town north and south of the Avoca river and at Arklow Bridge and in the Avoca river, in the townlands of Arklow, Tinahask Lower, Marsh,	The proposed development is a Flood Relief Scheme in Arklow town comprising of flood defences (including flood walls and an earthen embankment), debris and gravel traps, works to Arklow Bridge, river dredging and public realm and landscape improvements.	Grant Permission	19/07/2022	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
Ferrybank and Tiknock.				
211316 South Quay, Arklow, Co. Wicklow	Demolition of existing building & structures and removal of existing syncrolift at the water's edge. Development to the south of South Quay will comprise the erection of a new building with a 4 storey element to the front, to a 2 storey at rear, to provide operation & maintenance facilities to support the operation of an offshore windfarm. The proposed building will consist of office, warehousing & welfare facilities & other ancillary uses associated with the offshore windfarm operation. Landscaped terraces are proposed at roof level at the 2 storey and 3 storey levels of the proposed building. A c. 40m lattice communication mast, associated with the proposed use, is proposed for the southern corner of the site. Car parking for 60 vehicles along with cycle parking for 26 bicycles & 5 motorcycles. An ESB substation is proposed to the south of the building. Waste & recycling storage is proposed on site. Vehicular & pedestrian entrance gates onto South Quay & pedestrian & bicycle entrance to the west. Security fencing around the site. Development to the north of South Quay will comprise a general area for the berthing of vessels to service the offshore windfarm. A pontoon is proposed along with up to 4 cranes for loading & unloading of vessels. Shore side storage is also proposed including 2 shipping containers, a bunded waste oil tank, a grey	Grant Permission	20/07/2022	Project granted permission in 2023 and has not yet commenced. It is considered unlikely that the project will have commenced during the short-term construction period of the Proposed Development.

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	water tank, a treatment unit/equipment kiosk & 2 bunded fuel storage tanks. A blackwater tank is proposed below ground. Parking for 6 vehicles to the north & west of the site. A flood wall. Vehicular and pedestrian entrance gates onto South Quay & pedestrian emergency entrance to the west are proposed. Proposed to construct a ramp on the section of South Quay to tie in with flood wall. Access between the areas to the north & south of South Quay will be via a raised ramp along South Quay with controlled crossing across South Quay. New paving at this location and to the west of the building. Wastewater on site will be stored underground and removed to a treatment plant. Also proposes the dredging of approx. 6,000m³ of material from the nearshore area to provide for navigational depth, berthing area and manoeuvring area for vessels. Landscaping, utilities & other services proposed throughout the site & all other associated works. Applicant seeks 10 years in which to construct the development. An Environmental Impact Assessment Report & a Natura Impact Statement have been prepared.			
22433 townlands of Killiniskyduff, Tiknock, Kilbride, and Shelton Abbey	the installation of underground electrical infrastructure between the existing Arklow Gas-insulated Switchgear (GIS) 220kV Substation and the permitted Pollahoney GIS Substation. This will include the installation of approximately two underground electricity cable circuits, each at 3.12km in length and associated underground ducting, horizontal directional drilling, joint bays, communication cabling infrastructure	Grant Permission	21/07/2022	Project granted permission in 2022 and has not yet commenced. It is considered unlikely that the project will have commenced during the short-term construction

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	between the existing Arklow GIS 220kV Substation and the permitted Pollahoney GIS substation, (WCC reg ref 20/1285). All associate and ancillary site development, remedial and construction works will be concentrated along the public road network, i.e. R772, L2180, L6179-0 and L-61791-0 to facilitate the underground cabling infrastructure within the townlands of Killinskyduff, Tiknock, Kilbride and Shelton Abbey. The application will include an Environmental Impact Assessment Screening Report (EIA)			period of the Proposed Development.
22213 Kilbride Educational Campus, Kilbride, Arklow, Co. Wicklow	Construction of a new educational campus and a new link road that will service the school campus which will include the provision of two school buildings. Gaelscoil an Imbhir Mhóir a two-storey, 16 classrooms primary school with two special needs rooms and ancillary spaces with total floor of circa 3093sqm serving 480 pupils. Gaelshólaiste na Mara a three-storey, post primary school with two special needs rooms, PE hall and ancillary spaces with a total floor area of circa 6585sqm serving 400 pupils. Proposed site works to include the construction of all new hard play areas, six play-courts, grass pitch, 182 no. car-parking spaces together with boundary treatment, 79 bicycle stands, ancillary infrastructure works, pedestrian links and landscaping.	Grant Permission	15/09/2022	Project granted permission in 2022 and has not yet commenced. It is considered unlikely that the project will have commenced during the short-term construction period of the Proposed Development.
2372	The proposed development occupies part of the site of (and will supersede) a previously permitted data centre development under Reg. Ref. 20/1285. The proposed	Grant Permission	25/07/2023	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
Site located at Avoca River Park , Arklow , Co. Wicklow	development, for which a ten-year permission is sought, consists of the following: Demolition of the existing structures on site (industrial structures and outbuildings) and site clearance works; construction of 3 no. three storey information and communication technology (ICT) facility buildings, each with a gross floor area (GFA) of c. 16,206 sq.m (c. 48,618sq.m GFA in total), and with a parapet height of c. 19.5 metres; each of the 3 no. ICT buildings will accommodate ICT equipment rooms, mechanical equipment rooms, staff welfare facilities, ancillary office space, security rooms, storage, and loading bays; a customer compound, a power trunk building, a transformer compound and a water tank compound area are provided to the north of the ICT facility buildings; the development includes the extension of the existing road and serving the existing industrial park to access the subject site, with gated access points to the proposed ICT facility development to be provided off this roadway; construction of internal road network and circulation areas, footpaths, provision of 124 no. car parking spaces and motorcycle and cycle parking spaces; landscaping and planting, boundary treatments, lighting, security fencing, and all associated site works including underground foul and storm water drainage network, attenuation and percolation areas, and utility cable (including connections to the substation permitted under ABP Ref. 310090-21, resulting in the partial culverting of an existing drainage ditch), on an application site area measuring c. 9.69 hectares.			

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
2360437 Shelton Abbey Open Prison, Arklow, Co. Wicklow, Y14 T638	the installation of circa. 3,492sq.m array of solar photovoltaic (PV) panels on ground mounted frames on an agricultural plot within the existing Shelton Abbey Open Prison, together with ducting, underground electrical cabling, and all associated site works The proposed development is considered to be within the curtilage of a protected structure (RPS No. 40-05) listed under the current Wicklow County Development Plan 2022-2028. The proposed solar array installation will have no impact on the protected structure, located over 330.00 meters away from the proposed site.	Grant Permission	22/01/2024	
23843 Site at Avoca River Park, Arklow, Co. Wicklow	The proposed development includes an amendment to the development permitted under Reg. Ref. 21/1080, the proposed development will consist of the following to facilitate the above: ▶ Demolition of the existing structures on the western part of the site that comprises 4 no. industrial commercial buildings, an associated hut / outbuilding, a gas enclosure, and a tank with bund wall. ▶ The removal of the remains of a previously demolished building, areas of hard standing, and existing surface treatments. ▶ The relocation of the Energy Centre 1 to the western part of the site, which will supersede the previously permitted 110kV GIS substation compound at that location under ABP Ref: VA27.309252.	Grant Permission	30/04/2024	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	▶ The proposed development will provide for a revised energy centre design, to include the provision of 8 no. gas turbines (with associated flues of 25.15m in height), 4 no. black start emergency generators and associated transformers, 2 no. single storey fuel oil pump rooms with a gross floor area (GFA) of 90.17sq.m, a single storey air compressor building with a GFA of 88.9sq.m, 4 no. fuel tanks, 2 no. MCC control rooms with a GFA of 44.17sq.m, 3 no. fire water tanks, a single storey welfare, storage, and pump room building with a combined GFA of 160.97 sq.m, ▶ A two storey MV /LV building with a GFA of 655.54sq.m, 8 no. 11kV/ 33kV step-up transformers in the north of the site, water treatment equipment, and a security hut, all within a fenced compound. ▶ The proposed development includes landscaping and planting, boundary treatments, lighting, security fencing, car parking, and all site works including underground foul and storm water drainage network (including on-site wastewater treatment system), and utility cables, along with all associated and ancillary works. ▶ An EPA- Industrial Emissions Directive (IED) licence will be applied for to facilitate the operation of the proposed development.			
ACP318443-23; 2360032	Demolition of the existing two-storey school building and single-storey extensions (c. 2570 sq.m) and removal of temporary classrooms on site (c. 120	Grant Permission	26/07/2024	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
Arklow CBS, Coolgreaney Road, Arklow, Y14 RV04	sq.m); construction of a three-storey school building (c. 7535 sq.m) including general and specialist classrooms, a special education needs (SEN) unit, offices, general purpose hall, PE hall, fitness suite, staff room, library, social spaces, sanitary facilities and ancillary spaces with solar photovoltaic panels at roof level; upgrading of the existing vehicular entrance to the sports pitch and the creation of a new vehicular entrance on Coolgreaney Road to provide dedicated vehicular entrance and exit points as part of a new one-way traffic system through the site; removal of the existing main vehicular entrance and provision of a new pedestrian/cyclist entrance on Coolgreaney Road; provision of a car set-down area within the school grounds and construction of a 56m bus set-down area along Coolgreaney Road; provision of a new pedestrian/cyclist access from John Paul Avenue; removal of 32 no. existing car parking spaces and provision of 70 no. car parking spaces including 1 no electric vehicle parking space and 4 no. accessible parking spaces; provision of 100 no. sheltered bicycle parking spaces; provision of external play and amenity areas including a SEN play area and 3 no. multi-use game areas; provision of landscaping, boundary treatment, site lighting, provision of a covered work area, bin stores and storage shelters; provision of associated drainage, attenuation and other site services including an ESB substation and switch room (c. 25 sq.m); and all related site development works.			

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
2460284 Lidl, Wexford Road, (and adjoining former Healy Premises at Y14 Y072), Arklow, Co. Wicklow, Y14 HY80	development principally consisting of the construction of a new Discount Foodstore Supermarket with ancillary off-licence sales on an extended site. The proposed development comprises: 1) The demolition of existing single storey Discount Foodstore (with ancillary off-licence use) measuring c. 1,357 sqm gross floor space with a net retail sales area of c. 985 sqm; 2) The demolition of existing 1 no. two storey and 2 no. single storey commercial buildings measuring c. 1,191 sqm overall and associated and ancillary site clearance of former Healy Premises; 3) The construction of a single storey Discount Foodstore Supermarket with ancillary off-licence use (and mezzanine plant deck) measuring c. 2,290 sqm gross floor space with a net retail sales area of c. 1,452 sqm; 4) Provision of revised Lidl vehicular access and associated car parking, free standing and building mounted signage, trolley bay cover / enclosure, refrigeration and air conditioning plant and equipment, roof mounted solar panel array, hard and soft landscaping, cycle parking, boundary treatments (including retaining structures), electricity sub-station, removal and relocation existing bus shelter and stop, provision of drainage infrastructure and connections to services / utilities, and all other associated and ancillary development and works above and below ground level	Grant Permission	15/10/2024	N/A
ABP-317937-23; 23381	Demolition of the existing three storey detached office building (646 sqm) and single storey outbuilding (30 sqm); and the construction of a new five storey	Grant Permission	04/11/2024	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
Arklow Shipping premises, North Quay, Arklow, Co Wicklow Y14 TW68	apartment block (3,196 sqm GFA) comprising of 34 No. apartments (14 No. one-bed apartments and 20 No. two-bed apartments, all with balconies on the southwest façade) The development will also consist of: ESB substation and switchroom; waste storage areas; plant; bicycle parking; 34 No. car parking spaces; SUDs (including green roof); associated hard and soft landscaping; the creation of 2 No. new entry/egress points off North Quay; all other associated site excavation, infrastructural and site development works above and below ground including changes in level, boundary treatments, and associated site servicing (foul and surface water drainage and water supply)			
PL27.319604 / 23756 Lands at Kilbride Arklow, Co.Wicklow	86 no. residential units with a mix of detached, semi-detached, terraced houses and duplex apartments ranging in height from 2 to 3 storeys; comprising of 8 no. 1-bed and 8 no. 2-bed duplex apartments, 10 no. 2-bed houses and 60 no. 3-bed houses; all residential units will have associated private open spaces facing north/south/east/west; alterations to Kilbride Road (L6179) to provide a section of the new road into the wider Kilbride Masterplan lands with vehicular, pedestrian and cycle access provided; a new dedicated pedestrian and cyclist access will also be provided to the south-east of the development connecting via the Marshland's sports club lands, and through Avondale Crescent to the Dublin Road; landscaping, public open spaces and all associated site development works to enable the development including boundary	Grant Permission	05/02/2025	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	treatments, attenuation storage area and other service provision			
LH27.323367/ 2560387 Kilbride, Arklow, Co. Wicklow	Demolition of 3 no. structures on site including a 2-storey habitable house (total GFA 207 sq.m) and 2 no. sheds/outbuildings (c.580 sq.m). Closures of 2 no. existing entrances onto the Kilbride Road (L-6179). Construction of a new residential development and local centre comprising: 666 no. units (578 no. semi-detached and terraced housing (100 no. 2 beds, 317 no. 3 beds, 161 no. 4 beds) and 88 no. apartments and duplex apartments (24 no. 1 beds, 51 no. 2 beds and 13 no. 3 beds)). All residential units will have associated private open space facing north/ south/ east/ west. The proposal will also include a local centre (c. 2335 sq.m) comprising a creche (c.1,095sqm) with outdoor play area, 3 no. community/medical units (c.450 sq.m), and 3 no. retail units (c.790sq.m). Building heights within the development will range from one to five storeys. The development will include streets, pedestrian/cycle links, open spaces/parks (with play areas) and will include amendments to the permitted open spaces and access road granted as part of the Phase 1/Character Area 1a development (WCC Reg. Ref.: 23/756 on the subject lands. The development will also include a public boardwalk/bridge for pedestrians and cyclists from the development across Arklow Town Marsh and the Avoca River to the Arklow Riverwalk north of Arklow Town Car Park and the Town Centre, with the bridge element (and associated works) across the Avoca River constructed	Not Yet Granted	17/07/2025	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	atop the concrete columns (debris traps) permitted as part of the Arklow Flood Relief Scheme (Planning Ref. ABP-310368-21). All associated site development works, site reprofiling, infrastructural and drainage works, surface water attenuation and natural attenuation areas, connection to public services and utilities (including undergrounding of ESB lines), provision of substations, bin stores, bicycle stores, car and cycle parking at surface and undercroft levels, public lighting, landscaping and planting, public/communal/private open spaces and boundary treatment works. This development will form part of the designated Kilbride Action Area Plan AAP3			
2560594 Site located at and to the east of Avoca River Park,, Arklow,, Co. Wicklow	• 1 no. ICT facility building with a gross floor area (GFA) of c. 36,655 sq.m and a total parapet height of c.19.5m. • 2 no. ICT facilities each with a GFA of c. 4,428 sq.m and a total parapet height of c. 10.5m. • Each of the ICT facilities will accommodate ICT equipment rooms, external mechanical equipment areas, electrical equipment rooms, network rooms, ancillary office space, storage and loading bays; • The construction of a solar farm development consisting of photovoltaic (PV) panel arrays covering an area of approximately c. 2.7 ha in the east of the site, on ground mounted steel frames, underground cabling and ducting, a new gated internal track for maintenance and all associated site services works; • Relocation of the customer transformer compound permitted under WCC Reg. Ref.: 21/1080 as amended by WCC Reg. Ref.: 23/843; • The provision of process	Not Yet Granted	N/A	N/A

Application Number	Development Description	Decision	Grant Date	Reason for Being Considered as Not Relevant to the Assessment of Cumulative Effects
	water and domestic water split tanks, process water and domestic water plantrooms, rainwater harvesting tanks, chlorine dosing kiosk, sprinkler pump rooms, sprinkler tanks, fire hydrant pump room and hydrant tank; • The provision of an internal road network and circulation areas, footpaths, 104 no. car parking spaces and 100 no. cycle parking spaces; • The construction site access arrangements and amendments to the internal road network permitted under WCC Reg. Ref.: 21/1080 as amended by WCC Reg. Ref.: 23/843; • Landscaping and planting, boundary treatments, site lighting, security fencing, all associated site works including underground foul and storm water drainage network, Sustainable Urban Drainage Systems (SuDS) measures, and utility cables, and all ancillary works. The operation of the proposed development will require an EPA Industrial Emissions Directive (IE) Licence. An Environmental Impact Assessment Report (EIAR) has been prepared			

ALTEMAR

Marine & Environmental Consultancy

Appropriate Assessment Screening for a proposed development between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow



23rd September 2025

Prepared by: Frank Spellman of Altemar Ltd.

On behalf of: Crag Digital Avoca Limited

Altemar Ltd., 50 Templecarrig Upper, Delgany, Co. Wicklow. 00-353-1-2010713. info@altemar.ie

Directors: Bryan Deegan and Sara Corcoran

Company No.427560 VAT No. 9649832U

www.altemar.ie

Document Control Sheet

Project	Appropriate Assessment Screening for a proposed development between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow		
Report	Appropriate Assessment Screening		
Date	23 rd September 2025		
Version	Author	Reviewed	Date
Draft 01	Frank Spellman	Jack Doyle	5 th September 2025
Planning	Frank Spellman	Jack Doyle	23 rd September 2025

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Introduction

The following Appropriate Assessment (AA) screening report (for screening stage) has been prepared by **Altamar Ltd.** at the request of Crag Digital Avoca Limited. The proposed development consists primarily of installation of watermain and foul rising main, connecting the Avoca River Business Park Lands with Uisce Éireann Foul and watermain networks, and associated works. An Appropriate Assessment is an assessment of the potential effects of a proposed project or plan, on its own, or in combination with other plans or projects, on one or more European sites. European sites are those sites designated as Special Areas of Conservation (SAC) or Special Protection Areas (SPA).

The AA Screening stage examines the likely significant effects of the project, either on its own, or in combination with other plans and projects, upon a Natura 2000 site and considers whether, on the basis of objective scientific evidence, it can be concluded, in view of best scientific knowledge and the conservation objectives of the relevant European sites, that there are not likely to be significant effects on any European site.

European sites¹ are those sites designated as Special Areas of Conservation (SAC) or Special Protection Areas (SPA).

Altamar Ltd.

Since its inception in 2001, Altamar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altamar, is an Environmental Scientist and Marine Biologist with over 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry.

Bryan is currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

Background to the Appropriate Assessment

The Habitats Directive 92/43/EEC (together with the Birds Directive (2009/147/EC)) forms the cornerstone of Europe's nature conservation policy. The Directive protects over 1000 animals and plant species and over 200 "habitat types" which are of European importance. In the Habitats Directive, Articles 3 to 9 provide the legislative means to protect habitats and species of European Community interest through the establishment and conservation of an EU-wide network of conservation sites (NATURA, 2000). These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive, Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment:

"Any plan or project not directly connected with or necessary to the management of the [NATURA 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the component national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

¹ "European site" means—

- (a) a candidate site of Community importance,
- (b) a site of Community importance, F815[(ba) a candidate special area of conservation,]
- (c) a special area of conservation,
- (d) a candidate special protection area,
- (e) a special protection area;

As outlined in “Managing European sites, The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC” (European Commission, 21 November 2018) *“The purpose of the appropriate assessment is to assess the implications of the plan or project in respect of the site’s conservation objectives, either individually or in combination with other plans or projects. The conclusions should enable the competent authorities to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus of the appropriate assessment is therefore specifically on the species and/or the habitats for which the European site is designated.”*

As outlined in the EC guidance document on Article 6(4) (January 2007)²:

“Appropriate assessments of the implications of the plan or project for the site concerned must precede its approval and take into account the cumulative effects which result from the combination of that plan or project with other plans or projects in view of the site’s conservation objectives. This implies that all aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field.

Assessment procedures of plans or projects likely to affect European sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity. Regardless of whether the provisions of Article 6(3) are delivered following existing environmental impact assessment procedures or other specific methods, it must be ensured that:

- *Article 6(3) assessment results allow full traceability of the decisions eventually made, including the selection of alternatives and any imperative reasons of overriding public interest.*
- *The assessment should include all elements contributing to the site’s integrity and to the overall coherence of the network as defined in the site’s conservation objectives and Standard Data Form, and be based on best available scientific knowledge in the field. The information required should be updated and could include the following issues:*
 - *Structure and function, and the respective role of the site’s ecological assets;*
 - *Area, representativity and conservation status of the priority and nonpriority habitats in the site;*
 - *Population size, degree of isolation, ecotype, genetic pool, age class structure, and conservation status of species under Annex II of the Habitats Directive or Annex I of the Birds Directive present in the site;*
 - *Role of the site within the biographical region and in the coherence of the European network; and,*
 - *Any other ecological assets and functions identified in the site.*
- *It should include a comprehensive identification of all the potential impacts of the plan or project likely to be significant on the site, taking into account cumulative impacts and other impacts likely to arise as a result of the combined action of the plan or project under assessment and other plans or projects.*
- *The assessment under Article 6(3) applies the best available techniques and methods, to estimate the extent of the effects of the plan or project on the biological integrity of the site(s) likely to be damaged.*
- *The assessment provides for the incorporation of the most effective mitigation measures into the plan or project concerned, in order to avoid, reduce or even cancel the negative impacts on the site.*

² European Commission. (2007). Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission;

- *The characterisation of the biological integrity and the impact assessment should be based on the best possible indicators specific to the European assets which must also be useful to monitor the plan or project implementation."*

Stages of the Appropriate Assessment

This Appropriate Assessment screening was undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC, 2001), Part XAB of the Planning and Development Act 2000, as amended, in addition to the December 2009 publication from the Department of Environment, Heritage and Local Government; 'Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities', OPR Practice Note PN01 Appropriate Assessment Screening for Development Management, and the European Communities (Birds and Natural Habitats) Regulations 2011. In order to comply with the above Guidelines and legislation, the Appropriate Assessment process must be structured as follows:

1) Screening stage:

- Description of plan or project, and local site or plan area characteristics;
- Identification of relevant European sites, and compilation of information on their qualifying interests and conservation objectives
- Identification and description of individual in combination effects likely to result from the proposed project;
- Assessment of the likely significance of the effects identified above. Exclusion of sites where it can be objectively concluded that there will be no likely significant effects; and,

Conclusions

2) Appropriate Assessment (Natura Impact Statement):

- Description of the European sites that will be considered further;
- Identification and description of potential adverse impacts on the conservation objectives of these sites likely to occur from the project or plan; and,
- Mitigation Measures that will be implemented to avoid, reduce or remedy any such potential adverse impacts
- Assessment as to whether, following the implementation of the proposed mitigation measures, it can be concluded, beyond all reasonable scientific doubt, that there will be no adverse impact on the integrity of the relevant European Site in light of its conservation objectives"
- Conclusions.

If it can be demonstrated during the AA screening phase (Stage 1), that the proposed project will not have a significant effect, whether alone or in combination with other plans or projects, on the conservation objectives of a Natura 2000 site, then no further AA (Stage 2) will be required. It is important to note that there is a requirement to apply a precautionary approach to AA screening. Therefore, where effects are possible, certain or unknown at the screening stage, AA will be required.

In addition, it should be noted that Article 6(3) of the Habitats Directive must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an AA of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.

Stage 1 Screening Assessment

Management of the Site

The plan or project is not directly connected with, or necessary to the management of European sites.

Description of the Proposed Project

The proposed scheme involves the installation of approximately 2.2km of watermain and foul rising main in support of several developments within the Avoca River Business Park Lands.

The proposed development includes the following:

- Foul pump station
- c. 2240m 200mm diameter foul rising main
- c. 2240m 160mm diameter watermain
- c. 2240m 4x4 160mm diameter fibre ducts
- Connection to Uisce Éireann foul network
- Connection to Uisce Éireann watermain network

Access to the site will be provided via the existing access to the Avoca River Park, down the existing service road which extends through the Marshlands up to the intersection with Ferrybank road in Arklow Town. The intersection with Ferrybank road would be used as a secondary access.

The proposed site outline, location, services layout, construction details and sections are demonstrated in Figures 1-7.





0 0.2 0.4 0.6 0.8 1 km

Project: DUB20
Location: Arklow, Co. Wicklow
Date: 22nd September 2025
Drawn By: Frank Spellman (Altamar)

ALTEMAR

Marine & Environmental Consultancy



Figure 2. Proposed site outline



Issue 7

Project

240021 - DUB 20 Site Infrastructure Masterplanning

PLEASE ACKNOWLEDGE RECEIPT OF DRAWINGS Reasons: A - A Approved, B - B Partially Signed Off, CR - CR Construction Record. D1 - D1 For Costing, D2 - D2 For Tender, D3 - D3 For Contractor Design. D4 - D4 For Manufacture Procurement, FC - FC Construction, P1 - P1 Information. P10 - P10 Handover, P2 - P2 Coordination, P3 - P3 Planning Permission. P4 - P4 Fire Safety Certificate, P5 - P5 Disability Access Certificate, P6 - P6 Building Control Compliance. P7 - P7 Pre-Tender Submission, P8 - P8 Tender, P9 - P9 Contract/Construction. S0 - S0 WP, S1 - S1 For Coordination, S2 - S2 For Information. S3 - S3 For Comment, S4 - S4 For Stage Approval, S6 - S6 PIM Authorisation. S7 - S7 AIM Authorisation, MU - Multiple		ISSUE NO.	3	4	5	7
		ISSUED BY	VK	VK	VK	
		DAY	16	19	30	
		MONTH	5	9	9	
		YEAR	25	25	25	
		ISSUE REASON	S1	S1	S2	P3
DRG NO.	DRAWING/DOCUMENT TITLE	SIZE	SCALE			
240021-X-X-XXX-RP-DBFL-CE-00004	OCEMP			1.1	1.4	
Civil Engineer						
240021-X-00-Z00-DTM-DR-DBFL-CE-5201	Typical Construction Details	A1	As Noted	0	0	
240021-X-05-Z00-DTM-DR-DBFL-CE-1301	Site Service Layout	A1	1:1000	0	0	
240021-X-05-Z00-DTM-DR-DBFL-CE-3301	Foul Rising Main Longsection - Sheet 1	A1	1:500	0	0	
240021-X-05-Z00-DTM-DR-DBFL-CE-3302	Foul Rising Main Longsection - Sheet 2	A1	1:500	0	0	
240021-X-05-Z00-DTM-DR-DBFL-CE-3303	Foul Rising Main Longsection - Sheet 3	A1	1:500	0	0	
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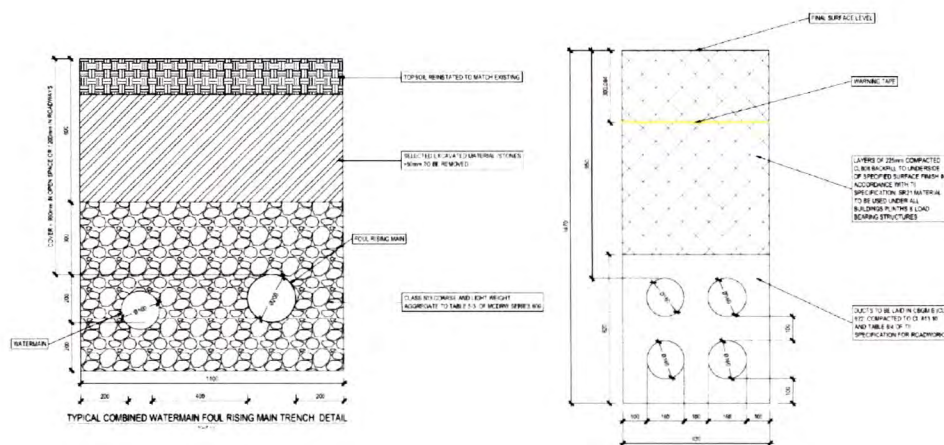
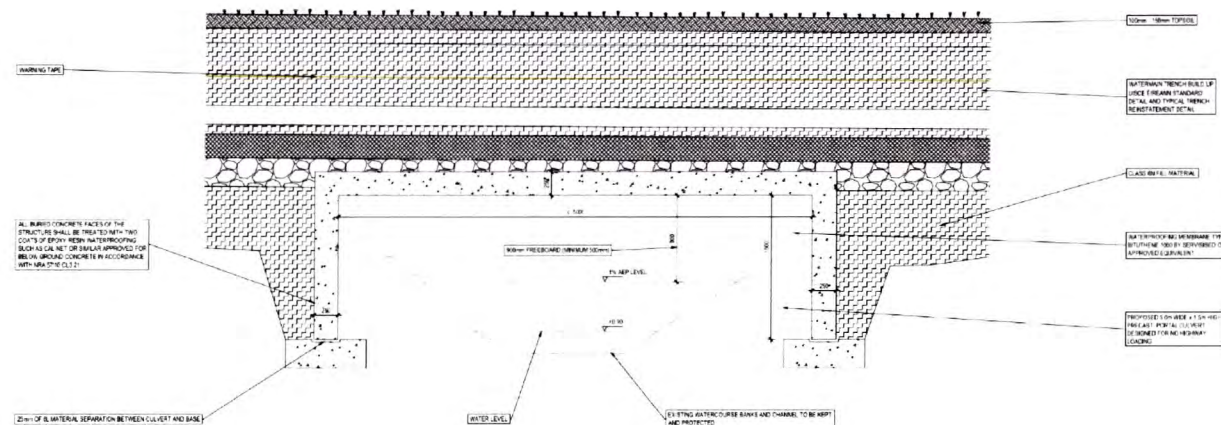
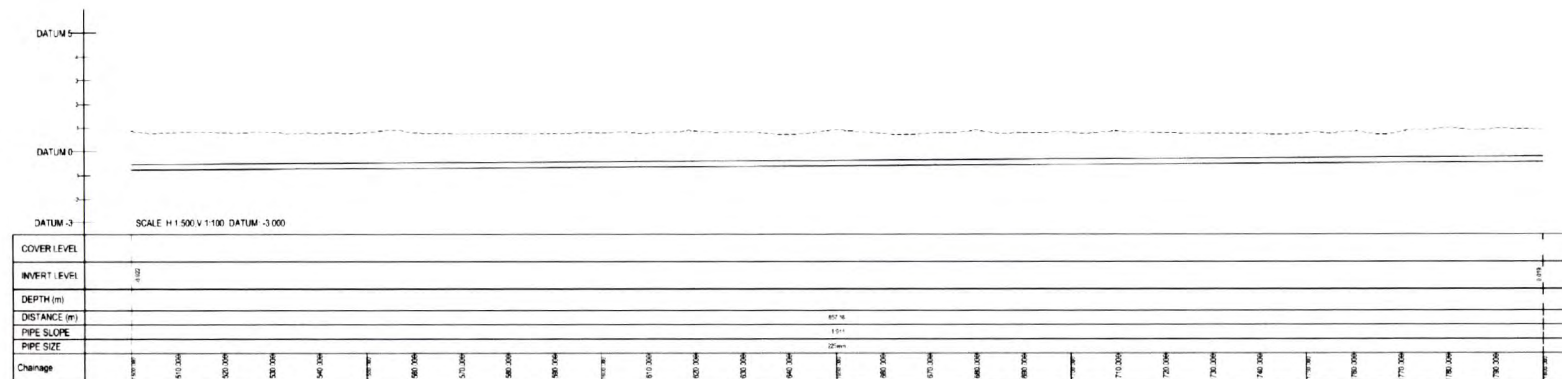
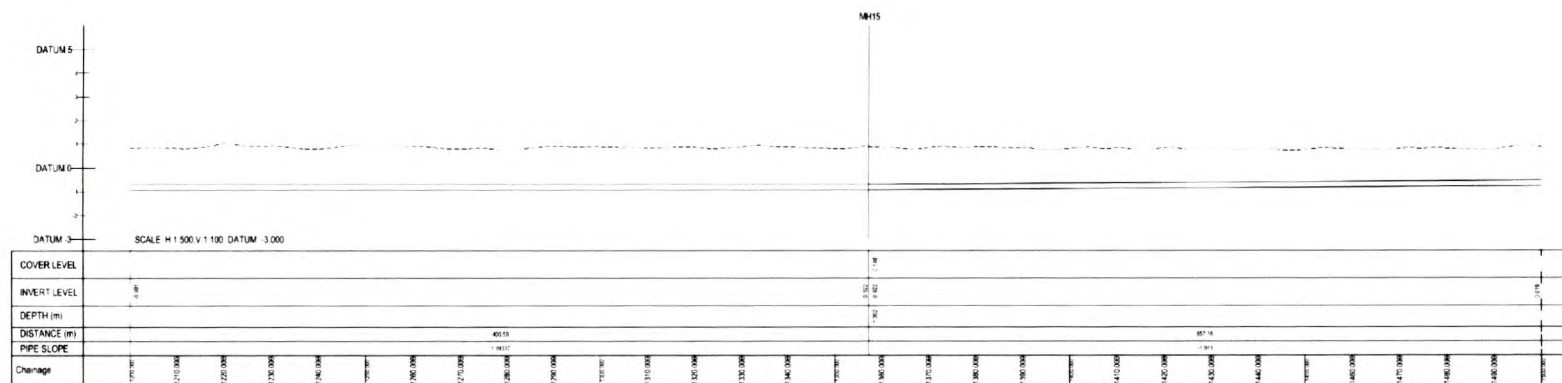
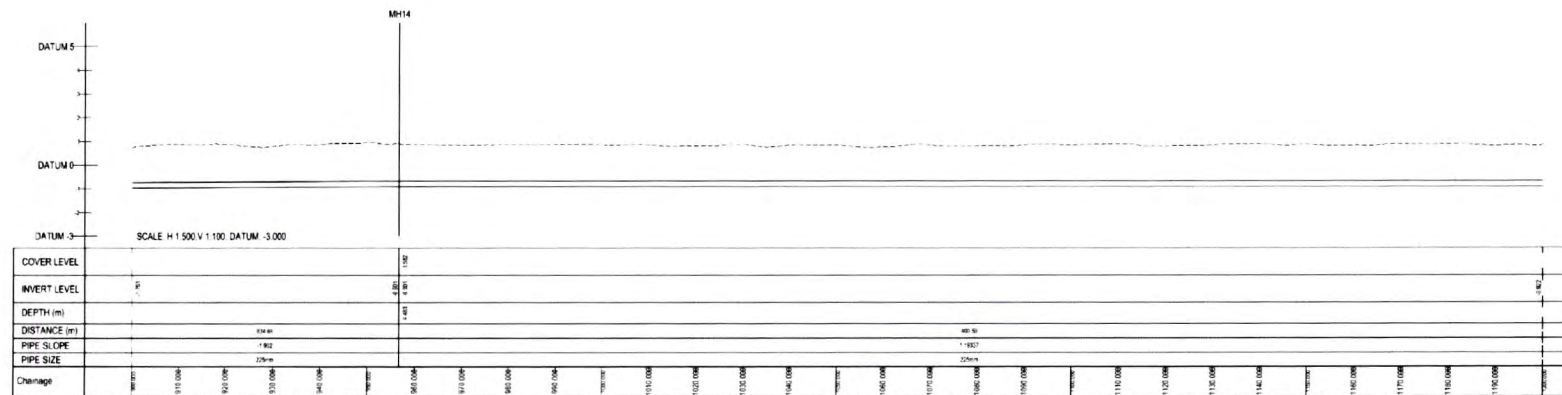


Figure 4 – Proposed typical construction details

9



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NO CHANGES OF ANY ORDER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT FOR CONSTRUCTION IN ANY CASE, SPECIFICATION OR DRAWING, UNLESS THE EPOCHS (CONTRACT) HAS BEEN OBTAINED IN ADVANCE, IN WRITING FROM DBFL.

NOTES

1. ALL DRAWINGS TO BE CHECKED BY CONTRACTOR ON SITE AND ENGINEER BEFORE WORK COMMENCES.
2. ALL LEVELS ARE IN METRES AND ARE RELATED TO DRAINAGE DATUM.
3. CONTRACTOR SHALL SATISFY HIMSELF AS TO THE ACCURACY OF MEASUREMENTS PRIOR TO COMMENCEMENT OF WORKS ON SITE.
4. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE MAIN SPECIFICATION FOR ROADWORKS, UNLESS NOTED OTHERWISE.
5. THIS DRAWING IS FOR PLANNING PURPOSES ONLY.
6. MANHOLE COVER LEVELS ARE TO CONFORM WITH PAVED ROAD AND IN-THE-LEVEL.
7. WHERE COVER TO PIPE IS LESS THAN 300mm, REINFORCEMENT OF BEDDING SHALL BE 300mm, UNLESS NOTED OTHERWISE.

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Drawing No: FOUR RISING MAIN LONGSECTION - SHEET 2

Client: ECHOLON DATA CENTRES

Designed by: [Signature]

Checked by: [Signature]

Drawn by: [Signature]

240021-K-65-200-OTM-DR-DBFL-CE-3302 0

Figure 6 – Proposed longsection 2

Landscape

No specific landscape plan is proposed as part of the proposed development.

A 1 metre vegetation buffer will be retained along the southern boundary of the right-of-way between proposed works and the adjacent watercourse. Heavy scrub growth along the 'Right of Way' through the marsh will be cleared to allow works to be completed. All cleared vegetation will be retained on site following chipping and mulched/spread along the right-of-way. Natural regeneration of vegetation will occur following completion of works. This is outlined within the accompanying OCEMP as follows:

'All vegetation will be chipped or mulched and spread within the Right of Way as recommended in The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (Included in Appendix B of this report, See Table 12). No disposal of vegetation will occur within any watercourse along the route. No cut vegetation will be removed from site and wheel washes will be positioned such that any vehicle exiting site will not carry vegetation out of the works area.'

Drainage

Foul drainage

There is no additional foul discharge associated with the operation of the proposed development. However, the proposed development will provide a foul connection and facilitate an increase in foul discharge from current and future developments at Avoca River Business Park to the public network for treatment at Arklow Wastewater Treatment Plant (WwTP) prior to discharge to the Irish Sea. A confirmation of feasibility to a Pre-Connection Enquiry (Ref. CDS24007212) on 11th October 2024 was provided subject to completion of Arklow WwTP, which has since become operational.

During construction, portable sanitary facilities will be provided for all staff on site. All foul wastewater from on-site sanitary facilities will be collected and transported to a licensed disposal facility.

Surface water

Operation

No surface water drainage strategy is required for the proposed development. No increase in impermeable surfaces will occur as a result of the proposed development. The current marsh drainage patterns will persist during operation of the proposed development.

Construction

An outline construction environmental management plan (OCEMP) has been produced by DBFL Consulting Engineers in relation to this proposed development. The plan outlines the following relevant to surface water:

'4.2 Stockpiling

Stockpiling shall be in accordance with the relevant TII Specification's for Road Works.

Topsoil, wherever practicable, shall be stripped and stockpiled linearly adjacent to the works area. All vegetation will be chipped or mulched and spread within the Right of Way as recommended in The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (Included in Appendix B of this report, See Table 12). No disposal of vegetation will occur within any watercourse along the route. No cut vegetation will be removed from site and wheel washes will be positioned such that any vehicle exiting site will not carry vegetation out of the works area.

Topsoil stockpiles must not exceed 2.0m in height, with subsoil and general fill stockpiles not exceeding 4.0m in height, unless otherwise directed by competent engineer. Stockpiles will be managed linearly along the right of way adjacent to the works with double silt trenching installed between the works area and the existing watercourse. A protective membrane shall cover the stockpiled materials to prevent erosion from wind and rain throughout the course of the works. This membrane cover shall only be removed in small areas during work and not all at once. Where stockpiles are to remain longer than four weeks, seeding or hydroseeding will be considered as an alternative to sheeting.

Stockpiling of loose materials shall be kept a minimum of 50m from watercourse, subject to approval by Engineer / Environmental Clerk of Works. Stockpiles and runoff areas following clearance shall have suitable barriers in place to prevent runoff of fines into drainage system and watercourses.

During construction, silt traps are to be provided in the vicinity of all runoff channels of the stream to prevent sediment from entering the watercourse.

Stockpiles must not be surcharged, or otherwise loaded and multiple handling shall be kept to a minimum water runoff as no ponding is permitted. Stockpiles are to be clearly signed and fenced as necessary. Sufficient dust suppression (e.g. water spraying) in windy/dry periods shall be undertaken.. Stockpiles are to be sloped gently (1:2 or flatter) to reduce erosion and shall be shaped to promote surface

4.3 Trenching through Existing Right of Way

All demolition, excavation and enabling works in marshlands are to be supervised by an appointed ecological clerk. During construction, silt traps are to be provided in the vicinity of all runoff channels of the stream to prevent sediment from entering the watercourse. Trenched double silt fencing is to be provided at the top of the watercourse embankment, immediately to the north of a 1m vegetation buffer, to protect the watercourse. An additional trenched silt fence will be provided at the northern edge of the existing right of way to protect the marshlands. Chipped vegetation from site clearance should be retained and spread over the surface of the right of way to prevent erosion from machinery movements.'

The OCEMP also outlines a number of specific measures to be taken in relation to surface water during the construction stage:

'5.3 Hydrology

In conjunction with the mitigation measures set out in the EIA screening in relation to Land, Soils, Geology, Hydrogeology (Chapter 5), Hydrology (Chapter 6), the following mitigation measures relating to the protection of water quality will apply:

- The CEMP will detail procedures for the control, treatment and disposal of potentially contaminated surface water including monitoring systems and oversight required throughout the construction phase.*
- The contractor will be required to implement industry best practice pollution prevention measures in accordance with guidance documents (for example CIRIA Guideline Document C532 Control of Water Pollution from Construction Sites), during both construction and operation in order to control the risk of pollution to surface waters. In addition, pollution of aquatic systems during the construction phase will be reduced by the implementation of the protection measures as outlined in Section 5.3 of this OCEMP.*

The following mitigation measures shall apply in relation to both Hydrology and Biodiversity (Section 5.4 herein):

- Routine practice and procedures to prevent pollution of the environment will apply. These include: During the construction stage, standard construction and site management practices will be implemented by the contractor.*
- Silt fences and grassed swales/catchment ditches will be constructed around the perimeter of work areas, compounds, storage yards and stockpile areas where practicable.*
- Weather conditions and typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimising soil erosion.*
- The construction compound(s) will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound(s) will be transported off site to a licensed facility.*
- The construction compound(s)'s potable water supply shall be protected from contamination by any construction activities or materials.*
- All material including oils, solvents and paints will be stored within temporary bunded areas or dedicated bunded containers.*

- *Refuelling will take place in a designated bunded area away from surface water gullies, drains and water bodies, and the Right of Way.*
- *All machinery and plant used will be regularly maintained and serviced and will comply with appropriate standards to ensure that leakage of diesel, oil and lubricants is prevented.*
- *Spill kits and hydrocarbon absorbent packs will be available throughout the site and drip trays will be used during refuelling.*
- *Drainage wardens/silt socks will be placed around drainage gullies connected to the live network.*
- *Ongoing monitoring of the water receptors throughout the works.*
- *Excavated material will be segregated into inert, non-hazardous and/or hazardous fractions.*
- *The excavation and handling of inert material will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment.'*

Noise and Vibration

The accompanying outline construction environmental management plan (OCEMP) produced by DBFL Consulting engineers outlines the following in relation to noise and vibration:

'5.6 Noise and Vibration

As set out in the EIA screening in relation to Noise and Vibration (Chapter 10) – and the associated Noise and Vibration Impact Assessment Report, the follow mitigation measures are required:

- *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 levels of noise and/or vibration during critical periods and at sensitive locations; and*
- *All site access roads will be kept even so as to mitigate the potential for vibration from lorries.*

The final CEMP shall detail appropriate mitigation measures to manage any risk of noise impacting the community.

The contract documents will clearly specify that the Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures.

These measures will typically include:

- *No plant used on site will be permitted to cause an ongoing public nuisance due to noise.*
- *The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.*
- *All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.*
- *Vehicles required to wait on site will switch off engines.*
- *Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.*
- *Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.*
- *Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screens.*
- *Location of plant shall consider the likely noise propagation to nearby sensitive receptors.*
- *During the course of the construction programme, supervision of the works will include ensuring compliance with the noise limits prescribed using methods outlined in BS 5228-1.*
- *For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant will be switched off when not in use and not left idling.*

- For percussive tools such as pneumatic concrete breakers and tools, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensuring any leaks in the air lines are sealed. Erection of localised screens around breaker or drill bit when in operation in close proximity to noise sensitive locations (NSLs) boundaries are other suitable forms of noise reduction.
- Where compressors, generators and pumps are located in areas in close proximity to NSLs and have potential to exceed noise criterion, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- Resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can be controlled by fixing resilient materials in between the surfaces in contact.
- Demountable enclosures can also be used to screen operatives using hand tools and may be moved around site as necessary.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

Selection of Quiet Plant:

- The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item of plant will be selected wherever possible.
- Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative.
- For static plant such as compressors and generators used at work areas such as construction compounds etc., the units will be supplied with manufacturers' proprietary acoustic enclosures where possible.
- The contractor will evaluate the choice of excavation, breaking or other working method, taking into account various ground conditions and site constraints. Where possible, where alternative lower noise generating equipment are available that will provide equivalent that would economically achieve, in the given ground conditions, equivalent structural / excavation / breaking results, these will be selected to minimise potential disturbance.

Construction vibration management measures for the scheme shall include:

- A vibration monitoring programme should be adopted at the nearest properties during the most critical phases of construction e.g., rock breaking etc. to assure the property owners that the prescribed limits are not exceeded.'

Dust and Air Quality

The accompanying outline construction environmental management plan (OCEMP) produced by DBFL Consulting engineers outlines the following in relation to dust and air quality:

'5.5 Air Quality, Climate and Resources

In conjunction with the mitigation measures set out in the EIA screening in relation to both Air Quality (Chapter 8) and Climate (Chapter 9) – the contractor is required to implement the following measures during construction:

- The coordination, implementation and ongoing monitoring of dust produced by site activities. The key aspects of controlling dust are listed below: The development of a documented system for managing site practices with regard to dust control;
 - Spraying of exposed earthwork activities and site haul roads during dry weather;
 - Provision of wheel wash at exit points;
 - Covering of stockpiles;
 - Control of vehicle speeds, speed restrictions and vehicle access; and
 - Sweeping of hard surfaced roads.
 - Erection of a 2.4m high hoarding will be provided around site camp where allowable to minimise the dispersion of dust from working areas.

- *Stockpiles will be located as far away as possible from sensitive receivers and covered/dampened during dry weather;*
- *Generators will be located as far away as practicable from sensitive receivers;*
- *To prevent the harmful emissions from vehicle exhausts, on-site and delivery vehicles will be prevented from leaving engines idling, even over short periods.*
- *Where Asbestos Contaminated Material (ACM) is uncovered on site during construction, the ACM will be double-bagged and removed from site by a competent contractor and disposed of in accordance with the relevant procedures and legislation.*

At all times, the measures used to control dust will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

To minimise effects to the climate through harmful emissions, the following controls shall be put in place:

- *All vehicles will be required to switch off engines when stationary (no idling);*
- *All vehicles will be serviced and maintained to ensure emissions are minimised;*
- *Where practicable, materials will be reused within the extent of the Proposed Development; and*
- *Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport.*
- *The Contractor's fleet of vehicles and machinery must use biofuels.*

To mitigate the effects of excess water consumption, construction is to be limited to the summer months as this will reduce the need for dewatering.'

Identification of Relevant Natura 2000 Sites

The proposed development site is not within a European site and is not necessary for the management of a Natura 2000 site. As outlined in Office of the Planning Regulator Guidance Note on AA Screening (2021) *“The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. This should be established on a case-by-case basis using the Source- Pathway-Receptor framework and not by arbitrary distances (such as 15km).”*

A key factor in the consideration as to whether or not a particular European site is likely to be affected by the proposed development is its distance from the development location. It is generally, but not necessarily, the case that the greater the distance from the plan or project the smaller the likelihood of impacts. In this case, the nearest European site to the proposed development is 4.7 km away (Buckroney Brittas Dunes and Fen SAC).

Regarding drainage, the proposed development will not result in additional surface water run-off and therefore will not increase the likelihood of negative impacts to any Natura 2000 sites. Surface water currently follows the existing hydrology within the marsh, accumulating within a drainage ditch to the north and designated watercourse along the south of the right-of-way through the marsh before discharging to the Avoca Estuary to the southeast from where it is introduced the marine environment.

No foul wastewater is associated with the operation of the proposed development. However, the proposed foul rising main will facilitate a foul wastewater connection from Avoca River Park to Arklow WwTP (now operational), resulting in increased load at Arklow WwTP hydrologically downstream of the proposed development. Arklow WwTP first became operational in 2025. Prior to this, no treatment system existed within Arklow and raw sewage was discharged directly to the Avoca River. As a result, no relevant Environmental Reports exist to date for Arklow WwTP. However, the plant is designed with a current capacity of 24,000 PE with capacity for expansion to 36,000 PE, both figures of which are well above the current population size being served. A confirmation of feasibility was received from Uisce Eireann in 2024 following a pre-connection enquiry.

There is no decrease in permeable areas and no increase in surface or foul water predicted as a result of this proposed development. Therefore, it is considered that no European sites are deemed to be in the potential Zone of Influence (Zoi) due to the fact that there is no increase in loading/foul wastewater discharge. However, following the precautionary principle, screening of all European sites within 15km and those with a direct/indirect pathway beyond 15km is carried out.

All Natura 2000 sites within 15km, and beyond 15km with the potential for a hydrological pathway are listed in Table 1. The qualifying interests, and the potential impact of the development on each European site and qualifying interest, are screened in/out in Table 2. SPA's and SAC's within 15km are seen in Figures 8 & 9. Waterbodies, and SACs proximate to the subject site are demonstrated in Figures 10 & 11.

Table 1. Proximity to designated sites of conservation importance

Site Code	NATURA 2000 Site	Distance
Special Areas of Conservation		
IE000729	Buckroney Brittas Dunes and Fen SAC	4.7 km
IE001742	Kilpatrick Sandhills SAC	6.9 km
IE000781	Slaney River Valley SAC	12.7 km
IE001766	Magherabeg Dunes SAC	14.5 km
IE000733	Vale of Clara (Rathdrum Wood) SAC	14.5 km

Table 2. Initial screening of Natura 2000 sites within 15km and Natura 2000 sites within 15km with potential of hydrological connection to the proposed development

Natura Code	Name	Screened In/Out	Details/Reason
Special Areas of Conservation			
IE001742	Buckroney-Brittis Dunes and Fen SAC	OUT	Conservation Objectives The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Annual vegetation of drift lines [1210] Perennial vegetation of stony banks [1220] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170] Humid dune slacks [2190] Alkaline fens [7230] Potential Effect The proposed development site is located 4.7 km from this SAC. There is no direct pathway from the proposed development site to this SAC. During construction, there is an indirect pathway from the proposed development to this SAC via surface water drainage through the marsh complex and Avoca River. From the marsh, surface water makes it's way to the Avoca Estuary, from where it enters the marine environment. Although no foul sewage increase is associated with this particular development, the proposed development will facilitate the connection of Avoca River Park to Arklow Wastewater Treatment Plant (WwTP). Foul discharge will be treated at Arklow WwTP (confirmation of feasibility) prior to discharge to the Irish Sea. Given the distance from the proposed development site to this SAC (4.7 km) and the complexity of the natural surface water network, any pollutants, dust or silt laden run off from the proposed development will be settled, dispersed and diluted between the marsh, estuarine and marine environments. Foul wastewater at Arklow WwTP is treated under licence. Given the distance (4.8 km) of this SAC from Arklow WwTP, treated foulwater discharge will be dispersed and diluted within the marine environment to negligible levels prior to

Natura Code	Name	Screened In/Out	Details/Reason
			reaching this SAC. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely. No potential impact is foreseen. There is no direct pathway from this site to the SAC. The construction and operation of the proposed development will not impact on the conservation interests of the site. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely. No significant effects are likely
IE001742	Kilpatrick Sandhills SAC	OUT	Conservation Objectives The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Annual vegetation of drift lines [1210] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150] Potential Effects The proposed development site is located 6.9 km from this SAC. There is no direct pathway from the proposed development site to this SAC. During construction, there is an indirect pathway from the proposed development to this SAC via surface water drainage through the marsh complex and Avoca River. From the marsh, surface water makes it's way to the Avoca Estuary, from which it enters the marine environment. Although no foul sewage increase is associated with this particular development, the proposed development will facilitate the connection of Avoca River Park to Arklow Wastewater Treatment Plant (WwTP). Foul discharge will be treated at Arklow WwTP (confirmation of feasibility) prior to discharge to the Irish Sea. Given the distance from the proposed development site to this SAC (6.9 km) and the complexity of the natural surface water network, any pollutants, dust or silt laden run off from the proposed development will be settled, dispersed and diluted between the marsh, estuarine and marine environments. Foul wastewater at Arklow WwTP is treated under licence. Given the distance (6.2 km) of this SAC from Arklow WwTP, treated foulwater discharge will be dispersed and diluted within the marine environment to negligible levels prior to

Natura Code	Name	Screened In/Out	Details/Reason
			reaching this SAC. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely. No potential impact is foreseen. There is no direct pathway from this site to the SAC. The construction and operation of the proposed development will not impact on the conservation interests of the site. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely. No significant effects are likely No significant effects are likely
IE0000781	Slaney River Valley SAC	OUT	Conservation Objectives The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] <i>Petromyzon marinus</i> (Sea Lamprey) [1095] <i>Lampetra planeri</i> (Brook Lamprey) [1096] <i>Lampetra fluviatilis</i> (River Lamprey) [1099] <i>Alosa fallax fallax</i> (Twaite Shad) [1103] <i>Salmo salar</i> (Salmon) [1106] <i>Lutra lutra</i> (Otter) [1355] <i>Phoca vitulina</i> (Harbour Seal) [1365] Potential Impact The proposed development is located 12.7 km from this SAC. There is no 'direct' or 'indirect' Source-Pathway linkage between the proposed development site and the SAC. No potential impact is foreseen. There is no direct pathway from this site to the SAC. The construction and operation of the proposed development will not impact on the conservation interests of the site. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely.

Natura Code	Name	Screened In/Out	Details/Reason
			No significant effects are likely
IE001766	Magherabeg Dunes SAC	OUT	Conservation Objectives The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Annual vegetation of drift lines [1210] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Petrifying springs with tufa formation (Cratoneurion) [7220] Potential Effect The proposed development site is located 14.5 km from this SAC. There is no direct pathway from the proposed development site to this SAC. During construction, there is an indirect pathway from the proposed development to this SAC via surface water drainage through the marsh complex and Avoca River. From the marsh, surface water makes it's way to the Avoca Estuary, from where it enters the marine environment. Although no foul sewage increase is associated with this particular development, the proposed development will facilitate the connection of Avoca River Park to Arklow Wastewater Treatment Plant (WwTP). Foul discharge will be treated at Arklow WwTP (confirmation of feasibility) prior to discharge to the Irish Sea. Given the distance from the proposed development site to this SAC (14.5 km) and the complexity of the natural surface water network, any pollutants, dust or silt laden run off from the proposed development will be settled, dispersed and diluted between the marsh, estuarine and marine environments. Foul wastewater at Arklow WwTP is treated under licence. Given the distance (14.7 km) of this SAC from Arklow WwTP, treated foulwater discharge will be dispersed and diluted within the marine environment to negligible levels prior to reaching this SAC. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely. No potential impact is foreseen. There is no direct pathway from this site to the SAC. The construction and operation of the proposed development will not impact on the conservation interests of the site. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely. No significant effects are likely

Natura Code	Name	Screened In/Out	Details/Reason
IE000733	Vale of Clara (Rathdrum Wood) SAC	OUT	Conservation Objectives The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Qualifying Interests Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Potential Impact The proposed development is located 14.5 km from this SAC. There is no 'direct' or 'indirect' Source-Pathway linkage between the proposed development site and the SAC. No potential impact is foreseen. There is no direct pathway from this site to the SAC. The construction and operation of the proposed development will not impact on the conservation interests of the site. In the absence of mitigation, no significant effects on the qualifying interests of this SAC are likely. No significant effects likely

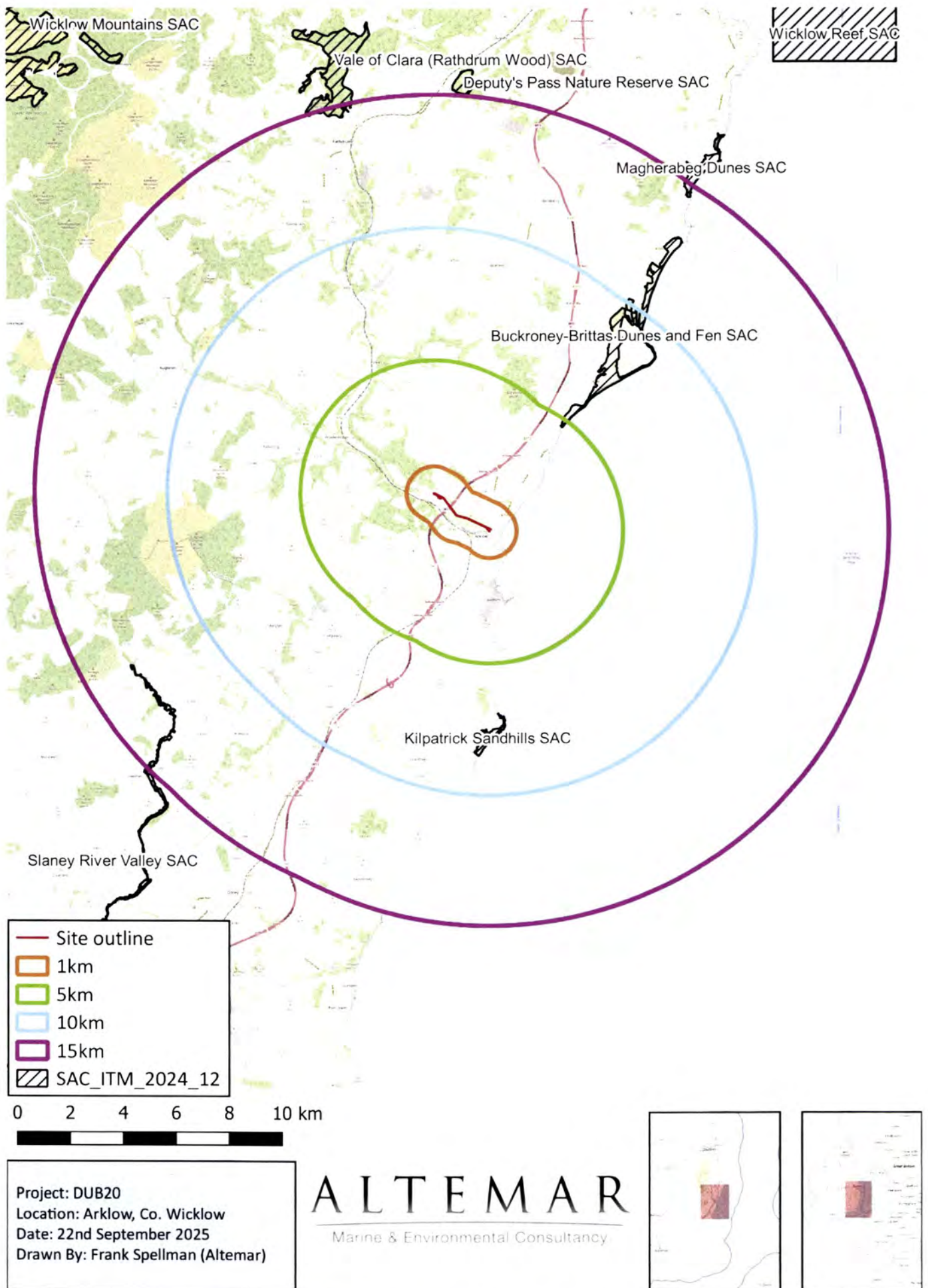


Figure 8. Special Areas of Conservation (SAC) within 15km of the proposed works site

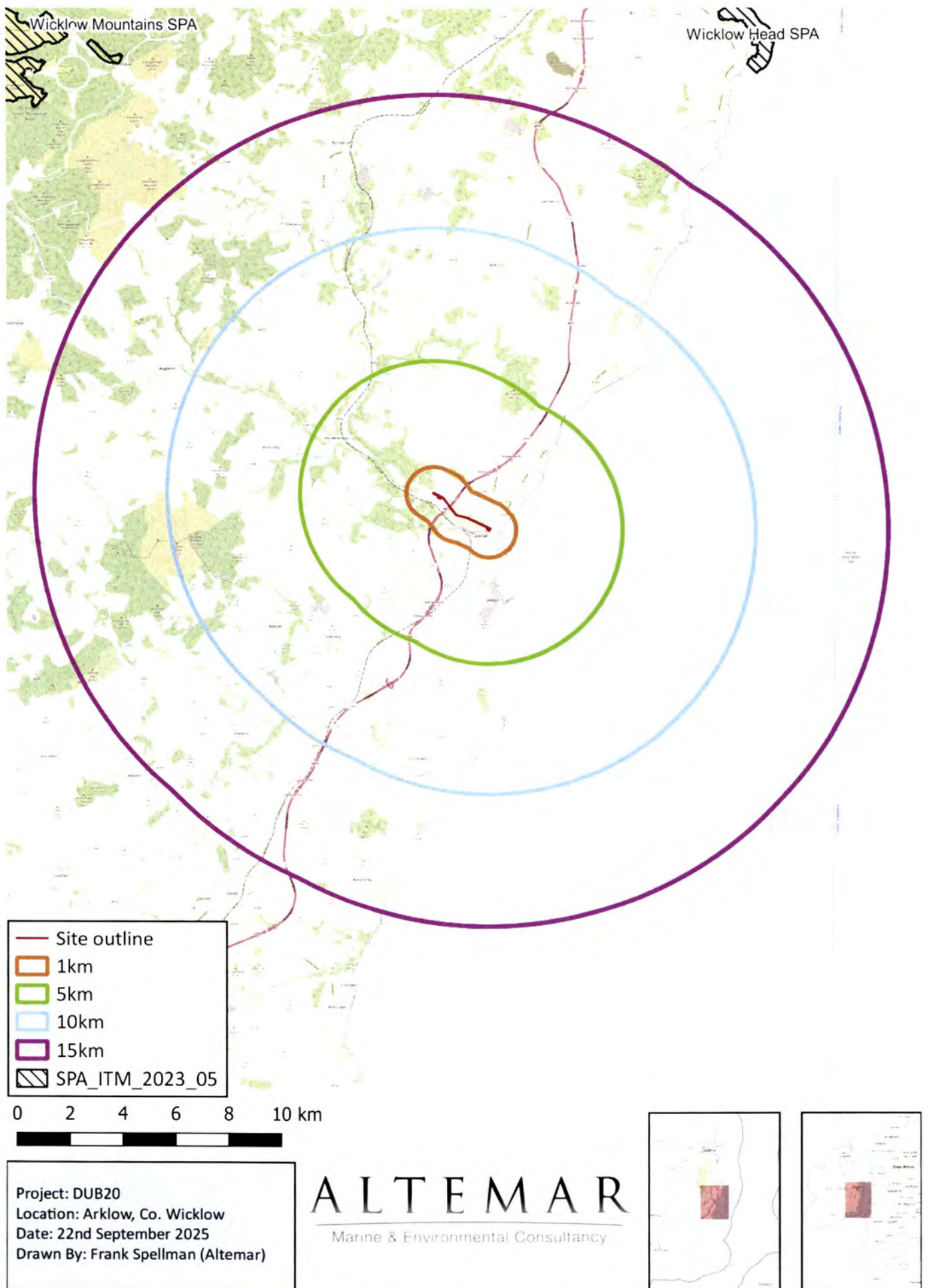
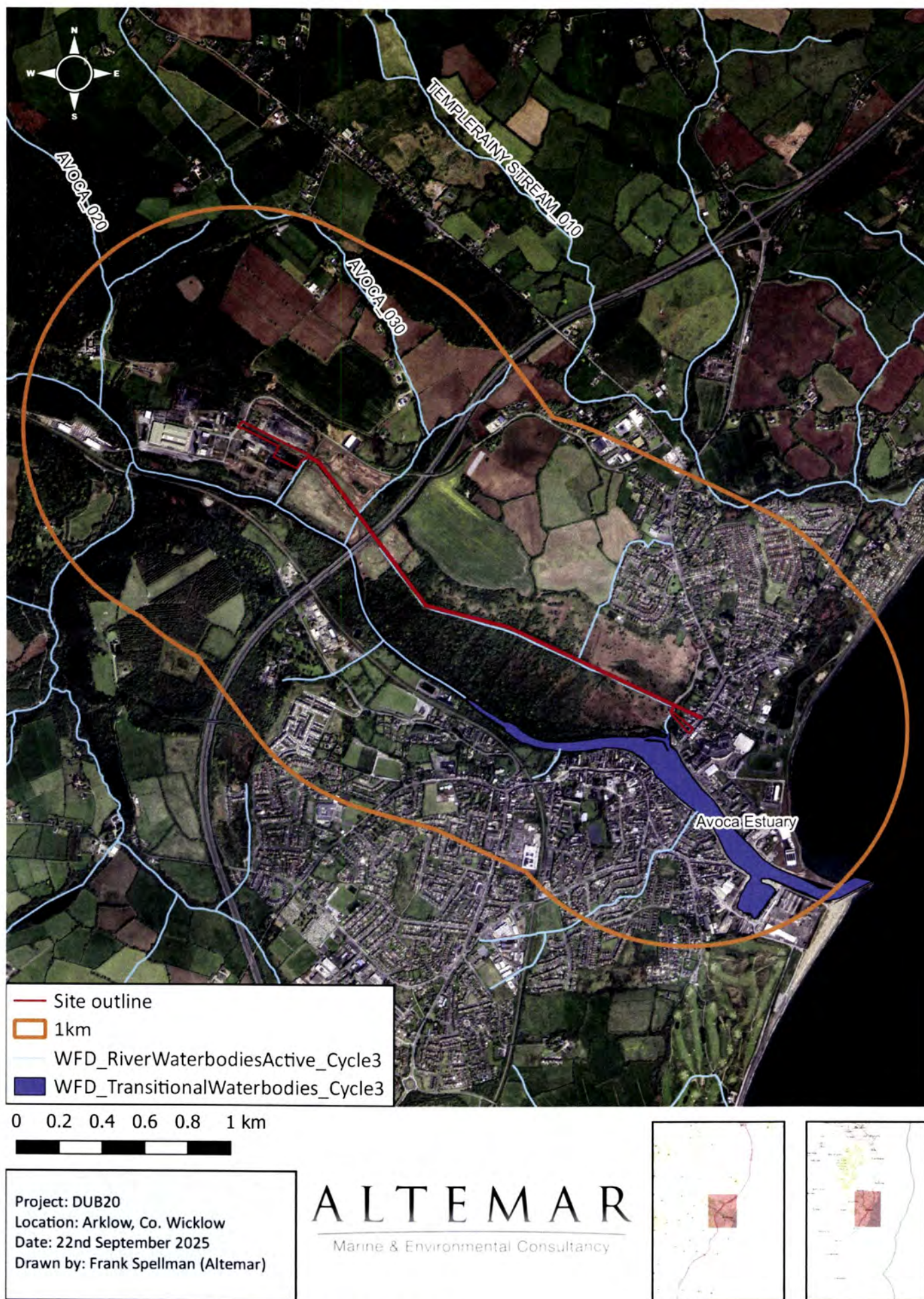
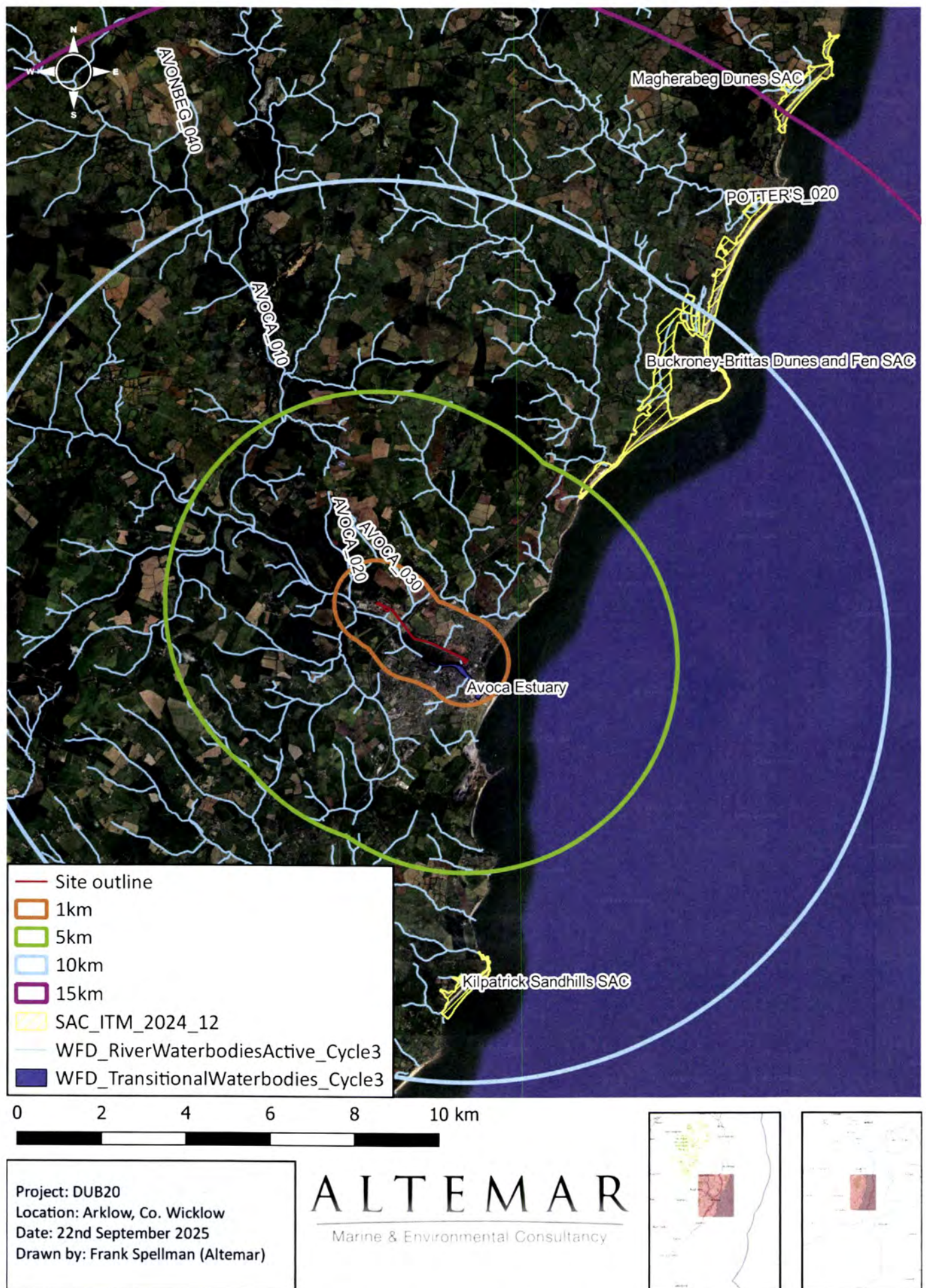


Figure 9. Special Protection Areas (SPA) within 15km of the proposed works site





In-Combination Effects

Cumulative Impacts can be defined as “*impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project*”. Effects which are caused by the interaction of effects, or by associated or off-site projects, are classed as indirect effects. Cumulative effects are often indirect, arising from the accumulation of different effects that are individually minor. Such effects are not caused or controlled by the project developer.

A review of other off-site developments and proposed developments was completed as part of this assessment. The following projects and plans were reviewed and considered for possible cumulative effects with the Proposed Development.

Table 3 details the existing, proposed and granted planning permissions on record in the area:

Table 3: Potential Cumulative Impacts

Ref. No.	Address	Proposal
2484	Upper Main Street, Arklow, Co. Wicklow	demolition of existing derelict buildings (1292 sqm); construction of 99 residential units comprising 59 no. apartments with four blocks, ranging in height from 4 to 7 storeys (7 no. 1 bed units, 42 no. 2 bed units and 10 no. 3 bed units) and 40 no. 3 storey houses (20 no. 4 bed units); construction of a 350 sqm mixed use building of four storeys containing 350 sqm of retail space at ground floor and residential units above; refurbishment, extension and change of use from a derelict two storey house to a 146.3 sqm creche; refurbishment of the former Ormonde Cinema (Record of Protected Structure Ref. A39) for commercial use comprising 322.5 sqm office at first floor and 32 sqm office, 181 sqm lounge/café and 59 sqm café uses at ground floor; relocation of a Victorian letterbox (Record of Protected Structure Ref. A40) within the scheme; provision of public open space including a new amphitheatre, a new plaza, communal and private open space; provision of internal access roads with vehicular, pedestrian and cyclist access and new vehicular access onto Upper Main Street; 169 no. car parking spaces and 196 no. bicycle parking spaces provided at basement and surface level; realignment of Coomie Lane to create a new pedestrian links between Vale Road, Upper Main Street and the River Avoca walkway; all associated and ancillary site development works above and below ground, including signage, 2 no. ESB substations, alteration to existing landscape features, play area, sculpture, retaining walls, clearance works, landscaping, excavation, bin stores, boundary treatments and services provision
23843	Site at Avoca River Park, Arklow, Co. Wicklow	proposed development. The proposed development includes an amendment to the development permitted under Reg. Ref. 21/1080, The proposed development will consist of the following to facilitate the above. Demolition of the existing structures on the western part of the site that comprises 4 no. industrial commercial buildings, an associated hut / outbuilding, a gas enclosure, and a tank with bund wall. The removal of the remains of a previously demolished building, areas of hard standing, and existing surface treatments. The relocation of the Energy Centre 1 to the western part of the site, which will supersede the previously permitted 110kV GIS substation compound at that location under ABP Ref: VA27.309252. The proposed development will provide for a revised energy centre design, to include the provision of 8 no. gas turbines (with associated flues of 25.15m in height), 4 no. black start emergency generators and associated transformers, 2 no. single storey fuel oil pump rooms with a gross floor area (GFA) of 90.17sq.m, a single storey air compressor building with a GFA of 88.9sq.m, 4 no. fuel tanks, 2 no. MCC control rooms with a GFA of 44.17sq.m, 3 no. fire water tanks, a single storey welfare, storage, and pump room building with a combined GFA of 160.97 sq.m, a two storey MV /LV building with a GFA of 655.54sq.m, 8 no. 11kV/ 33kV step-up transformers in the north of the site, water treatment equipment, and a security hut, all within a fenced compound. The

Ref. No.	Address	Proposal
		proposed development includes landscaping and planting, boundary treatments, lighting, security fencing, car parking, and all site works including underground foul and storm water drainage network (including on-site wastewater treatment system), and utility cables, along with all associated and ancillary works. An EPA- Industrial Emissions Directive (IED) licence will be applied for to facilitate the operation of the proposed development
2372	Site located at Avoca River Park, Arklow, Co. Wicklow	the proposed development occupies part of the site of (and will supersede) a previously permitted data centre development under Reg. Ref. 20/1285. The proposed development, for which a ten-year permission is sought, consists of the following: Demolition of the existing structures on site (industrial structures and outbuildings) and site clearance works; construction of 3 no. three storey information and communication technology (ICT) facility buildings, each with a gross floor area (GFA) of c. 16,206 sq.m (c. 48,618sq.m GFA in total), and with a parapet height of c. 19.5 metres; each of the 3 no. ICT buildings will accommodate ICT equipment rooms, mechanical equipment rooms, staff welfare facilities, ancillary office space, security rooms, storage, and loading bays; a customer compound, a power trunk building, a transformer compound and a water tank compound area are provided to the north of the ICT facility buildings; the development includes the extension of the existing road and serving the existing industrial park to access the subject site, with gated access points to the proposed ICT facility development to be provided off this roadway; construction of internal road network and circulation areas, footpaths, provision of 124 no. car parking spaces and motorcycle and cycle parking spaces; landscaping and planting, boundary treatments, lighting, security fencing, and all associated site works including underground foul and storm water drainage network, attenuation and percolation areas, and utility cable (including connections to the substation permitted under ABP Ref. 310090-21, resulting in the partial culverting of an existing drainage ditch), on an application site area measuring c. 9.69 hectares. An Environmental Impact Assessment Report (EIAR) has been prepared and will be submitted to the Planning Authority with the planning application
23756	Lands at Kilbride, Arklow, Co. Wicklow	86 no. residential units with a mix of detached, semi-detached, terraced houses and duplex apartments ranging in height from 2 to 3 storeys; comprising of 8 no. 1-bed and 8 no. 2-bed duplex apartments, 10 no. 2-bed houses and 60 no. 3-bed houses; all residential units will have associated private open spaces facing north/south/east/west; alterations to Kilbride Road (L6179) to provide a section of the new road into the wider Kilbride Masterplan lands with vehicular, pedestrian and cycle access provided; a new dedicated pedestrian and cyclist access will also be provided to the south-east of the development connecting via the Marshland's sports club lands, and through Avondale Crescent to the Dublin Road; landscaping, public open spaces and all associated site development works to enable the development including boundary treatments, attenuation storage area and other service provision
2360437	Shelton Abbey Open Prison, Arklow, Co. Wicklow, Y14 T638	the installation of circa. 3,492sq.m array of solar photovoltaic (PV) panels on ground mounted frames on an agricultural plot within the existing Shelton Abbey Open Prison, together with ducting, underground electrical cabling, and all associated site works The proposed development is considered to be within the curtilage of a protected structure (RPS No. 40-05) listed under the current Wicklow County Development Plan 2022-2028. The proposed solar array installation will have no impact on the protected structure, located over 330.00 meters away from the proposed site.
23320	Avoca River Park, Arklow, Co. Wicklow	for proposed change of use from industrial/warehouse to plastics recycling facility and associated works
22433	townlands of Killiniskyduff, Tiknock, Kilbride, and Shelton Abbey	the installation of underground electrical infrastructure between the existing Arklow Gas-insulated Switchgear (GIS) 220kV Substation and the permitted Pollahoney GIS Substation. This will include the installation of

Ref. No.	Address	Proposal
		approximately two underground electricity cable circuits, each at 3.12km in length and associated underground ducting, horizontal directional drilling, joint bays, communication cabling infrastructure between the existing Arklow GIS 220kV Substation and the permitted Pollahoney GIS substation, (WCC reg ref 20/1285). All associate and ancillary site development, remedial and construction works will be concentrated along the public road network, i.e. R772, L2180, L6179-0 and L-61791-0 to facilitate the underground cabling infrastructure within the townlands of Killinskyduff, Tiknock, Kilbride and Shelton Abbey.
22213	Kilbride Educational Campus, Kilbride, Arklow, Co. Wicklow	construction of a new educational campus and a new link road that will service the school campus which will include the provision of two school buildings. Gaelscoil an Imbhir Mhóir a two-storey, 16 classrooms primary school with two special needs rooms and ancillary spaces with total floor of circa 3093sqm serving 480 pupils. Gaelshólaiste na Mara a three-storey, post primary school with two special needs rooms, PE hall and ancillary spaces with a total floor area of circa 6585sqm serving 400 pupils. Proposed site works to include the construction of all new hard play areas, six play-courts, grass pitch, 182 no. car-parking spaces together with boundary treatment, 79 bicycle stands, ancillary infrastructure works, pedestrian links and landscaping.
201285	Avoca River Park, Shelton Abbey & Kilbride, Arklow, Co. Wicklow	1. Demolition of existing building units totalling (C.2784.4m ²) comprising of a c.7.1m high Overall Main Building (c.2460m ²), a c.4.2m high Substation (c. 107.3m ²), a c.3.6m high Guardhouse (c.106.2m ²), a c.3.6m high East-Building (c.39.1m ²), c.5m high Water Tank (c.56.8m ²) &c.2.6m high Pump House Building (c.15.1m ²), assoc works. 2. Dev of 3 no. Data Centre Buildings, ancillary offices & plant comprising of: Data Centre Building A, - a single storey Data Centre Building, with mezzanine 1st floor level offices (GFA c.10,564m ² , building height c.13,658m & structures c.15,137m), made up of 2 no. Data Halls & loading areas with assoc 2 no. Dock Levellers & including 10 no. c.14m high flues, & adjacent 1 no. Standby Power Generation Compounds, consisting of 10 no. HV Diesel Generators & belly tanks (GFA c.530 m ²), 1 no. storage fuel tank (GFA c.15m ²). Data Centre Building B – a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m ² , building height c.13,658m & structures c.15,137m), made up of 4 no. Data Halls & loading areas with associated 2 no. Dock Levellers & including 20 no. c.14m high flues, & adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. HV diesel Generators & belly tanks (GFA c.1,060 m ²), 2 no. storage fuel tanks (GFA c.30m ²). Data Centre Building C – a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m ² , building height c.13,658m & structures c.15,137m), made up of 4 no. Data Halls & loading areas with associated 2 no. Dock Levellers & including 20 no. c.14m high flues, & adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. HV Diesel Generators & belly tanks (GFA c.1,060 m ²), 2 no. storage fuel tanks (GFA c.30m ²). 3. Upgrading of existing 110 kV Substation to comprise of Compound (c. 8539m ²) consisting of 11 kV GIS Switch Room (GFA c.708m ²), & 4 no. External Transformers (GFA c.550m ²), a grid connection, security fence & all assoc works & services. 4. Dev of 1 no. Fire Hydrant Pump Hse (GFA c.129m ²) with Sprinkler Tank (c.49m ²), 1 no. single storey Security Guard Hse (GFA c.48m ²) & 2 no. vehicular accesses, internal access rds & 224 no. surface car parking spaces. 5. An upgraded attenuation basin, a proposed ww treatment plant & polishing filter. 6. All assoc site services, with c.2.7m high palisade fence, landscaping, boundary & all assoc site development works above & below ground. An EIAR has been prepared in respect of the proposed dev
20383	Kilbride Cottage, Kilbride Road, Arklow, Co. Wicklow	154 sqm rear and side dormer style extension to 48 sqm dwelling, front dormer window to roof, proposed front porch, replacement wastewater treatment system to EPA standards in lieu of existing septic tank and associated works

Ref. No.	Address	Proposal
18326	Glenhaven Foods (Arklow) Ltd, Kilbride Industrial Estate, Arklow, Co. Wicklow	amendments to a previously approved planning permission for the subject site - Planning Permission Reference Number 16A/446. The amendments will comprise of modifications to the planning approved layouts and elevations, the associated changes include recladding of existing building elevations, the relocation of storage tanks, extended and reconfigured plant room layouts, extended and reconfigured storage areas, incorporating a total increased to the building size of 416 sqm (from 1891 sqm to 2307 sqm) with a revised ridge height not exceeding 10.2m
ABP 302556-18	Arklow, Co. Wicklow	Arklow Wastewater Treatment Plant Project. Application made directly to An Bord Pleanála under Strategic Infrastructure provision.

There is no direct pathway to designated sites. It is considered that in combination effects on biodiversity, with other existing and proposed developments in proximity to the application area, would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on designated conservation sites will be seen as a result of the proposed development alone or in combination with other projects.

No projects in the vicinity of the proposed development would be seen to have a significant in combination effect on Natura 2000 sites.

Conclusions

The proposed development is located approximately 4.7 km from the nearest Natura 2000 site (Buckroney Brittas Dunes and Fen SAC). Watercourses and surface runoff are seen as the main potential pathway for impacts on Natura 2000 sites. The nearest watercourse is a tributary of the Avoca River (Avoca_030), which runs through Arklow Marsh adjacent/parallel to the south of the proposed development, before discharging to the Avoca Estuary approximately 75 m away. Pollution/contamination of hydrological pathways has the potential to impact on Qualifying Interests of nearby SPAs.

The proposed development has no impact on levels or direction of existing surface water drainage within Arklow Marsh or surrounding areas and is not seen as significant enough to negatively impact any Natura 2000 sites via hydrological pathways. No foul water is associated with this development. However, the proposed foul rising main will facilitate a foul wastewater connection from Avoca River Park to Arklow WwTP, resulting in increased load at Arklow WwTP for treatment under license, which is ultimately discharged to the Irish Sea. A confirmation of feasibility was issued by Uisce Eireann in 2024 subject to completion of Arklow WwTP, which is now operational. Surface water drainage will ultimately permeate and run-off to the marsh water drainage system, which outfalls to the Avoca estuary and in turn ultimately outfalls to the marine environment of the Irish Sea.

No Natura 2000 sites are within the zone of influence of this development. Having taken into consideration the lack of effluent or additional surface water discharge from the proposed development works, the distance between the proposed development site to designated conservation sites, lack of direct hydrological pathway or biodiversity corridor link to conservation sites and the dilution effect of surface runoff, it is concluded that this development would not give rise to any significant effects to designated sites. The construction and operation of the proposed development will not impact on the conservation objectives of features of interest of Natura 2000 sites. There is no possibility of significant impacts on Natura 2000 sites, features of interest or site-specific conservation objectives.

This report presents a Stage 1 Appropriate Assessment Screening for the proposed development, outlining the information required for the competent authority to screen for appropriate assessment and to determine whether or not the Proposed Development, either alone or in combination with other plans and projects, in view of best scientific knowledge, is likely to have a significant effect on any European or Natura 2000 site.

On the basis of the content of this report, the competent authority is enabled to conduct a Stage 1 Screening for Appropriate Assessment and consider whether, in view of best scientific knowledge and in view of the conservation objectives of the relevant European sites, the Proposed Development, individually or in combination with other plans or projects is likely to have a significant effect on any European site.

Findings of No Significant Effects Report

Details of Project	Appropriate Assessment Screening for a proposed development between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow
Name and Location of European Sites Within 15km (and ZOI)	Buckroney Brittas Dunes and Fen SAC Kilpatrick Sandhills SAC Slaney River Valley SAC Magherabeg Dunes SAC Vale of Clara (Rathdrum Wood) SAC
Project Description	Echelon Data Centres Limited intend to apply for permission for proposed development between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow. The proposed scheme involves the installation of approximately 2.2km of watermain and foul rising main in support of several developments within the Avoca River Business Park Lands. The proposed development includes the following: • Foul pump station • c. 2240m 200mm diameter foul rising main • c. 2240m 160mm diameter watermain • c. 2240m 4x4 160mm diameter fibre ducts • Connection to Uisce Éireann foul network • Connection to Uisce Éireann watermain network Access to the site will be provided via the existing access to the Avoca River Park, down the existing service road which extends through the Marshlands up to the intersection with Ferrybank road in Arklow Town. The intersection with Ferrybank road would be used as a secondary access.
Is the Project directly connected with the management of the European site?	No
Details of any other projects or plans that together with this project could affect the European site	None
The assessment of significant effects	
Describe how the project is likely to affect the European site	No Impact Predicted
Response to consultation	N/A
Data collected to carry out the assessment	Supporting NPWS data.
Who carried out the assessment	Altamar Ltd.
Sources of data	NPWS website, standard data form, conservation objectives data of the site and references outlined in the AA Screening Report.
Explain why the effects are not considered significant	No Natura 2000 sites are within the zone of influence of this development. There is no direct hydrological pathway to Natura 2000 sites. There is no wastewater associated with this development. However, the development will facilitate a foul water connection from Avoca River Park to Arklow WwTP for treatment under license (feasibility confirmed). Surface water discharge levels will remain unchanged, and the existing surface water pathways will persist; surface water drainage will ultimately percolate/run-off to the Arklow Marsh drainage system, which in turn outfalls to the

Level of assessment completed Overall conclusions	Avoca Estuary which ultimately discharges to the Irish Sea. However, the proposed alterations will not result in higher loading levels from the site. Having taken into consideration the works, the indirect surface water discharge from the proposed development works to existing networks, the distance between the proposed development site to designated conservation sites, lack of direct hydrological pathway or biodiversity corridor link to conservation sites and the dilution effect in the estuarine and marine environments, it is concluded that this development would not give rise to any significant effects to designated sites.
	Stage 1 Screening
	On the basis of the content of this report, the competent authority is enabled to conduct a Stage 1 Screening for Appropriate Assessment and consider whether, in view of best scientific knowledge and in view of the conservation objectives of the relevant European sites, the Proposed Development, individually or in combination with other plans or projects is likely to have a significant effect on any European site.

Data Used for AA Screening

NPWS site synopses and Conservation objectives of sites within 15km were assessed. The most recent SAC and SPA boundary shapefiles were downloaded and overlaid on ESRI road maps and satellite imagery.

References

The following references were used in the preparation of this AA screening report.

1. Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities March 2010.
2. Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government 2009;
www.npws.ie/publications/archive/NPWS_2009_AA_Guidance.pdf
3. Managing NATURA 2000 Sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC, European Commission 2000;
ec.europa.eu/environment/nature/Natura2000/management/docs/art6/provision_of_art6_en.pdf
4. Assessment of Plans and Projects Significantly Affecting NATURA 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
ec.europa.eu/environment/nature/Natura2000management/docs/art6/Natura_2000_assess_en.pdf
5. Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission;
ec.europa.eu/environment/nature/Natura2000/management/docs/art6/guidance_art6_4_en.pdf
6. Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging;
ec.europa.eu/environment/nature/Natura2000/management/docs/guidance_doc.pdf
7. The Status of EU Protected Habitats and Species in Ireland.
www.npws.ie/publications/euconservationstatus/NPWS_2007_Conservation_Status_Report.pdf
8. NPWS (2021) Conservation Objectives: Vale of Clara (Rathdrum Wood) SAC 000733. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
9. NPWS (2017) Conservation Objectives: Buckroney-Brittias Dunes and Fen SAC 000729. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
10. NPWS (2017) Conservation Objectives: Kilpatrick Sandhills SAC 001742. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
11. NPWS (2017) Conservation Objectives: Magherabeg Dunes SAC 001766. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
12. NPWS (2011) Conservation Objectives: Slaney River Valley SAC 000781. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

ALTEMAR

Marine & Environmental Consultancy

Ecological Impact Assessment (EclA) for a proposed development between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow



23rd September 2025

Prepared by: Frank Spellman of Altemar Ltd.

On behalf of: Crag Digital Avoca Limited

Altemar Ltd., 50 Templecarrig Upper, Delgany, Co. Wicklow. 00-353-1-2010713. info@altemar.ie

Directors: Bryan Deegan and Sara Corcoran

Company No.427560 VAT No. 9649832U

www.altemar.ie

Document Control Sheet

Project	Ecological Impact Assessment (EclA) for a proposed development between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow		
Report	Ecological Impact Assessment		
Date	23 rd September 2025		
Version	Author	Reviewed	Date
Draft 01	Frank Spellman	Jack Doyle	5 th September 2025
Planning	Frank Spellman	Jack Doyle	23 rd September 2025

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Introduction

Background

Ecological Impact Assessment (EclA) has been defined as *‘the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components’* (Treview, 1999). *“The purpose of EclA is to provide decision-makers with clear and concise information about the likely ecological effects associated with a project and their significance both directly and in a wider context. Protecting and enhancing biodiversity and landscapes and maintaining natural processes depends upon input from ecologists and other specialists at all stages in the decision-making and planning process; from the early design of a project through implementation to its decommissioning”* (IEEM, 2010).

The following EclA has been prepared by Altemar Ltd. at the request of Crag Digital Avoca Limited for a proposed development between Avoca River Park and Ferrybank Road, Arklow, Co. Wicklow. The proposed development consists primarily of installation of watermain and foul rising main, connecting the Avoca River Business Park Lands with Uisce Éireann Foul and watermain networks, and associated works.

Study Objectives

The objectives of this EclA are to:

1. Outline the project and any alternatives assessed;
2. Undertake a baseline ecological feature, resource and function assessment of the site and zone of influence;
3. Assess and define significance of the direct, indirect and cumulative ecological impacts of the project during its construction, lifetime and decommissioning stages;
4. Refine, where necessary, the project and propose mitigation measures to remove or reduce impacts through sustainable design and ecological planning; and
5. Suggest monitoring measures to follow up the implementation and success of mitigation measures and ecological outcomes.

The following guidelines have been used in preparation of this EclA:

- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002);
- Guidelines on the information to be contained in EIARs (2022);
- Guidelines for Ecological Impact Assessment (EclA) (IEEM, 2019);
- Advice Notes on current practice in the preparation of EIS's (EPA, 2003);
- Institute of Ecology and Environmental Management Guidelines for EIA (IEEM, 2005).

Altemar Ltd

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments. Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with over 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

Description of the Proposed Project

The proposed scheme involves the installation of approximately 2.2km of watermain and foul rising main in support of several developments within the Avoca River Business Park Lands.

The proposed development includes the following:

- Foul pump station
- c. 2240m 200mm diameter foul rising main
- c. 2240m 160mm diameter watermain
- c. 2240m 4x4 160mm diameter fibre ducts
- Connection to Uisce Éireann foul network
- Connection to Uisce Éireann watermain network

Access to the site will be provided via the existing access to the Avoca River Park, down the existing service road which extends through the Marshlands up to the intersection with Ferrybank road in Arklow Town. The intersection with Ferrybank road would be used as a secondary access.

The proposed site outline, location, services layout, construction details and sections are demonstrated in Figures 1-7.

Landscape

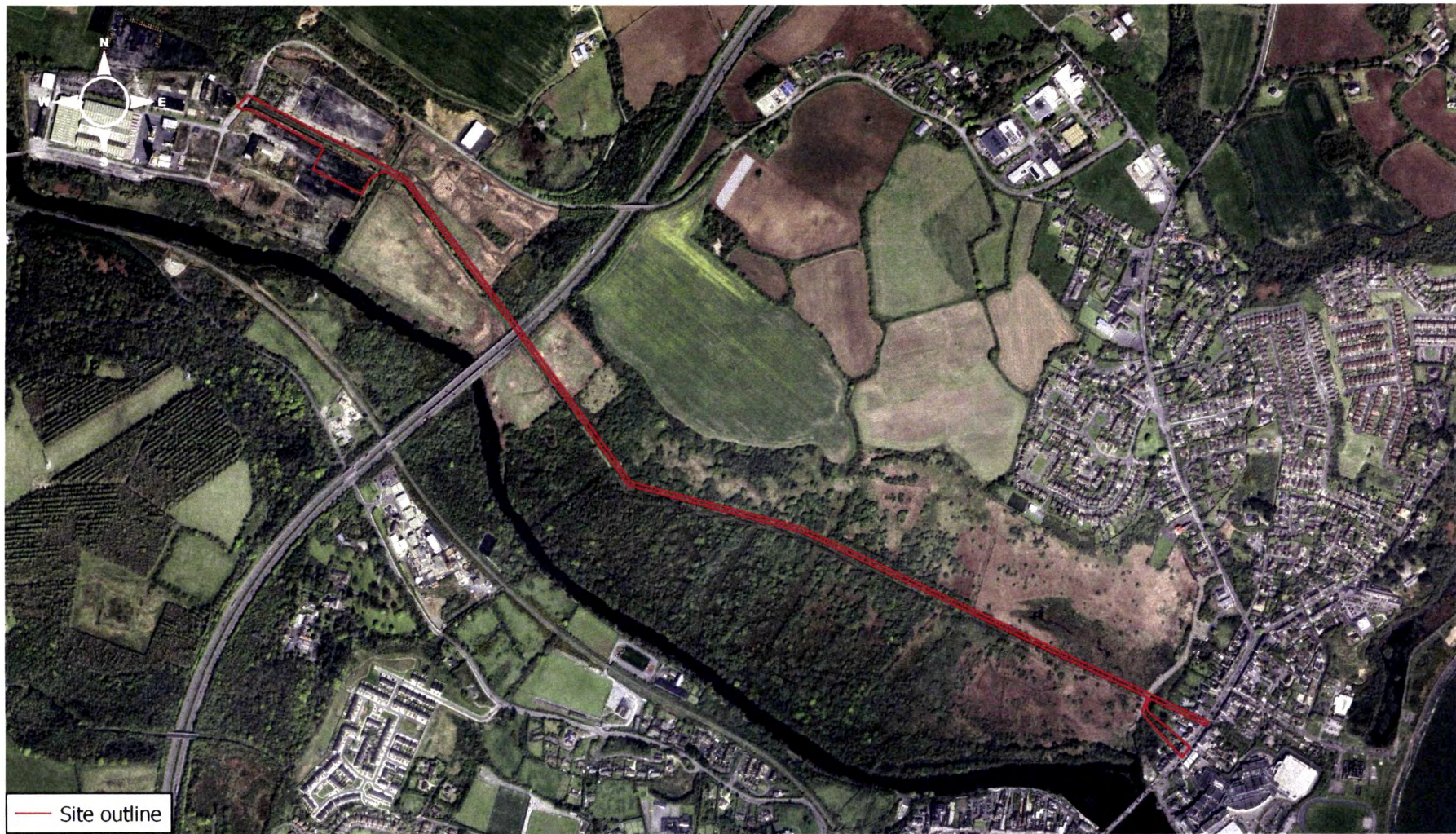
No specific landscape plan is proposed as part of the proposed development.

A 1 metre vegetation buffer will be retained along the southern boundary of the right-of-way between proposed works and the adjacent watercourse. Heavy scrub growth along the 'Right of Way' through the marsh will be cleared to allow works to be completed. All cleared vegetation will be retained on site following chipping and mulched/spread along the right-of-way. Natural regeneration of vegetation will occur following completion of works. This is outlined within the accompanying OCEMP as follows:

'All vegetation will be chipped or mulched and spread within the Right of Way as recommended in *The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads* (Included in Appendix B of this report, See Table 12). No disposal of vegetation will occur within any watercourse along the route. No cut vegetation will be removed from site and wheel washes will be positioned such that any vehicle exiting site will not carry vegetation out of the works area.'



Figure 1. Site outline and location context.



0 0.2 0.4 0.6 0.8 1 km

Project: DUB20
Location: Arklow, Co. Wicklow
Date: 22nd September 2025
Drawn By: Frank Spellman (Altamar)

ALTEMAR
Marine & Environmental Consultancy

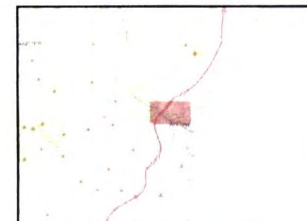


Figure 2. Site outline

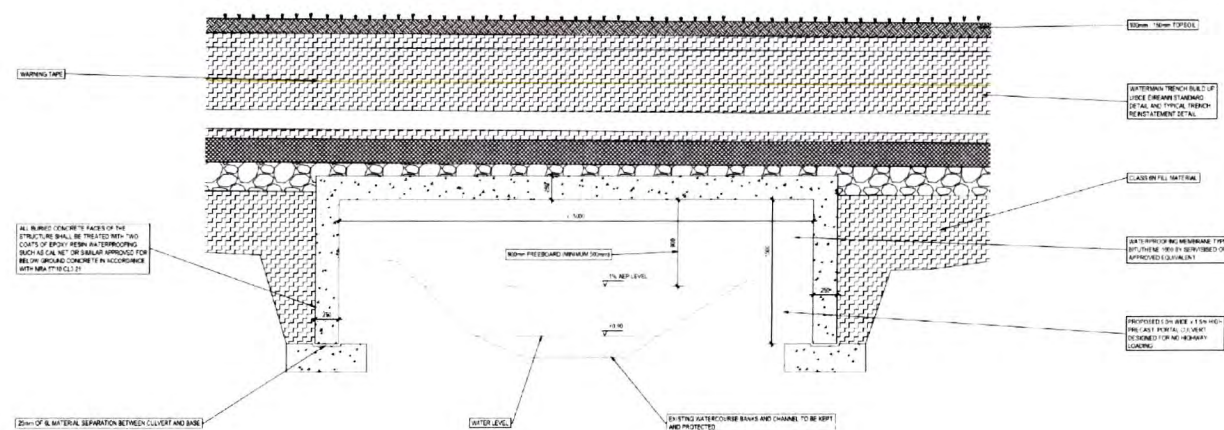




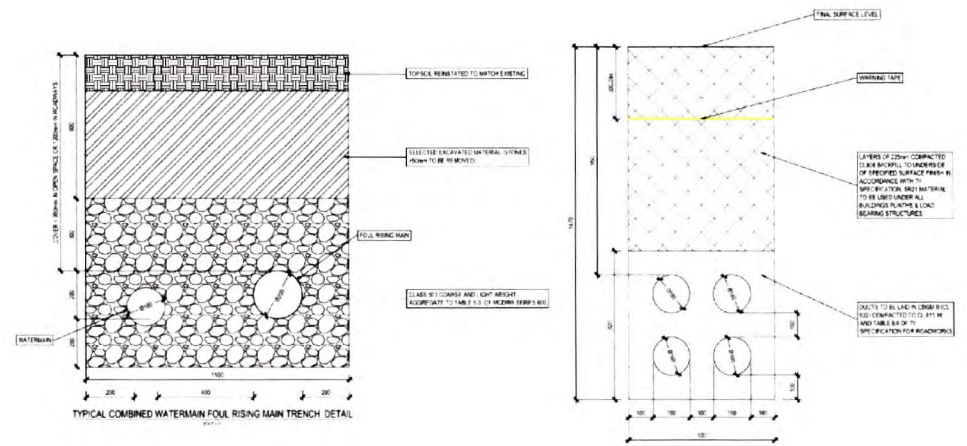
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2 NOTICES OF MODIFICATION HAVE BEEN ISSUED SINCE THE DATE OF THE LAST MODIFICATION. THE LATEST MODIFICATION IS SHOWN IN THE MODIFICATION HISTORY. THE LATEST MODIFICATION IS SHOWN IN THE MODIFICATION HISTORY.

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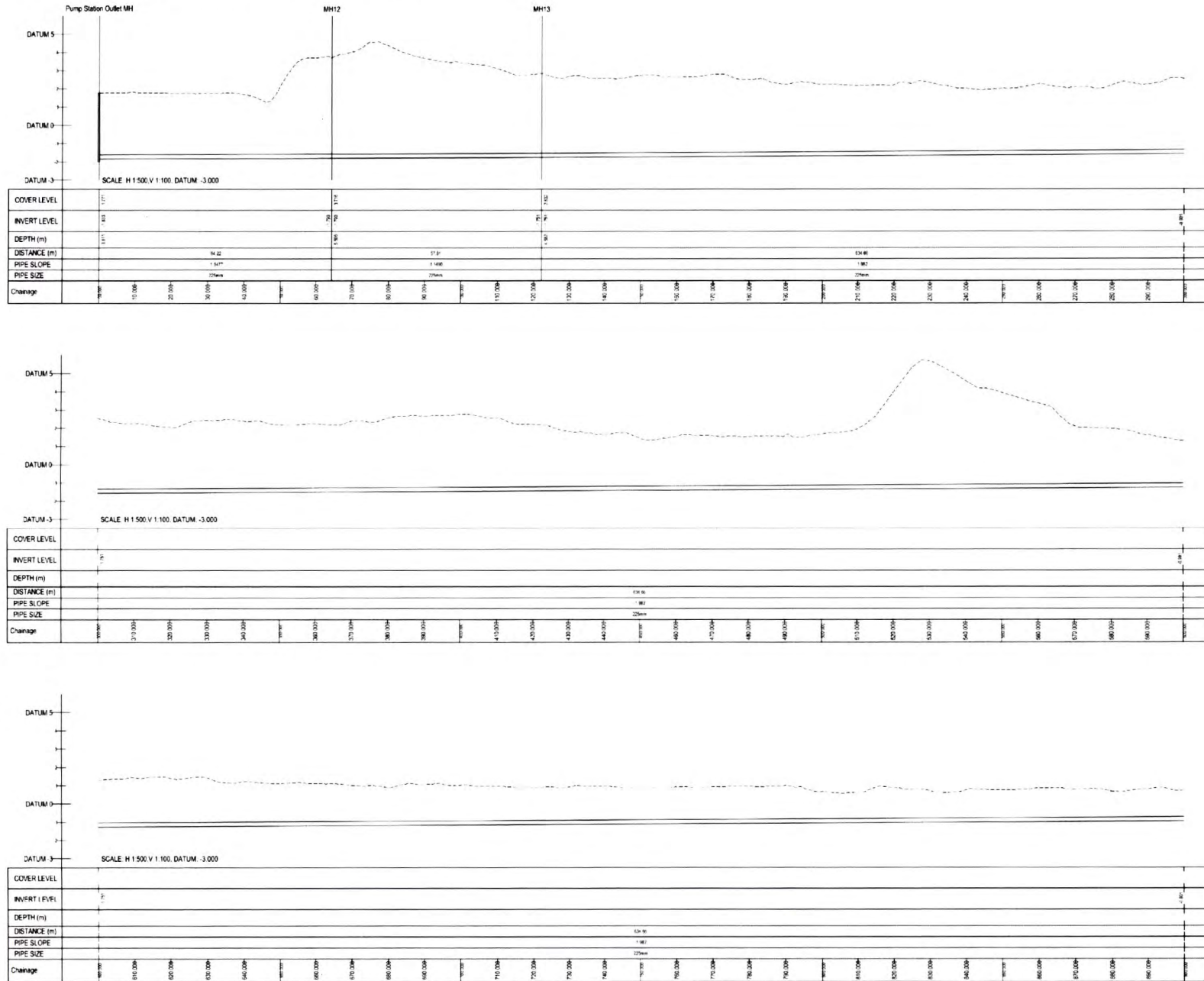


TYPICAL SECTION THROUGH CULVERT BELOW WATERMAIN



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Figure 4 – Proposed typical construction details



ON ORIGINAL

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NOTES

1. ALL DRAWINGS TO BE CHECKED BY CONTRACTOR ON SITE AND ENGINEER INFORMED OF DISCREPANCIES BEFORE WORK COMMENCES.
2. ALL LEVELS AND DISTANCES ARE RELATED TO DRAINAGE DATUM.
3. CONTRACTOR SHALL SATISFY HIMSELF AS TO THE ACCURACY OF MEASUREMENTS ON SITE PRIOR TO COMMENCEMENT OF WORKS ON SITE.
4. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE MAIN SPECIFICATION FOR ROAD WORKS (SHEETS NOTED OTHERWISE).
5. THIS DRAWING IS FOR PLANNING PURPOSES ONLY.
6. MANHOLE COVER LEVELS ARE TO CONFORM WITH ADJACENT ROAD AND FOOTPATH LEVELS.
7. MANHOLE COVER TO BE SLENDER THAN 1200mm ROADWAY WIDENING OR 900mm OPEN SPACE SURROUND PIPE IN MANHOLE 1200mm CONCRETE.

KEY

— EXISTING PROFILE
— PROPOSED PROFILE

DRAFT

1. 14.04.2025 FOR INFORMATION
2. 14.04.2025 FOR INFORMATION
3. 14.04.2025 FOR INFORMATION

STATUS CODES
1. 14.04.2025 FOR INFORMATION
2. 14.04.2025 FOR INFORMATION
3. 14.04.2025 FOR INFORMATION

DBFL
CONSULTING ENGINEERS

DUBLIN | CORK | GALWAY | WATERFORD

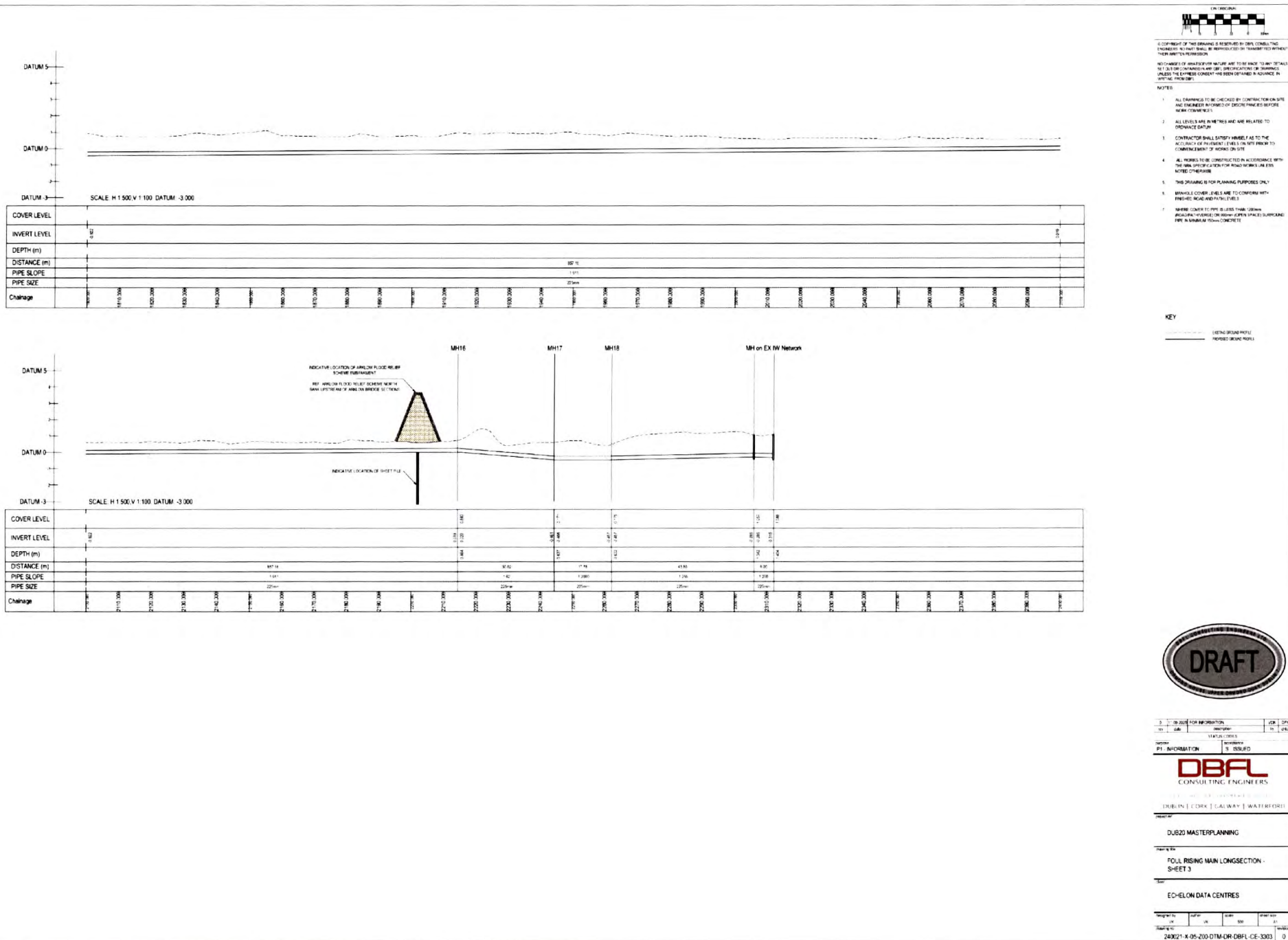
Project No.
DURCO MASTERPLANNING

Drawn By
FOUR RISING MAIN LONGSECTION - SHEET 1

Scale
ECHOEN DATA CENTRES

Drawn By
240021-A-05-230-DT-MR-DBFL-CE-3301 0

Figure 5 – Proposed longsection 1



Drainage

Foul drainage

There is no additional foul discharge associated with the operation of the proposed development. However, the proposed development will provide a foul connection and facilitate an increase in foul discharge from current and future developments at Avoca River Business Park to the public network for treatment at Arklow Wastewater Treatment Plant (WwTP) prior to discharge to the Irish Sea. A confirmation of feasibility to a Pre-Connection Enquiry (Ref. CDS24007212) on 11th October 2024 was provided subject to completion of Arklow WwTP, which has since become operational.

During construction, portable sanitary facilities will be provided for all staff on site. All foul wastewater from on-site sanitary facilities will be collected and transported to a licensed disposal facility.

Surface water

Operation

No surface water drainage strategy is required for the proposed development. No increase in impermeable surfaces will occur as a result of the proposed development. The current marsh drainage patterns will persist during operation of the proposed development.

Construction

An outline construction environmental management plan (OCEMP) has been produced by DBFL Consulting Engineers in relation to this proposed development. The plan outlines the following relevant to surface water:

'4.2 Stockpiling

Stockpiling shall be in accordance with the relevant TII Specification's for Road Works.

Topsoil, wherever practicable, shall be stripped and stockpiled linearly adjacent to the works area. All vegetation will be chipped or mulched and spread within the Right of Way as recommended in The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (Included in Appendix B of this report, See Table 12). No disposal of vegetation will occur within any watercourse along the route. No cut vegetation will be removed from site and wheel washes will be positioned such that any vehicle exiting site will not carry vegetation out of the works area.

Topsoil stockpiles must not exceed 2.0m in height, with subsoil and general fill stockpiles not exceeding 4.0m in height, unless otherwise directed by competent engineer. Stockpiles will be managed linearly along the right of way adjacent to the works with double silt trenching installed between the works area and the existing watercourse. A protective membrane shall cover the stockpiled materials to prevent erosion from wind and rain throughout the course of the works. This membrane cover shall only be removed in small areas during work and not all at once. Where stockpiles are to remain longer than four weeks, seeding or hydroseeding will be considered as an alternative to sheeting.

Stockpiling of loose materials shall be kept a minimum of 50m from watercourse, subject to approval by Engineer / Environmental Clerk of Works. Stockpiles and runoff areas following clearance shall have suitable barriers in place to prevent runoff of fines into drainage system and watercourses.

During construction, silt traps are to be provided in the vicinity of all runoff channels of the stream to prevent sediment from entering the watercourse.

Stockpiles must not be surcharged, or otherwise loaded and multiple handling shall be kept to a minimum water runoff as no ponding is permitted. Stockpiles are to be clearly signed and fenced as necessary. Sufficient dust suppression (e.g. water spraying) in windy/dry periods shall be undertaken.. Stockpiles are to be sloped gently (1:2 or flatter) to reduce erosion and shall be shaped to promote surface

4.3 Trenching through Existing Right of Way

All demolition, excavation and enabling works in marshlands are to be supervised by an appointed ecological clerk. During construction, silt traps are to be provided in the vicinity of all runoff channels of the stream to prevent sediment from entering the watercourse. Trenched double silt fencing is to be provided at the top of the watercourse embankment, immediately to the north of a 1m vegetation buffer, to protect the

watercourse. An additional trenched silt fence will be provided at the northern edge of the existing right of way to protect the marshlands. Chipped vegetation from site clearance should be retained and spread over the surface of the right of way to prevent erosion from machinery movements.'

The OCEMP also outlines a number of specific measures to be taken in relation to surface water during the construction stage:

'5.3 Hydrology

In conjunction with the mitigation measures set out in the EIA screening in relation to Land, Soils, Geology, Hydrogeology (Chapter 5), Hydrology (Chapter 6), the following mitigation measures relating to the protection of water quality will apply:

- *The CEMP will detail procedures for the control, treatment and disposal of potentially contaminated surface water including monitoring systems and oversight required throughout the construction phase.*
- *The contractor will be required to implement industry best practice pollution prevention measures in accordance with guidance documents (for example CIRIA Guideline Document C532 Control of Water Pollution from Construction Sites), during both construction and operation in order to control the risk of pollution to surface waters. In addition, pollution of aquatic systems during the construction phase will be reduced by the implementation of the protection measures as outlined in Section 5.3 of this OCEMP.*

The following mitigation measures shall apply in relation to both Hydrology and Biodiversity (Section 5.4 herein):

- *Routine practice and procedures to prevent pollution of the environment will apply. These include: During the construction stage, standard construction and site management practices will be implemented by the contractor.*
- *Silt fences and grassed swales/catchment ditches will be constructed around the perimeter of work areas, compounds, storage yards and stockpile areas where practicable.*
- *Weather conditions and typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimising soil erosion.*
- *The construction compound(s) will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound(s) will be transported off site to a licensed facility.*
- *The construction compound(s)'s potable water supply shall be protected from contamination by any construction activities or materials.*
- *All material including oils, solvents and paints will be stored within temporary bunded areas or dedicated bunded containers.*
- *Refuelling will take place in a designated bunded area away from surface water gullies, drains and water bodies, and the Right of Way.*
- *All machinery and plant used will be regularly maintained and serviced and will comply with appropriate standards to ensure that leakage of diesel, oil and lubricants is prevented.*
- *Spill kits and hydrocarbon absorbent packs will be available throughout the site and drip trays will be used during refuelling.*
- *Drainage wardens/silt socks will be placed around drainage gullies connected to the live network.*
- *Ongoing monitoring of the water receptors throughout the works.*
- *Excavated material will be segregated into inert, non-hazardous and/or hazardous fractions.*
- *The excavation and handling of inert material will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment.'*

Noise and Vibration

The accompanying outline construction environmental management plan (OCEMP) produced by DBFL Consulting engineers outlines the following in relation to noise and vibration:

'5.6 Noise and Vibration

As set out in the EIA screening in relation to Noise and Vibration (Chapter 10) – and the associated Noise and Vibration Impact Assessment Report, the following mitigation measures are required:

- 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 levels of noise and/or vibration during critical periods and at sensitive locations; and
- All site access roads will be kept even so as to mitigate the potential for vibration from lorries.

The final CEMP shall detail appropriate mitigation measures to manage any risk of noise impacting the community.

The contract documents will clearly specify that the Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures.

These measures will typically include:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
- Vehicles required to wait on site will switch off engines.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screens.
- Location of plant shall consider the likely noise propagation to nearby sensitive receptors.
- During the course of the construction programme, supervision of the works will include ensuring compliance with the noise limits prescribed using methods outlined in BS 5228-1.
- For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant will be switched off when not in use and not left idling.
- For percussive tools such as pneumatic concrete breakers and tools, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensuring any leaks in the air lines are sealed. Erection of localised screens around breaker or drill bit when in operation in close proximity to noise sensitive locations (NSLs) boundaries are other suitable forms of noise reduction.
- Where compressors, generators and pumps are located in areas in close proximity to NSLs and have potential to exceed noise criterion, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- Resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can be controlled by fixing resilient materials in between the surfaces in contact.
- Demountable enclosures can also be used to screen operatives using hand tools and may be moved around site as necessary.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

Selection of Quiet Plant:

- *The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item of plant will be selected wherever possible.*
- *Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative.*
- *For static plant such as compressors and generators used at work areas such as construction compounds etc., the units will be supplied with manufacturers' proprietary acoustic enclosures where possible.*
- *The contractor will evaluate the choice of excavation, breaking or other working method, taking into account various ground conditions and site constraints. Where possible, where alternative lower noise generating equipment are available that will provide equivalent that would economically achieve, in the given ground conditions, equivalent structural / excavation / breaking results, these will be selected to minimise potential disturbance.*

Construction vibration management measures for the scheme shall include:

- *A vibration monitoring programme should be adopted at the nearest properties during the most critical phases of construction e.g., rock breaking etc. to assure the property owners that the prescribed limits are not exceeded.'*

Dust and Air Quality

The accompanying outline construction environmental management plan (OCEMP) produced by DBFL Consulting engineers outlines the following in relation to dust and air quality:

'5.5 Air Quality, Climate and Resources

In conjunction with the mitigation measures set out in the EIA screening in relation to both Air Quality (Chapter 8) and Climate (Chapter 9) – the contractor is required to implement the following measures during construction:

- *The coordination, implementation and ongoing monitoring of dust produced by site activities. The key aspects of controlling dust are listed below: The development of a documented system for managing site practices with regard to dust control;*
 - *Spraying of exposed earthwork activities and site haul roads during dry weather;*
 - *Provision of wheel wash at exit points;*
 - *Covering of stockpiles;*
 - *Control of vehicle speeds, speed restrictions and vehicle access; and*
 - *Sweeping of hard surfaced roads.*
 - *Erection of a 2.4m high hoarding will be provided around site camp where allowable to minimise the dispersion of dust from working areas.*
 - *Stockpiles will be located as far away as possible from sensitive receivers and covered/dampened during dry weather;*
 - *Generators will be located as far away as practicable from sensitive receivers;*
 - *To prevent the harmful emissions from vehicle exhausts, on-site and delivery vehicles will be prevented from leaving engines idling, even over short periods.*
 - *Where Asbestos Contaminated Material (ACM) is uncovered on site during construction, the ACM will be double-bagged and removed from site by a competent contractor and disposed of in accordance with the relevant procedures and legislation.*

At all times, the measures used to control dust will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

To minimise effects to the climate through harmful emissions, the following controls shall be put in place:

- *All vehicles will be required to switch off engines when stationary (no idling);*
- *All vehicles will be serviced and maintained to ensure emissions are minimised;*
- *Where practicable, materials will be reused within the extent of the Proposed Development; and*

- *Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport.*
- *The Contractor's fleet of vehicles and machinery must use biofuels.*

To mitigate the effects of excess water consumption, construction is to be limited to the summer months as this will reduce the need for dewatering.

Ecological Assessment Methodology

Desk Study

A desk study was undertaken to gather and assess ecological data prior to undertaking fieldwork elements. Sources of datasets and information included:

- The National Parks and Wildlife Service
- National Biological Data Centre
- Satellite, aerial and 6" map imagery
- ESRI (QGIS)

A provisional desk-based assessment of the potential species and habitats of conservation importance was carried out in August and September 2025. Altamar assessed the project, the proposed construction methodology and the operation of the proposed development.

Field Survey

Field surveys of the proposed development site at Avoca River Park and the existing Right-of-Way through the adjacent marshlands to Ferrybank Road, Arklow, were carried out by Emma Peters and Frank Spellman of Altamar Ltd. on 17th July 2025. The purpose of the field surveys was to identify habitat types according to the Fossitt (2000) habitat classification and map their extent. In addition, more detailed information on the species composition and structure of habitats, conservation value and other data were gathered.

Survey Limitations

The surveys covered appropriate seasons for flora assessments. The survey was carried out outside the optimal mammal survey season. To compensate, four camera traps were deployed along the proposed site at clearings and where trails met the adjacent ditch/watercourse to identify mammals frequenting the site from 17th July 2025 to 1st August 2025. No other limitations are foreseen in relation to the surveys carried out on site.

Consultation

The National Parks and Wildlife Service (NPWS) were consulted in relation to species and sites of conservation interest. Data of rare and threatened species were acquired from NPWS. The National Biological Data Centre records were consulted for species of conservation significance.

Spatial Scope and Zone of Influence

As outlined in CIEEM (2018) *'The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries.'* In line with best practice guidance an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995).

The Zol of the proposed project would be seen to be restricted to the site outline, with potential for minor localised noise, vibration and surface water impacts during construction which do not extend significantly beyond the site outline nor are they likely to have any significant effects on any designated conservation sites. The nearest European site to the subject site is 4.7 km away (Buckroney Brittas Dunes and Fen SAC). However, given that a tributary of the Avoca River (draining the marsh) borders the site immediately adjacent to the south of the proposed boundary, there is potential for the Zone of Influence to be extended. The Arklow Town Marsh and Avoca River tributary within the marsh (through which the marshlands drain) outfalls to the Avoca Estuary to the southeast and ultimately the marine environment. There are no Special Protected Areas (SPA) within 15 km of the proposed development and no potential hydrological pathways from the proposed development site to any SPAs located further than 15 km. Noise pollution and vibration created during the construction of the residential development will be localised to the immediate site area and will not have a likely significant effect on the conservation objectives of the features of interest of any European sites. Surface water from the proposed development will run-off and percolate as present to the marshlands and it's small tributary of the Avoca River, which enters the adjacent Avoca Estuary and ultimately the marine environment. Flocculation and estuarine circulation patterns will occur within the Avoca Estuary and Irish Sea. Any pollutants, silt laden run off or dust which enters the surface water network will be dispersed, diluted and/or settled within the estuarine

and marine environments, to negligible levels, prior to reaching any European sites which are a minimum distance of 4.7 km away.

Ecological Evaluation Criteria

This section of the EclA examines the potential causes of impact that could result in likely significant effects to the species and habitats that occur within the ZOI of the proposed development. These impacts could arise during either the construction or operational phases of the proposed development. The following terms are derived from EPA EIAR Guidance (2022) (Table 1) and are used in the assessment to describe the predicted and potential residual impacts on the ecology by the construction and operation of the proposed development.

Table 1. Impact description terminology (EPA,2022)

Magnitude of effect (change)		Typical description
High	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Low	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial effect on attribute or a reduced risk of negative effect occurring
Negligible	Adverse	Very minor loss or alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Table 2. Criteria for establishing receptor sensitivity/importance

Importance	Ecological Valuation
International	Sites, habitats or species protected under international legislation e.g. Habitats and Species Directive. These include, amongst others: SACs, SPAs, Ramsar sites, Biosphere Reserves, including sites proposed for designation, plus undesignated sites that support populations of internationally important species.
National	Sites, habitats or species protected under national legislation e.g. Wildlife Act 1976 and amendments. Sites include designated and proposed NHAs, Statutory Nature Reserves, National Parks, plus areas supporting resident or regularly occurring populations of species of national importance (e.g. 1% national population) protected under the Wildlife Acts, and rare (Red Data List) species.
Regional	Sites, habitats or species which may have regional importance, but which are not protected under legislation (although Local Plans may specifically identify them) e.g. viable areas or populations of Regional Biodiversity Action Plan habitats or species.
Local/County	Areas supporting resident or regularly occurring populations of protected and red data listed-species of county importance (e.g. 1% of county population), Areas containing Annex I habitats not of international/national importance, County important populations of species or habitats identified in county plans, Areas of special amenity or subject to tree protection constraints.
Local	Areas supporting resident or regularly occurring populations of protected and red data listed-species of local importance (e.g. 1% of local population), Undesignated sites or

Importance	Ecological Valuation
	features which enhance or enrich the local area, sites containing viable area or populations of local Biodiversity Plan habitats or species, local Red Data List species etc.
Site	Very low importance and rarity. Ecological feature of no significant value beyond the site boundary

Table 3. Quality of effects

Quality of Effects	Effect Description
Negative /Adverse Effect	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).
Neutral Effect	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Positive Effect	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

Table 4. Significance of effects

Significance of Effect	Description of Potential Effect
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

Table 5. Duration and frequency of effects

Duration and Frequency of Effect	Description
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting less than a year
Short-term	Effects lasting one to seven years.
Medium-term	Effects lasting seven to fifteen years.
Long-term	Effects lasting fifteen to sixty years.
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration

Table 6. Describing the probability of effects

Describing the Probability of Effects	Description
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Results

Proximity to Designated Conservation Sites

The nearest European site to the subject site is 4.7 km away (Buckroney Brittas Dunes and Fen SAC) (Figure 8). The nearest official EPA Water framework Directive watercourses to the subject site are tributaries of the Avoca River (Avoca_030), two of which flow through Avoca River Park and adjacent lands at the west end of the proposed works area, and one which parallel and adjacent to the south of the Right-of-Way through the marsh. These tributaries flow into the Avoca River (Avoca_020) and Avoca Estuary and ultimately the marine environment (Figure 12). There are no Special Protected Areas (SPA) or Ramsar Sites within 15 km of the proposed development and no potential hydrological pathways from the proposed development site to any SPAs or Ramsar Sites located further than 15 km (Figures 9 & 11). Noise and vibration pollution created during the construction of the residential development will be localised to the immediate site area and will not have a likely significant effect on the conservation objectives or the features of interest of any European sites. The centre and majority of the eastern portion of the proposed works area is within the Arklow Town Marsh pNHA. Surface water which enters Arklow Town Marsh via surface run-off or the Avoca River tributaries will enter the adjacent Avoca Estuary and ultimately the marine environment. Flocculation and estuarine circulation patterns will occur within the Avoca Estuary. It should be noted that a minimum 1m vegetated riparian buffer will be implemented from the adjacent watercourse along the southern boundary of the subject site. In the absence of mitigation, pollutants, silt laden run off or dust which enter the surface water network will be dispersed or diluted within the estuary and the marine environment, to negligible levels, prior to reaching any European sites. Watercourses and potential pathways to proximate pNHAs and SACs are seen in Figures 13 & 14.

During operation, the facilitated foul wastewater connection from Avoca River Park to Arklow WwTP (feasibility confirmed) will result in additional treated effluent (under license and within capacity) being discharged to the Irish Sea. There will, therefore, be an indirect pathway from the proposed development site to European sites within the Irish Sea (Specifically: Buckroney Brittas Dunes and Fen SAC, Kilpatrick Sandhills SAC, Magherabeg Dunes SAC). However, given the distance from Arklow WwTP to the nearest European Site (4.8 km), discharged treated effluent will be diluted and dispersed within the marine environment to negligible levels prior to reaching any European sites.

European sites within 15 km and the distance from the proposed development to these sites are displayed in Table 7. Proposed Natural Heritage Areas within 15 km and the distances from the proposed development site are seen in table 8.

Table 7 European sites within 15km of the proposed site

Designation	European Site	Distance
SAC	Buckroney Brittas Dunes and Fen SAC	4.7 km
SAC	Kilpatrick Sandhills SAC	6.9 km
SAC	Slaney River Valley SAC	12.7 km
SAC	Magherabeg Dunes SAC	14.5 km
SAC	Vale of Clara (Rathdrum Wood) SAC	14.5 km

Table 8. (proposed) NHAs within 15km of the proposed development site

Designation	Site Name	Distance
Proposed NHA	Arklow Town Marsh	Within
Proposed NHA	Avoca River Valley	0.6 km
Proposed NHA	Arklow Sand Dunes	1.4 km
Proposed NHA	Arklow Rock-Askintinny	2.4 km
Proposed NHA	Buckroney-Brittas Dunes and Fen	4.7 km
Proposed NHA	Kilpatrick Sandhills	6.9 km
Proposed NHA	Kilgorman River Marsh	9.4 km
Proposed NHA	Avondale	11.5 km

Designation	Site Name	Distance
Proposed NHA	Ballymoney Strand	12.6 km
Proposed NHA	Magherbeg Dunes	14.5 km
Proposed NHA	Vale of Clara (Rathdrum Wood)	14.5 km
Proposed NHA	Ballinacor Wood	14.7 km
Proposed NHA	Glenealy Woods	14.8 km



Figure 8. Special Areas of Conservation within 15km of proposed development

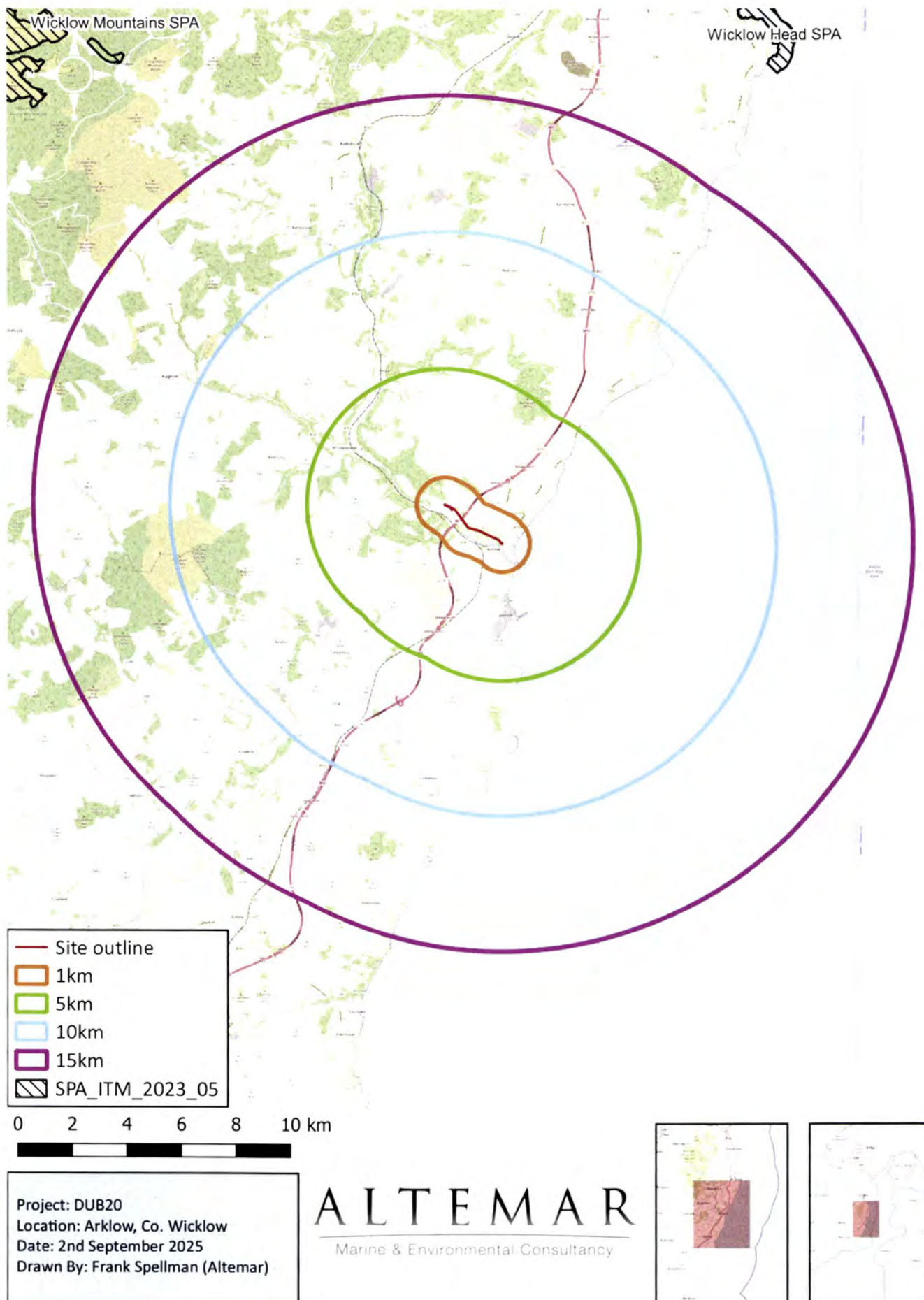


Figure 9. Special Protection Areas (SPA) within 15km of proposed development

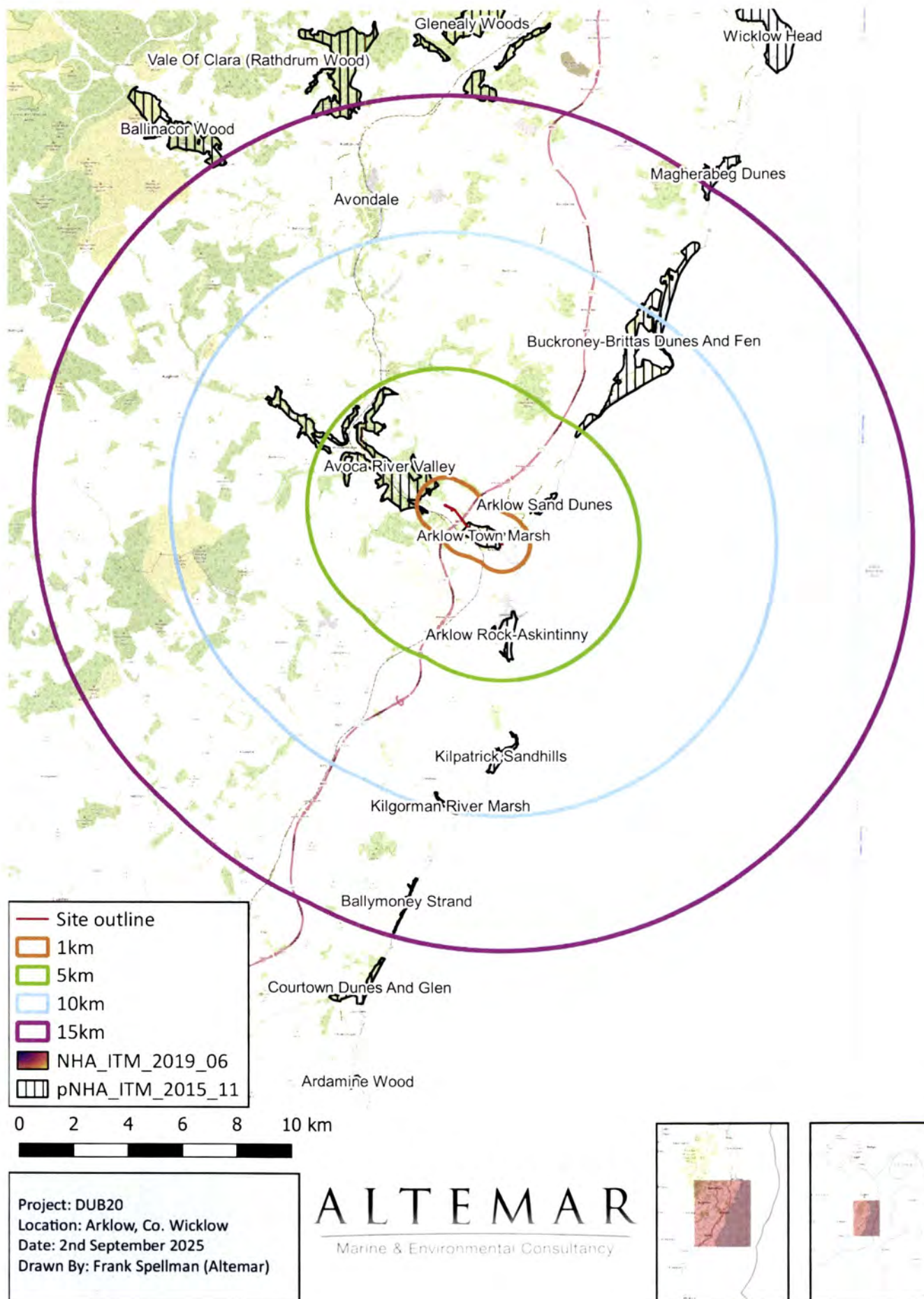


Figure 10. Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) within 15km of proposed development

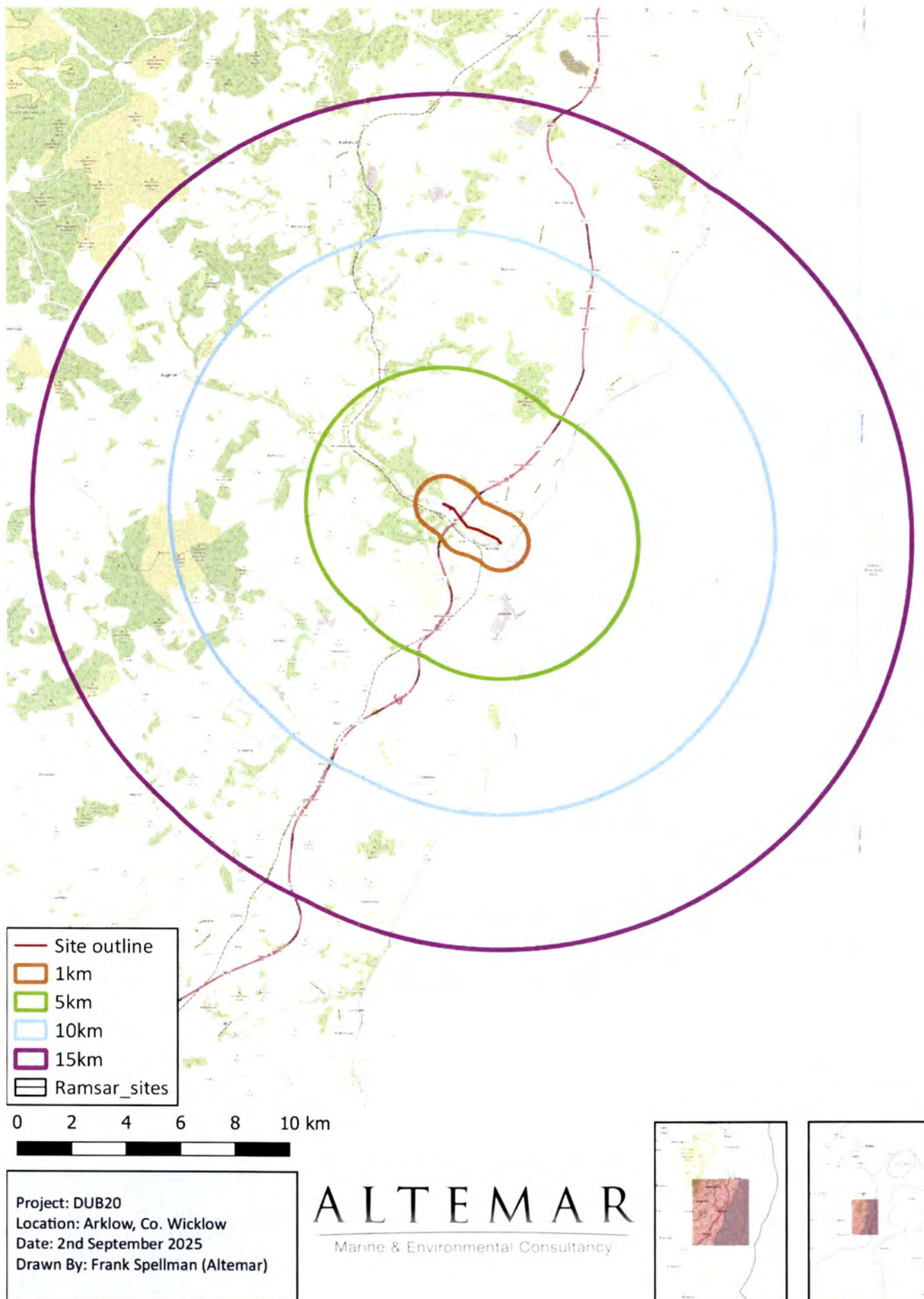


Figure 11. Ramsar sites within 15km of proposed development



Figure 12. Watercourses within the proposed development

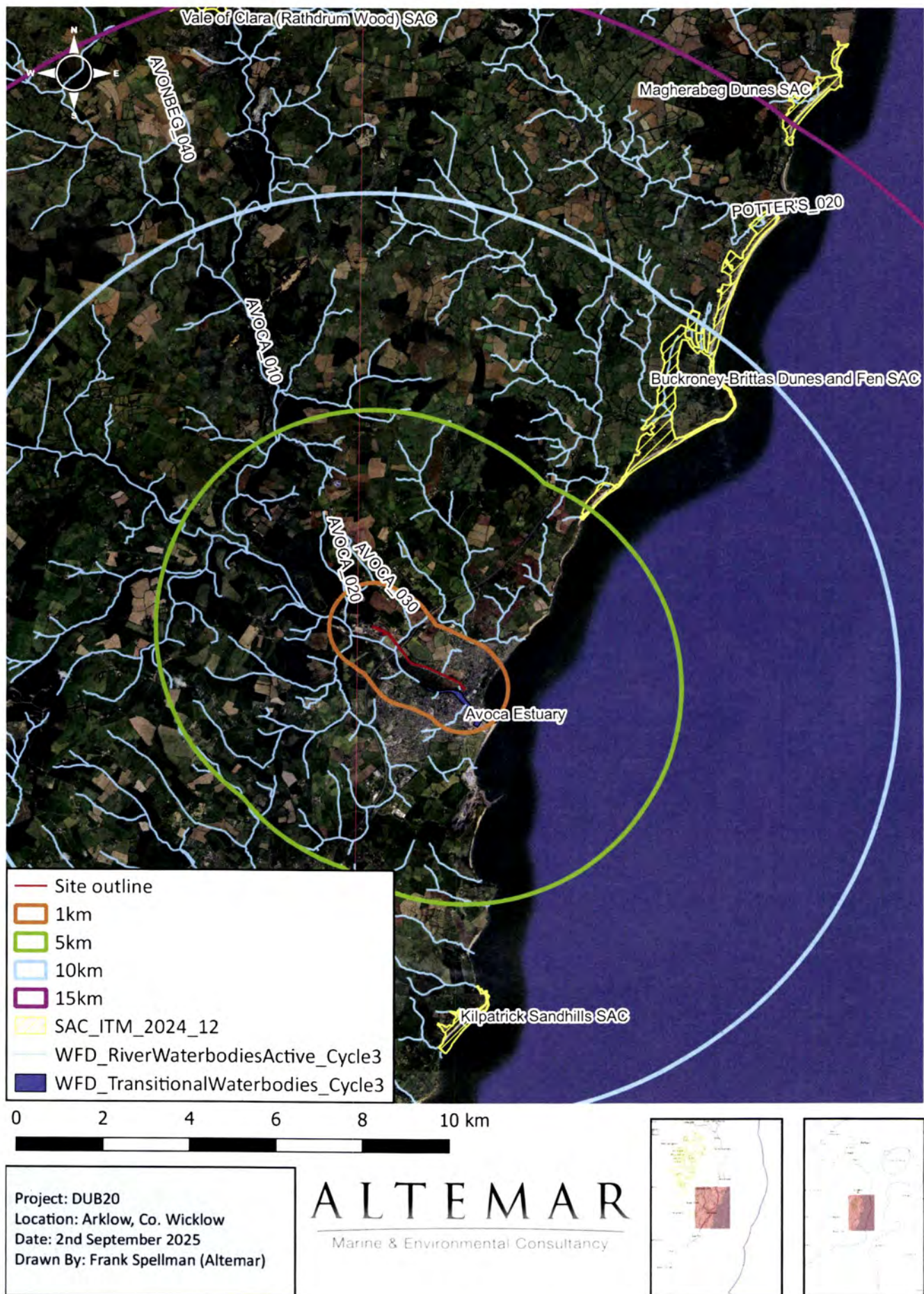


Figure 13. Watercourses and SACs and proximate to the proposed development site

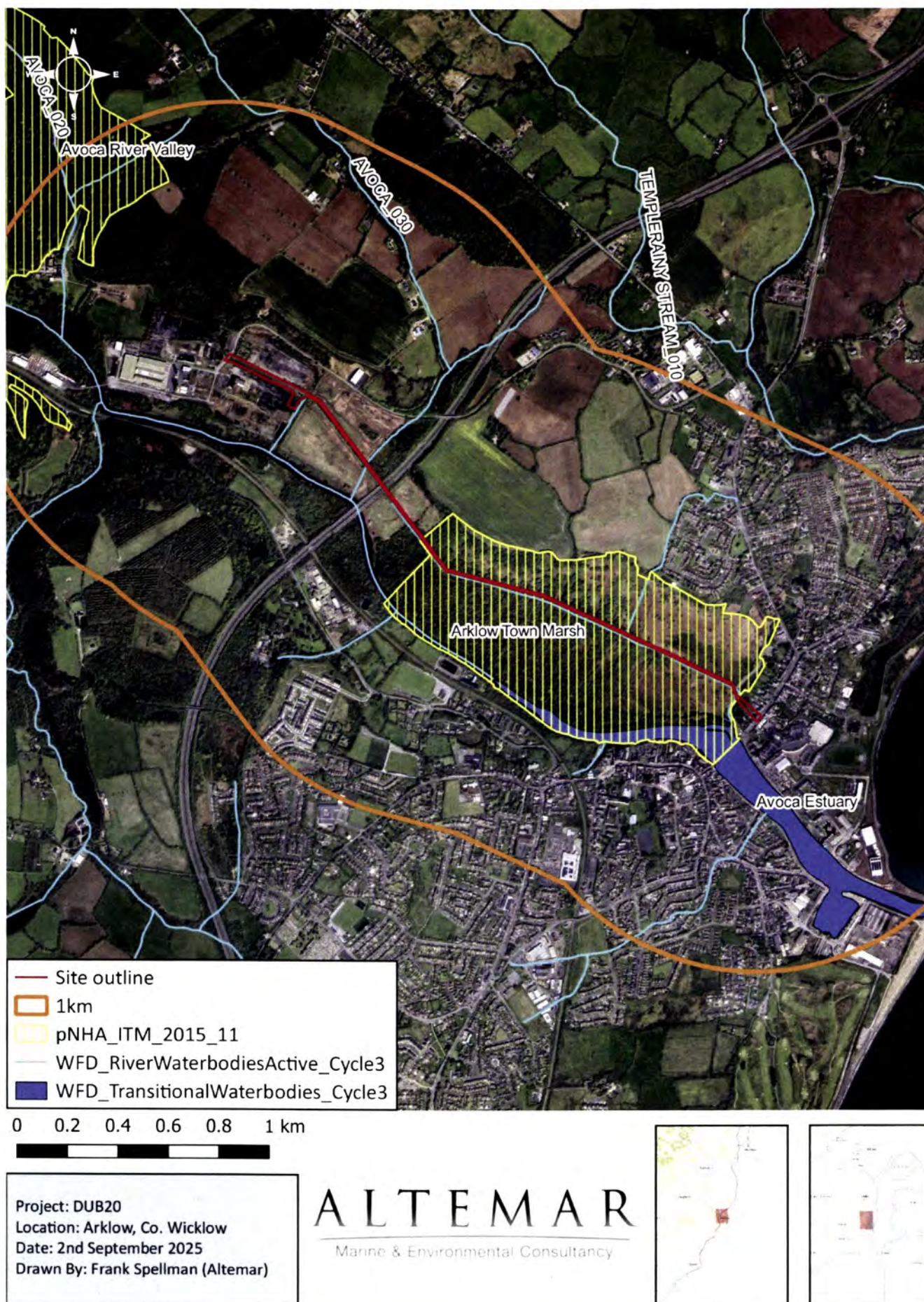


Figure 14. Watercourses and pNHAs within 1km of proposed development (Boundary of development inset)

Habitats and Species

A site assessment was carried out by Emma Peters and Frank Spellman on 17th July 2025. Habitats within the proposed site were classified according to Fossitt (2000) (Figures 15 - 18).

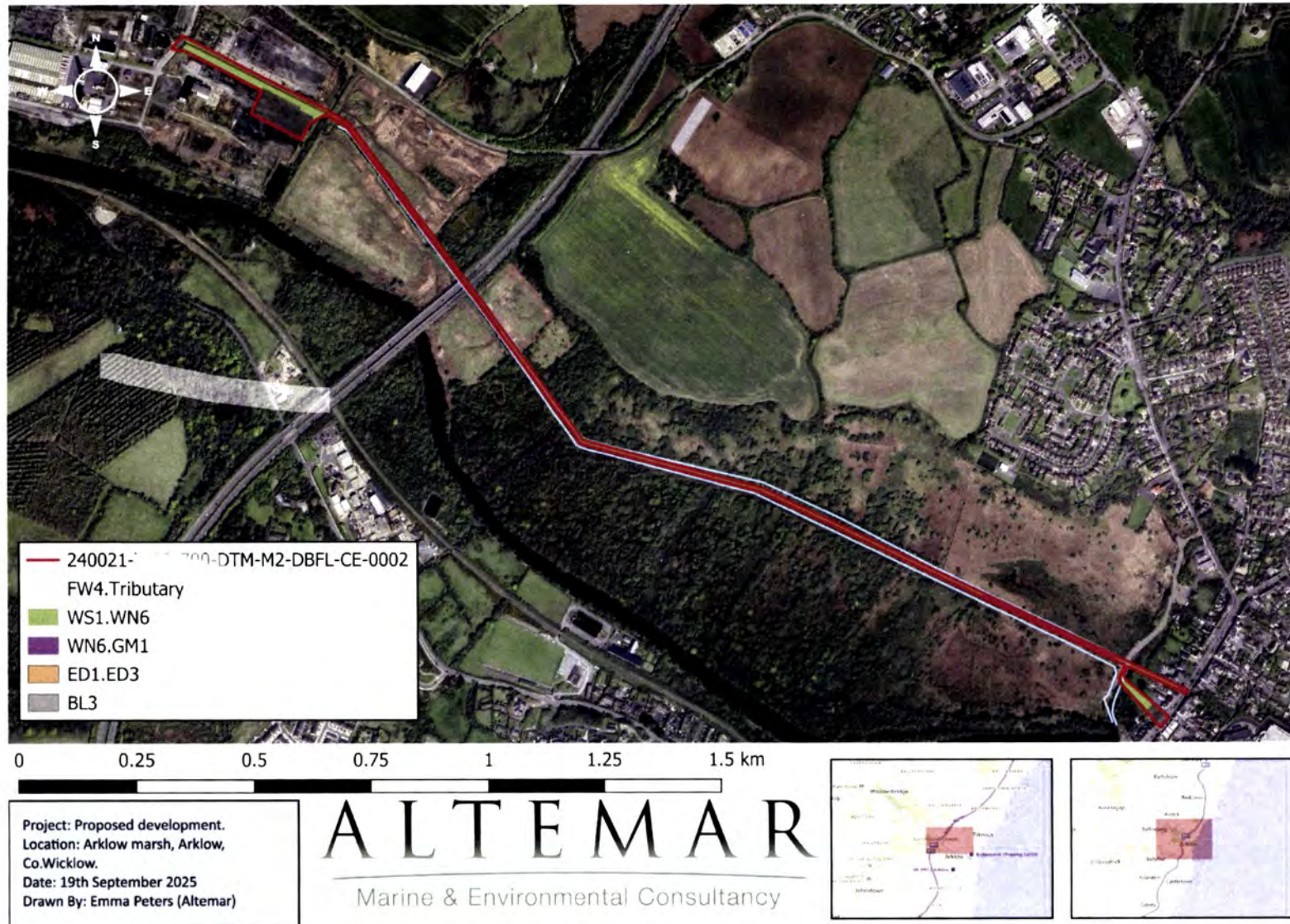


Figure 15. Fossitt (2000) Habitat map of proposed development site.

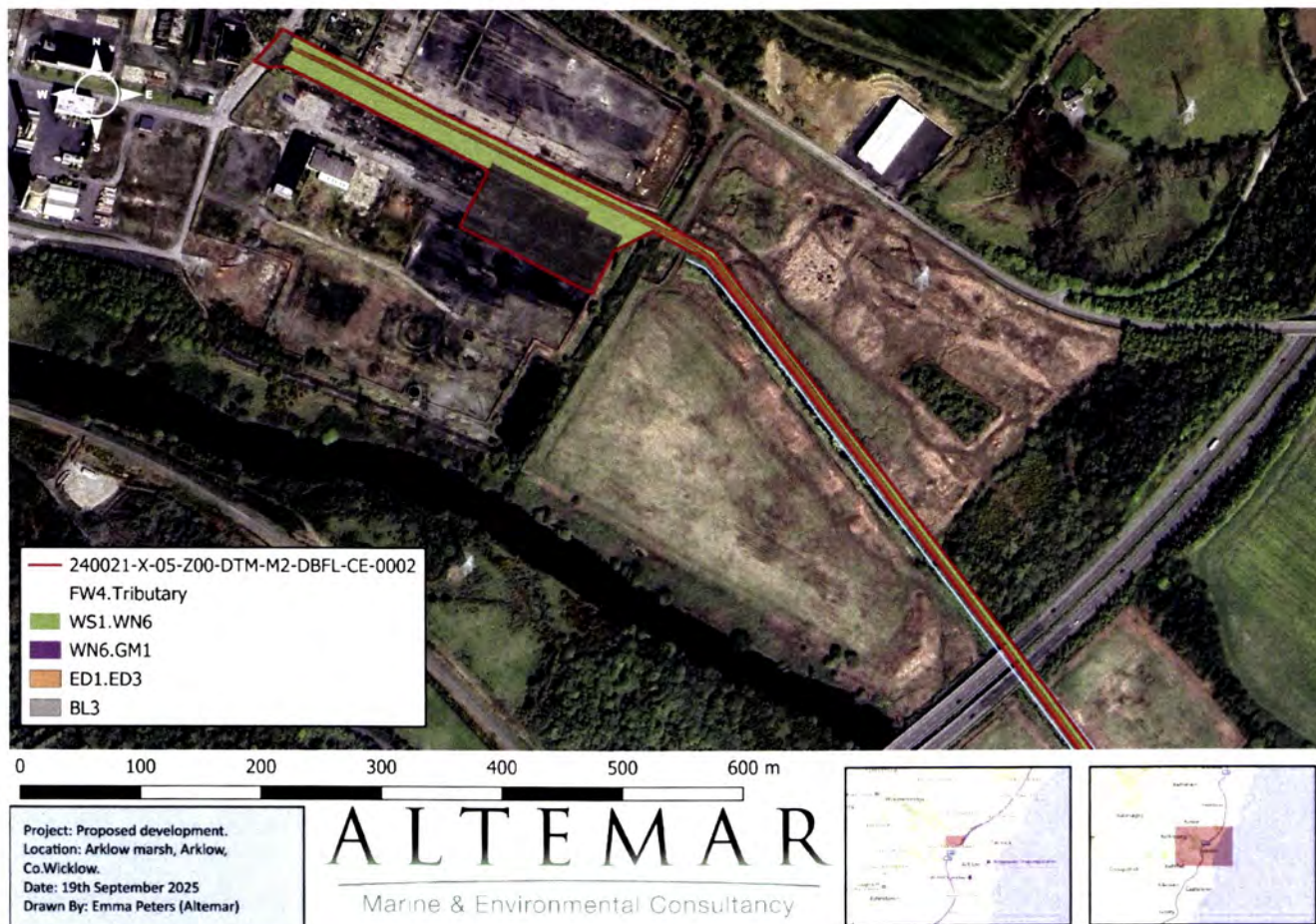


Figure 16. Fossitt (2000) Habitat map of west portion of proposed development site.

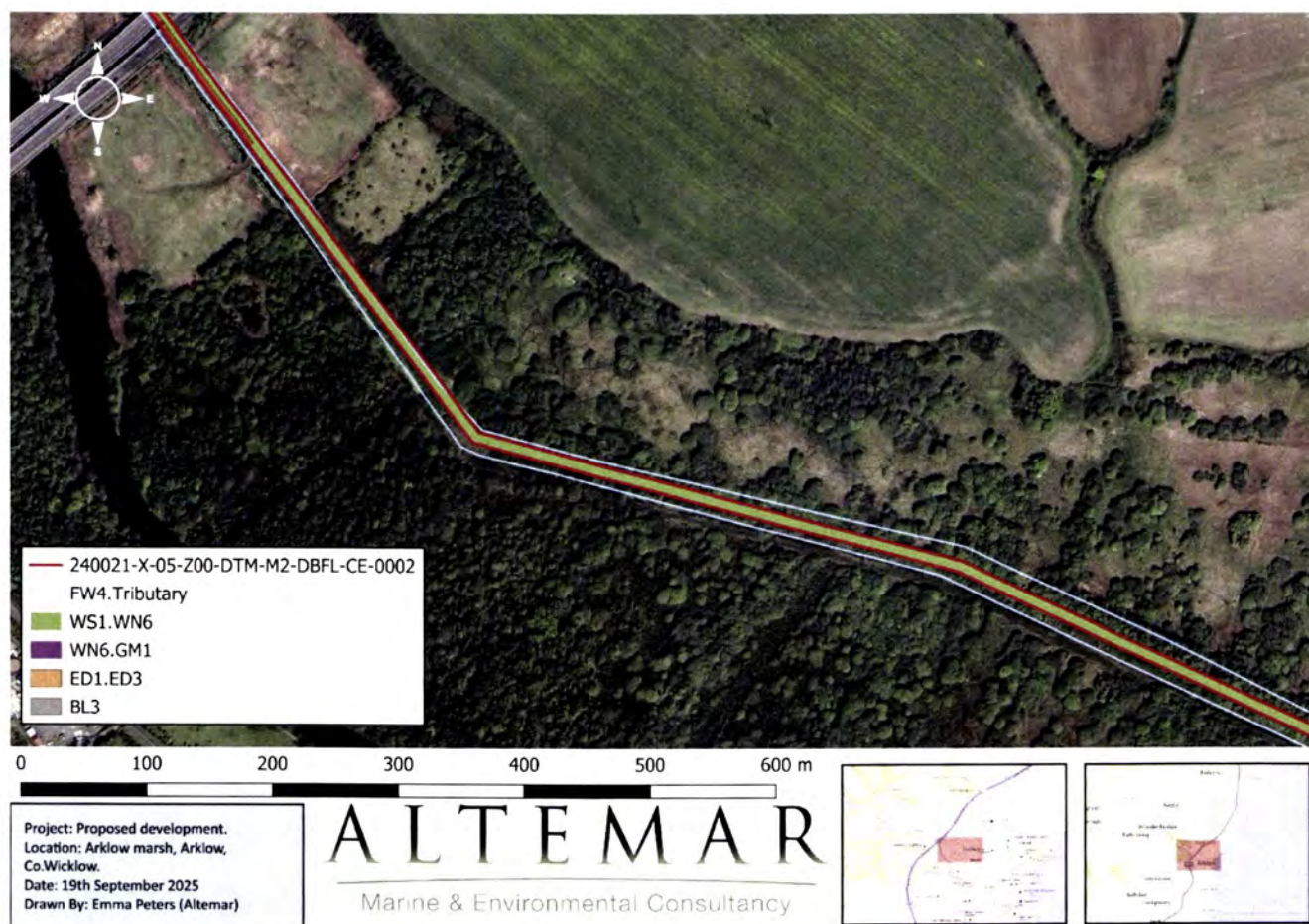


Figure 17. Fossitt (2000) Habitat map of central portion of proposed development site.

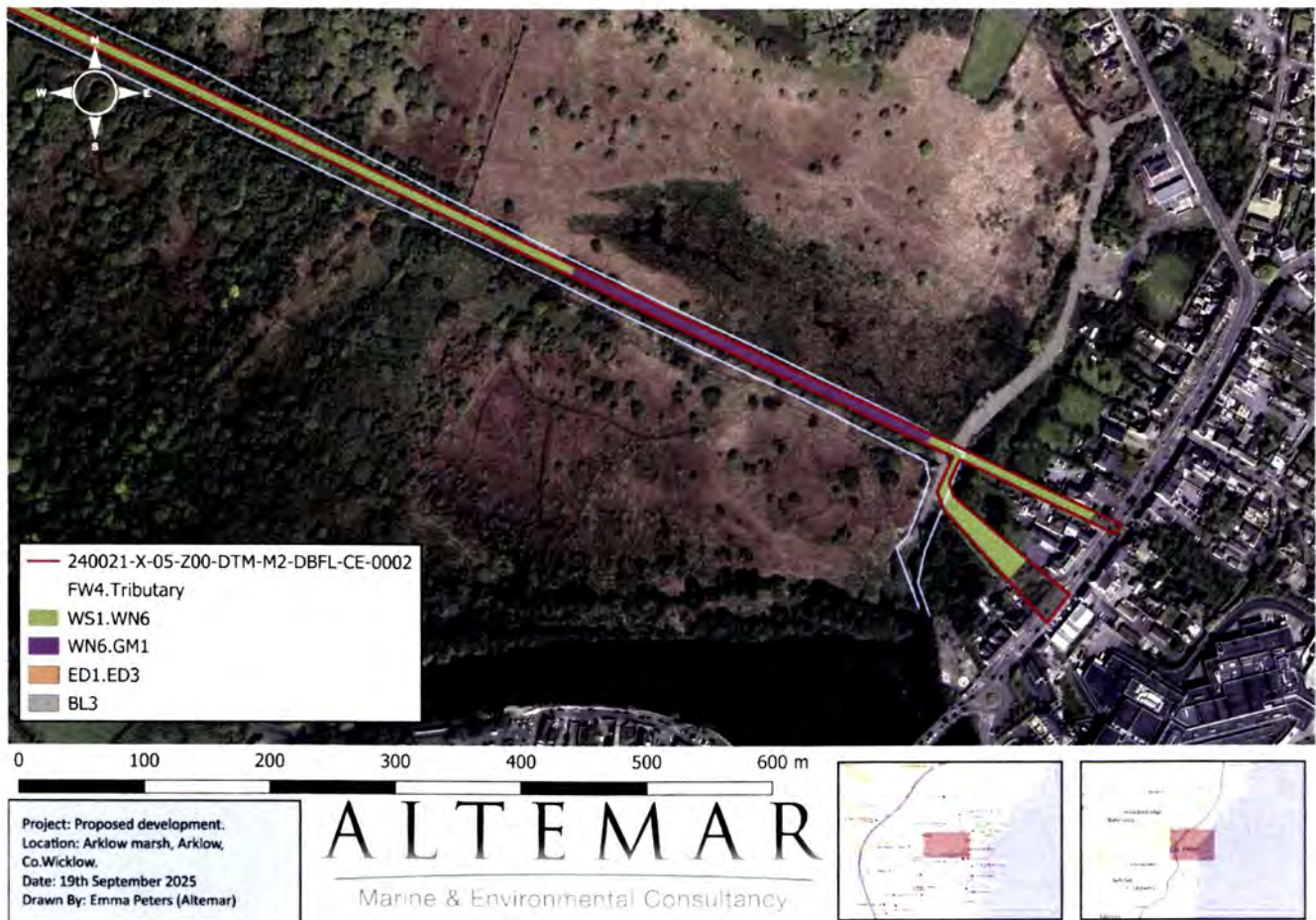


Figure 18. Fossitt (2000) Habitat map of eastern portion of proposed development site.

WS1/WN6- Scrub/Wet willow-alder- ash woodland

This habitat dominated the dry berm/Right-of-Way through the marsh from Avoca River Park to Ferrybank Road. Tree species in this habitat were predominantly alder (*Alnus incana*) and willow (*Salix sp.*) with lesser amounts of ash (*Fraxinus excelsior*). Other tree species included sessile oak (*Quercus petraea*) and sycamore (*Acer pseudoplatanus*). The most dominant shrub species in this landscape is the *Rhododendron sp.* which created dense thickets along with brambles (*Rubus fruticosus agg*) and gorse (*Ulex europaeus*). The dominance of each species varied throughout this habitat. Many sections were completely colonised by *Rhododendron sp.* Ground flora diversity was very low in these areas due to deep shadow being cast by the mature growth. The ground flora was dominated by ivy (*Hedera helix*) in parts. In places with more light reaching the ground areas, there were mosaiced patches of horsetails (*Equisetum spp*) and bracken (*Pteridium aquilinum*) along with grassland-associated species such as meadowsweet (*Filipendula ulmaria*), rose-bay willowherb (*Chamaenerion angustifolium*) and nettle (*Urtica dioica*).

GM1 – Marsh

A significant proportion of the proposed development is along a Right-of-Way consisting of a raised earth berm running through marshland constituting the Arklow Town Marsh pNHA. The marsh habitat is outside of the redline, however, it is directly adjacent to the proposed development. The marsh is dominated by Common-reed (*Phragmites australis*) with some herbaceous plants such as silverweed (*Potentilla anserina*), skullcap (*Scutellaria galericulata*), gipsywort (*Lycopus europaeus*), water-cress (*Nasturtium officinale* (*Rorippa nasturtium-aquaticum*)), marsh woundwort (*Stachys palustris*), field bindweed (*Convolvulus arvensis*), wood anemone (*Anemone nemorosa*), and nettle (*Urtica dioica*) growing in-between.



Plate 1. Section of wet willow-alder-ash habitat. Poor species diversity can be seen in the ground flora.

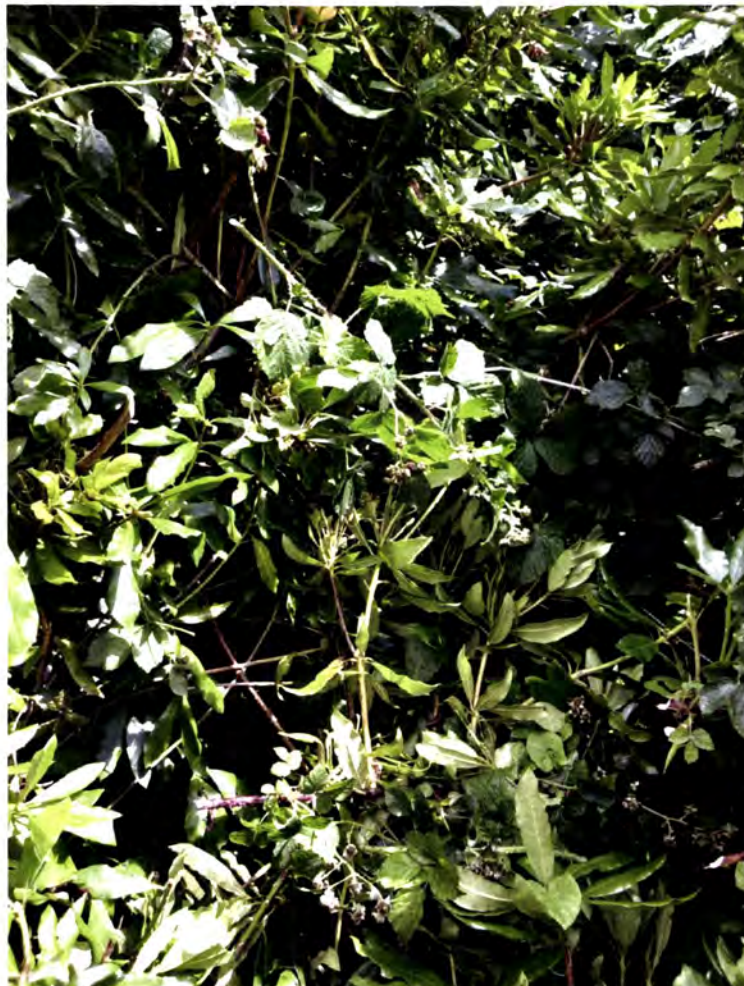


Plate 2. Dense thicket of *Rhododendron* and bramble scrub dominating the right-of-way.

FW4 – Drainage ditches

The areas either side of the proposed site outline have been historically channelised. The linear water-holding feature to the south of the earth berm is considered a tributary of the Avoca River based on EPA data (water

observed flowing west to east). The linear water-holding feature to the north of the berm is a drainage ditch with little/no flow (no clear discharge point, no indicative flow, stagnant appearance). Both of these features have been heavily modified historically. Water within the designated watercourse and general marsh flows/percolates through the marsh areas in a southeast direction prior to discharging into the Avoca Estuary. These areas were generally species poor with some algae and duckweed (*Lemna minor*). Branches of *Rhododendron sp.* had begun to root in this habitat in places. Along the banks, species present included *Carex*, including greater tussock sedge (*Carex paniculata*) and *Juncus spp.*, common reed (*Phragmites australis*), Bulrush (*Typha latifolia*), nettle (*Urtica dioica*), hoary willowherb (*Epilobium parviflorum*), brambles (*Rubus fruticosus agg.*), water-cress (*Nasturtium officinale (Rorippa nasturtium-aquaticum)*), marsh woundwort (*Stachys palustris*) and cleavers (*Galium aparine*).

ED1/ED3- Exposed sand, silt or gravel/ Recolonising bare ground

The west portion site outline consists of a gravel path which has been colonised by common species such as nettle (*Urtica dioica*), bracken (*Pteridium aquilinum*), sessile oak (*Quercus petraea*) saplings, hedge bindweed (*Calystegia sepium*), rose-bay willowherb (*Chamaenerion angustifolium*), hogweed (*Heracleum sphondylium*), thistles (*Cirsium spp.*), perennial sow thistle (*Sonchus arvensis*), smooth hawk's-beard (*Crepis capillaris*), pineappleweed (*Matricaria discoidea*), greater plantain (*Plantago major*), cleavers (*Galium aparine*), birdsfoot trefoil (*Lotdasyus corniculatus*), meadow buttercup (*Ranunculus acris*) and creeping buttercup (*Ranunculus repens*).

BL3 -Built land

Three areas of built land exist within the redline, at the very west of the redline a tarmac access road, a paved area in the west portion and a house and roadway at the very east of the redline. No plant species of invasive or conservation concern were noted in this habitat. A medium impact invasive species *Clematis vitalba* was noted within this habitat in the west of the proposed development.

Discussion of habitats

The subject site runs the length of the pNHA Arklow town marsh from west to east, on a earth berm/Right-of-Way in between a historically channelised drainage ditches and tributary of the Avoca river. The berm is covered in dense thickets of mostly *Rhododendron sp.* and some native species as listed above.

Plant species

The plant species encountered at the various locations on site are detailed above. No rare or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded within the proposed development site. *Rhododendron*, a scheduled invasive species, was widespread.

Invasive species

Rhododendron ponticum was prevalent within the site outside. *Rhododendron ponticum* is a first schedule invasive species therefore its cutting and removal must be carried out in a controlled way in order not to spread the species. Biosecurity measures, as outlined in the OCEMP accompanying this application, will be followed in order to control and prevent the spread of this species within and beyond the site.

Clematis vitalba, a medium impact invasive species, was also noted within built land in the west of the site.

Mammals

Evidence of sika deer via trails and droppings were recorded crossing and using the site outline in certain sections, likely in order to navigate within/through the marsh complex. No other evidence of mammals of conservation importance was noted on site. Camera footage recorded mink (*Mustela vison*) and fox (*Vulpes vulpes*) also utilising the site. Records of rare and threatened species from NBDC and NPWS were examined. Otters (*Lutra lutra*), Hedgehog (*Erinaceus europaeus*), Red Squirrel (*Sciurus vulgaris*), and the Irish Stoat (*Mustela erminea subsp. hibernica*) have been noted within 2km of the site. It would be expected that these protected species would use the areas around and including the redline.

Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened terrestrial faunal species were recorded within the proposed site.

Amphibians and reptiles

No amphibians or evidence of amphibians were noted. However, the adjacent watercourse, drainage ditch and surrounding marshland would be considered high quality habitat for frog and newt.

Bats

Within the redline, there are no trees of bat roosting potential. However, It is likely that bats use the linear scrub features and waterbodies along the site outline as foraging habitat.

Birds

13 species of bird were recorded within, adjacent and over the survey area (Table 9); 11 green listed, one amber, and one red-listed Birds of Conservation Concern in Ireland (BoCCI).

Table 9: Bird species recorded during surveys on site.

Common name	BTO	Latin name	BoCCI
Blackbird	B.	<i>Turdus merula</i>	Green
Blackcap	BC	<i>Sylvia atricapilla</i>	Green
Buzzard	BZ	<i>Buteo buteo</i>	Green
Chaffinch	CH	<i>Fringilla coelebs</i>	Green
Grey Wagtail	GL	<i>Motacilla cinerea</i>	Red
Hooded Crow	HC	<i>Corvus cornix</i>	Green
Linnet	LI	<i>Carduelis cannabina</i>	Amber
Long-tailed Tit	LT	<i>Aegithalus caudatus</i>	Green
Robin	R.	<i>Erithacus rubecula</i>	Green
Stonechat	SC	<i>Saxicola rubicola</i>	Green
Water Rail	WA	<i>Rallus aquaticus</i>	Green
Woodpigeon	WP	<i>Columba palumbus</i>	Green
Wren	WR	<i>Troglodytes troglodytes</i>	Green



Plate 3. Drainage ditch north of berm/Right-of-Way.



Plate 4. Heavily modified watercourse to south of berm/Right-of-Way.



Plate 5. Laneway path with gravel underneath and encroaching colonising plant species.

Historic Records of Biodiversity

The National Biodiversity Data Centre's online viewer was consulted in order to determine the extent of biodiversity and/or species of interest in the area. First, an assessment of the site-specific area was carried out and it recorded no species of interest in the site area. Following this a custom polygon approximately 2.4 km² which encompassed the entire application area, Arklow Town Marsh, adjacent Avoca River/Estuary and adjacent lands was assessed. Table 10 provides a list of all species recorded in both grid areas that possess a specific designation, such as Invasive Species or Protected Species.

Table 10. Recorded species, associated designations and grid references

Species name	Record count	Date of record	Title of dataset	Designation
7-spot Ladybird (<i>Coccinella septempunctata</i>)	1	13/05/2018	Ladybirds of Ireland	
Angle Shades (<i>Phlogophora meticulosa</i>)	1	23/08/2003	Moths Ireland	
<i>Arachnospila anceps</i>	1	11/07/1927	Wasps of Ireland	
Azure Damselfly (<i>Coenagrion puella</i>)	1	30/07/2000	Dragonfly Ireland	
Beautiful Demoiselle (<i>Calopteryx virgo</i>)	5	21/06/2021	Dragonfly Ireland 2019 to 2024	
Beet Carrion Beetle (<i>Aclypea opaca</i>)	1	15/06/1927	Carrion Beetles of Ireland	
Birch Clubhorn (<i>Cimbex femoratus</i>)	1	23/07/2023	Sawflies of Ireland	
Black Sexton Beetle (<i>Nicrophorus humator</i>)	2	15/06/1928	Carrion Beetles of Ireland	
Blackberry Skeletoniser (<i>Schreckensteina festaliella</i>)	1	23/07/2023	Moths Ireland	
Blackbird (<i>Turdus merula</i>)	2	20/07/2018	Birds of Ireland	
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	4	01/02/2021	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Blue Tit (<i>Cyanistes caeruleus</i>)	1	09/06/2017	Birds of Ireland	
Blue-tailed Damselfly (<i>Ischnura elegans</i>)	1	30/07/2000	Dragonfly Ireland	
<i>Bombus lucorum</i> agg.	1	16/05/2018	Bees of Ireland	
Bordered Beauty (<i>Epione repandaria</i>)	2	12/09/2003	Moths Ireland	
Bright-line Brown-eye (<i>Lacanobia oleracea</i>)	1	06/08/2004	Moths Ireland	
Brown Hawker (<i>Aeshna grandis</i>)	2	19/08/2017	Dragonfly Records	
Buff-tailed Bumblebee (<i>Bombus terrestris</i>)	1	20/03/2020	Bees of Ireland	
Bulrush Wainscot (<i>Nonagria typhae</i>)	1	06/08/2004	Moths Ireland	
Burnished Brass (<i>Diachrysa chrysis</i>)	1	06/08/2004	Moths Ireland	
Canary-shouldered Thorn (<i>Ennomos alniaria</i>)	2	12/09/2003	Moths Ireland	
<i>Ceropales maculata</i>	1	12/07/1929	Wasps of Ireland	
Chequered Pearl (<i>Evergestis pallidata</i>)	1	31/07/2004	Moths Ireland	
Chevron (<i>Eulithis testata</i>)	1	23/08/2003	Moths Ireland	
Cinnabar (<i>Tyria jacobaeae</i>)	2	25/06/2017	Moths Ireland	
Collared Dove (<i>Streptopelia decaocto</i>)	1	13/01/2021	Birds of Ireland	
Comma (<i>Polygonia c-album</i>)	10	20/04/2021	Butterflies of Ireland pre-2022	
Common Blue (<i>Polyommatus icarus</i>)	2	19/08/2017	Butterflies of Ireland pre-2022	
Common Carder Bee (<i>Bombus pascuorum</i>)	1	09/05/2020	Bees of Ireland	
Common Carpet (<i>Epirrhoe alternata</i>)	2	06/08/2004	Moths Ireland	
Common Darter (<i>Sympetrum striolatum</i>)	4	19/08/2017	Dragonfly Records	
Common Grass-veneer (<i>Agriphila tristella</i>)	1	06/08/2004	Moths Ireland	
Common Gull (<i>Larus canus</i>)	2	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Marbled Carpet (<i>Dysstroma truncata</i>)	2	12/09/2003	Moths Ireland	

Species name	Record count	Date of record	Title of dataset	Designation
Common Wainscot (<i>Mythimna pallens</i>)	1	12/09/2003	Moths Ireland	
Common/Lesser Rustic (<i>Mesapamea secalis</i> agg.)	3	06/08/2004	Moths Ireland	
Coot (<i>Fulica atra</i>)	1	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	Protected Species: EU Birds Directive Protected Species. EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species
Cormorant (<i>Phalacrocorax carbo</i>)	2	01/02/2021	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Cream-spot Ladybird (<i>Calvia quattuordecimguttata</i>)	1	19/05/2018	Ladybirds of Ireland	
Crescent (<i>Helotropha leucostigma</i>)	4	06/08/2004	Moths Ireland	
Daisy (<i>Bellis perennis</i>)	1	17/06/2020	Vascular plants. Online Atlas of Vascular Plants 2012 Onwards	
Dark Arches (<i>Apamea monoglypha</i>)	2	06/08/2004	Moths Ireland	
Dark Sword-grass (<i>Agrotis ipsilon</i>)	1	12/09/2003	Moths Ireland	
Dotted Clay (<i>Xestia baja</i>)	1	06/08/2004	Moths Ireland	
Double-striped Pug (<i>Gymnoscelis rufifasciata</i>)	1	23/08/2003	Moths Ireland	
Early Thorn (<i>Selenia dentaria</i>)	1	31/07/2004	Moths Ireland	
Emerald Damselfly (<i>Lestes sponsa</i>)	1	30/07/2000	Dragonfly Ireland	
Flame Carpet (<i>Xanthorhoe designata</i>)	2	06/08/2004	Moths Ireland	
Flame Shoulder (<i>Ochropleura plecta</i>)	3	06/08/2004	Moths Ireland	
Garden Tiger (<i>Arctia caja</i>)	2	06/08/2004	Moths Ireland	
Gold Spot (<i>Plusia festucae</i>)	1	23/08/2003	Moths Ireland	
Goldeneye (<i>Bucephala clangula</i>)	1	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species. EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Gorse (<i>Ulex europaeus</i>)	1	17/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Great Black-backed Gull (<i>Larus marinus</i>)	3	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Greater Horntail Wasp (<i>Urocerus gigas</i>)	1	13/06/2017	Sawflies of Ireland	
Green Carpet (<i>Colostygia pectinataria</i>)	1	06/08/2004	Moths Ireland	
Green-veined White (<i>Pieris napi</i>)	2	20/04/2021	Butterflies of Ireland pre-2022	
Grey Heron (<i>Ardea cinerea</i>)	5	23/08/2021	Birds of Ireland	
Grey Squirrel (<i>Sciurus carolinensis</i>)	1	30/09/2018	Mammals of Ireland 2016-2025	Invasive Species EU Invasive Alien Species Regulation No 1143/2014 Invasive Species. Regulation S.I. 477/2011 (Ireland) Invasive Species. High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland)
Greylag Goose (<i>Anser anser</i>)	3	01/02/2021	Birds of Ireland	Invasive Species: Regulation S.I. 477/2011 (Ireland) Invasive Species: Regulation S.I. 374/2024 (Ireland) Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Haworth's Minor (<i>Celaena haworthii</i>)	4	06/08/2004	Moths Ireland	
Hedgehog (<i>Erinaceus europaeus</i>)	3	08/07/2021	Hedgehogs of Ireland	Protected Species. Wildlife Acts
Herald (<i>Scoliopteryx libatrix</i>)	1	31/07/2004	Moths Ireland	
Herring Gull (<i>Larus argentatus</i>)	3	01/02/2021	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened

Species name	Record count	Date of record	Title of dataset	Designation
				Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Himalayan Knotweed (<i>Persicaria wallichii</i>)	1	15/09/2024	National Invasive Species Database	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 Invasive Species: Regulation S.I 477/2011 (Ireland) Invasive Species: Medium Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland) Invasive Species: The Wildlife (Northern Ireland) Order 1985
Holly Blue (<i>Celastrina argiolus</i>)	4	19/04/2023	Butterflies of Ireland post 2021	
House Sparrow (<i>Passer domesticus</i>)	1	13/01/2021	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Iceland Gull (<i>Larus glaucooides</i>)	1	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	
Iron Prominent (<i>Notodonta dromedarius</i>)	2	06/08/2004	Moths Ireland	
Jackdaw (<i>Coloeus monedula</i>)	1	13/01/2021	Birds of Ireland	
Japanese Knotweed (<i>Fallopia japonica</i>)	4	17/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 Invasive Species: Regulation S.I 477/2011 (Ireland) Invasive Species: High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland) Invasive Species: The Wildlife (Northern Ireland) Order 1985
July Highflyer (<i>Hydriomena furcata</i>)	1	23/08/2003	Moths Ireland	
Kingfisher (<i>Alcedo atthis</i>)	2	28/07/2020	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Large Red Damselfly (<i>Pyrrosoma nymphula</i>)	1	03/06/2017	Dragonfly Records	
Large Wainscot (<i>Rhizodra lutosus</i>)	1	12/09/2003	Moths Ireland	
Large White (<i>Pieris brassicae</i>)	2	13/06/2021	Butterflies of Ireland pre-2022	
Large Yellow Underwing (<i>Noctua pronuba</i>)	4	06/08/2004	Moths Ireland	
Least Yellow Underwing (<i>Noctua interjecta</i>)	2	06/08/2004	Moths Ireland	
Lesser Black-backed Gull (<i>Larus fuscus</i>)	2	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Lesser Broad-bordered Yellow Underwing (<i>Noctua janthe</i>)	2	06/08/2004	Moths Ireland	
Lesser Yellow Underwing (<i>Noctua comes</i>)	2	06/08/2004	Moths Ireland	
Little Egret (<i>Egretta garzetta</i>)	2	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species
Long-tailed Tit (<i>Aegithalos caudatus</i>)	1	09/06/2017	Birds of Ireland	
Lords-and-Ladies (<i>Arum maculatum</i>)	1	19/08/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Mallard (<i>Anas platyrhynchos</i>)	3	01/02/2021	Birds of Ireland	Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Meadow Brown (<i>Maniola jurtina</i>)	1	27/06/2018	Butterflies of Ireland pre-2022	
Mediterranean Gull (<i>Ichthyophaga melanocephala</i>)	1	08/02/2020	Birds of Ireland	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Moorhen (<i>Gallinula chloropus</i>)	2	17/06/2020	Birds of Ireland	
Mother of Pearl (<i>Patania ruralis</i>)	1	23/08/2003	Moths Ireland	

Species name	Record count	Date of record	Title of dataset	Designation
Mute Swan (<i>Cygnus olor</i>)	2	17/06/2020	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
<i>Nicrophorus interruptus</i>	1	15/09/1928	Carrion Beetles of Ireland	
<i>Nicrophorus investigator</i>	1	15/09/1928	Carrion Beetles of Ireland	
Notch Wing Tortix (<i>Acleris emargana</i>)	1	23/07/2023	Moths Ireland	
Oblique Carpet (<i>Orthonama vittata</i>)	2	06/08/2004	Moths Ireland	
Old Lady (<i>Mormo maura</i>)	1	06/08/2004	Moths Ireland	
Orange-tip (<i>Anthocharis cardamines</i>)	5	02/04/2021	Butterflies of Ireland pre-2022	
Otter (<i>Lutra lutra</i>)	1	09/02/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
Painted Lady (<i>Vanessa cardui</i>)	1	27/08/2019	Butterflies of Ireland pre-2022	
Pale Prominent (<i>Pterostoma palpina</i>)	1	23/08/2003	Moths Ireland	
Pale Straw Pearl (<i>Udea lutealis</i>)	1	06/08/2004	Moths Ireland	
Peacock (<i>Aglaia io</i>)	7	20/04/2021	Butterflies of Ireland pre-2022	
Pebble Hook-tip (<i>Drepana falcatoria</i>)	1	23/08/2003	Moths Ireland	
Pebble Prominent (<i>Notodonta ziczac</i>)	2	06/08/2004	Moths Ireland	
Pineappleweed (<i>Matricaria discoidea</i>)	1	17/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Pinion-streaked Snout (<i>Schrankia costaeirigalis</i>)	1	12/09/2003	Moths Ireland	
Pochard (<i>Aythya ferina</i>)	1	31/12/2001	Irish Wetland Birds Survey (I-WeBS) 1994-2001.	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Poplar Hawk-moth (<i>Laothoe populi</i>)	1	06/08/2004	Moths Ireland	
Purple Clay (<i>Diarsia brunnea</i>)	1	06/08/2004	Moths Ireland	
Ragged-Robin (<i>Silene flos-cuculi</i>)	1	03/06/2017	Vascular plants Online Atlas of Vascular Plants 2012 Onwards	
Red Admiral (<i>Vanessa atalanta</i>)	4	08/09/2017	Butterflies of Ireland pre-2022	
Red-tailed Bumblebee (<i>Bombus lapidarius</i>)	2	22/07/2018	Bees of Ireland	Threatened Species: Near threatened
<i>Rhododendron ponticum</i>	1	17/06/2020	Vascular plants. Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Regulation S.I. 477/2011 (Ireland) Invasive Species: Detailed Risk Assessment Invasive Species: High Risk Invasive Species (2013 Report) Invasive Species: Regulation S.I. 374/2024 (Ireland) Invasive Species: Detailed Risk Assessment >> High Risk
Riband Wave (<i>Idaea aversata</i>)	1	06/08/2004	Moths Ireland	
Riband Wave (non-banded form) (<i>Idaea aversata ab. remutata</i>)	1	06/08/2004	Moths Ireland	
Rosy Rustic (<i>Hydraecia micacea</i>)	2	12/09/2003	Moths Ireland	
Rush Veneer (<i>Nomophila noctuella</i>)	1	12/09/2003	Moths Ireland	
Rusty Dot (<i>Udea ferrugalis</i>)	1	23/08/2003	Moths Ireland	
Sallow (<i>Cirrhia icteritia</i>)	1	23/08/2003	Moths Ireland	
Sand Martin (<i>Riparia riparia</i>)	1	01/04/2018	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Scalloped Oak (<i>Crocallis elingaria</i>)	1	06/08/2004	Moths Ireland	
Scots Pine (<i>Pinus sylvestris</i>)	1	17/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	

Species name	Record count	Date of record	Title of dataset	Designation
Setaceous Hebrew Character (<i>Xestia c-nigrum</i>)	2	12/09/2003	Moths Ireland	
Silky Wainscot (<i>Chilodes maritima</i>)	1	23/08/2003	Moths Ireland	
Silver Y (<i>Autographa gamma</i>)	2	12/09/2003	Moths Ireland	
Single-dotted Wave (<i>Idaea dimidiata</i>)	1	06/08/2004	Moths Ireland	
Six-striped Rustic (<i>Xestia sexstrigata</i>)	2	06/08/2004	Moths Ireland	
Small Copper (<i>Lycaena phlaeas</i>)	1	27/09/2018	Butterflies of Ireland pre-2022	
Small Fan-footed Wave (<i>Idaea biselata</i>)	1	06/08/2004	Moths Ireland	
Small Garden Bumblebee (<i>Bombus hortorum</i>)	1	20/07/2018	Bees of Ireland	
Small Magpie (<i>Anania hortulata</i>)	1	06/08/2004	Moths Ireland	
Small Square-spot (<i>Diarsia rubi</i>)	3	06/08/2004	Moths Ireland	
Small Tortoiseshell (<i>Aglaia urticae</i>)	10	23/08/2020	Butterflies of Ireland pre-2022	
Small Wainscot (<i>Denticucullus pygmaea</i>)	3	06/08/2004	Moths Ireland	
Small White (<i>Pieris rapae</i>)	3	17/08/2019	Butterflies of Ireland pre-2022	
Smoky Wainscot (<i>Mythimna impura</i>)	3	06/08/2004	Moths Ireland	
Smooth Newt (<i>Lissotriton vulgaris</i>)	3	24/07/2012	Newt Survey 2010-2014	Protected Species. Wildlife Acts
Snout (<i>Hypena proboscidalis</i>)	1	06/08/2004	Moths Ireland	
Southern Wainscot (<i>Mythimna straminea</i>)	3	06/08/2004	Moths Ireland	
Speckled Wood (<i>Pararge aegeria</i>)	16	21/06/2021	Butterflies of Ireland pre-2022	
Square-spot Rustic (<i>Xestia xanthographa</i>)	3	06/08/2004	Moths Ireland	
Starling (<i>Sturnus vulgaris</i>)	2	13/01/2021	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Straw Dot (<i>Rivula sericealis</i>)	1	06/08/2004	Moths Ireland	
Straw Grass-veneer (<i>Agriphila straminea</i>)	1	06/08/2004	Moths Ireland	
Swift (<i>Apus apus</i>)	1	09/05/2019	Birds of Ireland	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
<i>Taraxacum</i> agg.	1	17/04/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Variable Damselfly (<i>Coenagrion pulchellum</i>)	1	03/06/2017	Dragonfly Records	
Western Honeybee (<i>Apis mellifera</i>)	1	16/06/2022	Bees of Ireland	
White Ermine (<i>Spilosoma lubricipeda</i>)	1	26/06/2018	Moths Ireland	
White-line Dart (<i>Euxoa tritici</i>)	1	23/08/2003	Moths Ireland	
White-tailed Bumblebee (<i>Bombus lucorum</i>)	1	22/07/2018	Bees of Ireland	
Wood Anemone (<i>Anemone nemorosa</i>)	2	06/04/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	
Yarrow (<i>Achillea millefolium</i>)	1	17/06/2020	Vascular plants. Online Atlas of Vascular Plants 2012 Onwards	

An assessment of files received from the NPWS (Code No. 2022_120) which contain records of rare and protected species and grid references for sightings of these species was carried out as part of this EclA. No rare and protected species were noted on site in fine resolution. Four protected fauna and one near-threatened flora species (greater broomrape) were noted within roughly 1km² of the proposed works outline. The following table provides a summary of the species identified, the year of identification, survey name and location.

Table 11. Recorded species within NPWS Records proximate to the site.

Sample ID	Species name	Survey name	Sample year
6083	Sika deer (<i>Cervus nippon</i>)	Deer data Coillte	2004
10938	Common frog (<i>Rana temporaria</i>)	Frog - biology.ie records from National Frog Survey 2011	2010
29619	Greater broomrape (<i>Orobancherapum-genistae</i>)	Wicklow RPS records	2007
31029	West European hedgehog (<i>Erinaceus europaeus</i>)	AFF Mammals, Reptiles & Amphibians Distribution Atlas 1978 (II)	1972
37659	River lamprey (<i>Lampetra fluviatilis</i>)	Lamprey CFB Adult records	2001

Summary of ecological importance

No evidence of flora or terrestrial fauna species or habitats of National or international conservation importance were noted within the site outline apart from sika deer during the site visit. However, European otter, west European hedgehog, river lamprey, common frog, greater broomrape and smooth newt have previously been recorded locally according to NPWS and NBDC records. None of these species were recorded within the proposed development. Rhododendron (*Rhododendron ponticum*), 3rd Schedule Invasive Species) was found throughout the right-of-way through the marshlands within the proposed site. Mink (*Mustela vison*), an invasive mammal species, was recorded by camera trap footage within the right-of-way. No trees of bat roosting potential were present within the proposed site outline. No amphibians were recorded, however the adjacent marshlands, watercourse and ditch provide suitable habitat for both common frog and smooth newt. 13 species of birds were recorded, including grey wagtail (red BoCCI).

Potential Impacts

The proposed redevelopment involves vegetation clearance, trenching, installation of foul rising main, watermain and fibre ducts, and backfilling along the length of the proposed site.

Do-Nothing Impact

The current biodiversity value of the proposed development outline is limited due to an infestation of invasive rhododendron along a large proportion of the right-of-way within the marshlands. It does however increase the habitat types within the marshlands which is otherwise deprived of scrub and the minor wet willow/ash habitat component. Scrub habitat provides nesting opportunities for additional bird species for which nesting habitat is limited elsewhere within the marshlands. Small portions of the proposed site are comprised of built land and recolonising bare ground (east and west ends). Given the dominance of rhododendron and presence of grazers (deer) within the marshland, it would be expected that rhododendron would continue to spread and dominate throughout the right-of-way and beyond. If the proposed development does not take place, and assuming rhododendron is not controlled within the proposed right-of-way, it is assumed that the proposed site would be of decreasing value for biodiversity in the medium/long-term. This is separate from the marsh habitat immediately adjacent north and south of the proposed development (not subject to the proposed works) which is of current and future significant value for biodiversity.

Construction Phase Impacts

Potential construction phase impacts are assessed below for each of the ecological components.

Designated Conservation sites within 15km

Due to the distance from Natura 2000 sites (i.e. nearest Natura 2000 site Buckroney Brittas Dunes and Fen SAC 4.7 km away), weak hydrological pathways across freshwater, estuarine and marine environments, and the nature of the proposed works, Natura 2000 sites are not predicted to be impacted by the proposed development. The proposed development runs through Arklow Town Marsh pNHA from west to east. Foul

wastewater from staff welfare facilities will be transported off site for treatment at a licensed facility. Current surface water drainage patterns within the proposed development and adjacent Arklow Town Marsh will persist during construction. Measures will be implemented, including silt protection, hazardous materials storage location and protection and buffer zones, to prevent contamination to surface water run-off entering the Arklow Town Marsh and adjacent Avoca River tributaries. Having taken into consideration foul wastewater facilities and removal, the mitigation measures outlined in relation to surface water and vegetation clearing during construction, and the proposed construction methodology, it is concluded that this development would not give rise to any significant effect on any designated sites. The proposed project will not involve the removal of material off site including soil and vegetation. Standard construction phase controls will be in place to comply with Water Pollution Acts, including installation of silt fencing and silt traps, retention of a vegetated buffer, wheel wash, and covering of trucks and stockpiles. Following mitigation measures, no impact is foreseen in relation to designated conservation sites from the proposed development.

Construction Impacts: Slight Adverse/Temporary/localised/likely/Not significant. Mitigation measures are required to protect Arklow Town Marsh pNHA.

Habitats, Flora and Fauna

The impact of the redevelopment during clearance and the construction phase will be a loss of existing habitats, flora and fauna. No flora, terrestrial mammal or bat species of conservation importance were recorded within the proposed site outline during the site visit or in NPWS or NBDC records. As stated previously, it should be noted the presence of *Rhododendron (Rhododendron ponticum)*, a scheduled invasive species, throughout the majority of the right-of-way through the marshlands. Vegetation clearance works will follow TII guidelines as outlined in 'The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads' in order to effectively clear and prevent the spread of rhododendron within the site. Measures will be in place during construction to prevent the removal of vegetative material and soil from the right-of-way.

No loss of habitat or habitat fragmentation will occur that could negatively affect any protected mammalian species. Fox may be directly impacted which are common in Ireland are not protected. Mink are considered a scheduled invasive species and therefore no protections are required. Evidence of Sika deer was observed within the right-of-way, however movement of this species across the right-of-way will not be significantly impacted during construction. No other evidence or recordings of protected mammal species within the proposed site were made.

In relation to amphibians and reptiles, amphibians and reptiles were not observed on site but common frog and smooth newt has been recorded in the vicinity of the site according to NPWS and NBDC records. The common lizard was not observed or recorded previously in the vicinity. The site sits immediately adjacent to high quality amphibian habitat. No habitat of bat roosting potential was recorded. However, due to the likelihood of bats foraging within the marsh environment, light use outside of daylight hours should be avoided during construction.

Construction Impact: Neutral/ Slight to Moderate/ Short-term, localised, unlikely.

Operational Phase Impacts

Designated Conservation sites within 15km

Due to the distance from Natura 2000 sites (i.e. nearest Natura 2000 site Buckroneys Dunes and Fen SAC 4.7 km away), weak hydrological pathways across freshwater, estuarine and marine environments, and the nature of the proposed works, Natura 2000 sites are not predicted to be impacted by the proposed development. The proposed development runs through Arklow Town Marsh pNHA from west to east. Foul wastewater facilitated by the proposed development will be carried to Arklow WWTP for treatment prior to discharge to the Irish Sea. Foul wastewater facilitated by the proposed development will not interact with the surrounding environments and marshlands. No increase in impermeable surfaces are proposed. Current surface water drainage patterns within the proposed development and adjacent Arklow Town Marsh will persist during operation. Vegetation re-growth along the right-of-way through the marshlands, following *Rhododendron*

clearance, will facilitate similar or improved surface water run-off quality to the Arklow Town Marsh and adjacent Avoca River tributaries in the medium to long-term via comparable or improved overall ground flora coverage. Having taken into consideration foul wastewater facilitation, the lack of impermeable surfaces associated with the development, and vegetative regeneration following construction, it is concluded that the operation of this development would not give rise to any significant effect on any designated sites. No impact is foreseen in relation to designated conservation sites from the operation of the proposed development.

The AA Screening report that accompanies this application determines that the proposed project will not adversely affect the integrity of European Site.

Operational Impact: Neutral / long-term, localised, unlikely.

Habitats, Flora and Fauna

Flora diversity following regrowth/recolonisation along the right-way, following clearance of invasive rhododendron, will be neutral/positive with the increase in coverage of ground flora which is largely absent under rhododendron canopies. Current hydrological patterns within the marsh and watercourses adjacent to the proposed development will remain unchanged. Movements and foraging by mammal species will persist, particularly as vegetation returns. Bird nesting habitat will be reduced in the short-term and gradually increase over time.

Operation Impact: Neutral to positive/ Slight to Moderate/ Short-term, localised, likely

Worst Case Scenario Impacts

Impacts of Fire

During construction of the proposed development, fire would be seen as one of the main potential risks to the biodiversity, with potential damage to adjacent sensitive habitats and impacts and watercourses. Runoff will discharge to Avoca River tributaries and marshlands. Due to the waterlogged nature of much of the areas adjacent to the proposed development, the spread of fire in that event is unlikely. Designated refuelling areas away from watercourses and marshlands, fuel spill kits, and storage of hazardous and flammable materials away from sensitive receptors will reduce the likelihood and extent of potential fires.

Flooding

In the event of flooding, there is a risk in contamination or pollutants entering tributaries of the Avoca River and marsh complex. Due to the underlying hydrology of the proposed site, works are proposed to be carried out during the 12-week summer period between June and August. Adequate hazardous material, stockpile and fuel storage measures implemented will reduce the potential risk of surface water contamination in the event of flooding.

Worst Case Scenario Impacts: unlikely, negative, slight, localised, temporary.

Mitigation

The proposed mitigation measures are outlined in the table below. These measures will be carried out:

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
Surface water drainage Arklow Town Marsh pNHA Local biodiversity (birds, amphibians, mammals, bats, watercourses)	• Habitat degradation • Dust deposition • Pollution • Silt ingress from site runoff • Downstream impacts • Negative impacts on the aquatic environment, habitats, aquatic species, bird fauna, mammal fauna, bat foraging, and marshlands.	An Outline Construction Environmental Management Plan has been prepared by DBFL Consulting Engineers for the proposed development. The following mitigation measures outlined within the OCEMP (<i>italics</i>) as well as additional measures (<i>roman</i>), will be implemented: Land, Soils, Geology and Hydrogeology • <i>The construction works will be carried out with the least feasible disturbance of soils, thereby minimising the amount of excavated soil. The inert excavated soil will be reused within the scheme wherever possible which may result in the backfilled trench being mounded.</i> • <i>Where applicable, design measures will be put forward to minimise the excavation of soil that cannot be reused due to their mechanical properties or contamination.</i> • <i>All waste produced as part of the proposed development will be dealt with in accordance with the relevant waste and environmental management legislation.</i> • <i>The contractor will be required to prepare a CWMP which will address all types of material to be disposed of.</i> • <i>Where soil stripping and excavation occurs, the resulting excavated soil fractions will be segregated into material that can be disposed of in the appropriate manner in accordance with Waste Management legislation.</i> • <i>All unsuitable topsoil, inert soil, and all hazardous soil waste will be separately removed off site to an appropriately licenced facility by a licensed contractor</i> • <i>Non-hazardous waste exceeding inert Waste Acceptance Criteria (WAC) will be sent to a licensed non-hazardous landfill for disposal/recovery.</i> • <i>Construction personnel will be required to wear appropriate Personnel Protection Equipment (PPE) and carry out other protective measures outlined in this OCEMP when handling hazardous waste.</i> • <i>All associated hazardous waste residuals will be stored within temporary bunded storage areas prior to removal by an appropriate EPA approved waste management contractor for off-site treatment/recycling/disposal.</i> • <i>Imported material is not expected to be required, but nevertheless for the importation of topsoil and imported good-quality granular soils materials, the material will be sourced from nearby sites where possible, to reduce transport distances.</i> • <i>To minimise any impact on the underlying subsurface strata from material spillages, fuels, oils, solvents and paints used during construction will be stored within specially constructed bunded areas or within bunded containers located at least 50m from watercourses.</i>

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• <i>Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place away from the Right of Way, particularly the existing open ditches and ponds, or open excavations which could result in contamination of standing ground water.</i> • <i>Spill kits and hydrocarbon absorbent packs will be stored in the site compound and relevant personnel will be fully trained in the use of this equipment.</i> • <i>Fuel for vehicles will be stored in a mobile double skinned tank.</i> • <i>The Contractor must use biofuels in their fleet of construction vehicles and machinery. If this is not possible, the project engineer is to be notified as soon as possible.</i> • <i>Silt and sediment barriers will be installed at the perimeter of earthworks construction areas to limit transport of erodible soils outside of the site.</i> • <i>Where applicable, all excavated and/or stripped surfaces will be covered with a required depth of topsoil to encourage the growth of the vegetation after the construction stage, in order to eliminate erosion and negative visual impacts.</i> Hydrology • <i>The CEMP will detail procedures for the control, treatment and disposal of potentially contaminated surface water including monitoring systems and oversight required throughout the construction phase.</i> • <i>The contractor will be required to implement industry best practice pollution prevention measures in accordance with guidance documents (for example CIRIA Guideline Document C532 Control of Water Pollution from Construction Sites), during both construction and operation in order to control the risk of pollution to surface waters. In addition, pollution of aquatic systems during the construction phase will be reduced by the implementation of the protection measures as outlined in Section 5.3 of this OCEMP.</i> • <i>Routine practice and procedures to prevent pollution of the environment will apply. These include:</i> • <i>During the construction stage, standard construction and site management practices will be implemented by the contractor.</i> • <i>Silt fences and grassed swales/catchment ditches will be constructed around the perimeter of work areas, compounds, storage yards and stockpile areas where practicable.</i> • <i>Weather conditions and typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimising soil erosion.</i> • <i>The construction compound(s) will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound(s) will be transported off site to a licensed facility.</i>

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		<i>The construction compound(s)'s potable water supply shall be protected from contamination by any construction activities or materials.</i> <i>All material including oils, solvents and paints will be stored within temporary bunded areas or dedicated bunded containers.</i> <i>Refuelling will take place in a designated bunded area away from surface water gullies, drains and water bodies, and the Right of Way.</i> <i>All machinery and plant used will be regularly maintained and serviced and will comply with appropriate standards to ensure that leakage of diesel, oil and lubricants is prevented.</i> <i>Spill kits and hydrocarbon absorbent packs will be available throughout the site and drip trays will be used during refuelling.</i> <i>Drainage wardens/silt socks will be placed around drainage gullies connected to the live network.</i> <i>Ongoing monitoring of the water receptors throughout the works.</i> <i>Excavated material will be segregated into inert, non-hazardous and/or hazardous fractions.</i> <i>The excavation and handling of inert material will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment.</i> Additionally: - There is potential that surface water runoff contaminated with silt/petrochemicals will be discharged to adjacent watercourses. All surface water run-off points/drains within the site compound and works areas must be lined with silt-fencing and oil retention booms to intercept any silt and/or hydrocarbons within run-off to protect adjacent waterbodies. - Use of generators and small plant on site. Oil/diesel spillages and risk of ground and surface water contamination. Drip trays placed below all small plant. Spill kits will be present on all working sites to clean up spillages. A record of all spillages will be kept and monitored. - Dust control measures will be in place. - Plant refuelling activities. Oil/diesel spillages and risk of ground and surface water contamination. All mobile plant to be refuelled in a central refuelling area where a spillage containment sump will be constructed within the refuelling area. All collected fuel will be disposed offsite under license. A record of all spillages will be kept and monitored. - Storage of materials, sediment being washed into drains or watercourses. Stockpiling of loose materials within the compound will be kept to a minimum of 50 m from drains. Where stockpiles are required, they will have suitable barriers to prevent runoff of fines into the drainage system. Damping down of stockpiles will need to take place in dry windy weather to prevent wind-blown movement of fines.

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		- Fuel, oil and chemical storage will be sited within a bunded area. The bund must be able to take the volume of the largest container plus 10% and be located at least 50 m away from drains and waterbodies. Bunds will be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination. - On-site inspections to be carried out by project ecologist. - Full compliance with the Water Pollution Acts will be carried out on site. - Dewatering of excavations may be necessary. Appropriate monitoring of groundwater levels during site works will be undertaken. Standard construction phase filtering of surface water for suspended solids will be carried out. Unfiltered surface water discharges or runoff are not permitted from the site into drains, waterbodies or marshlands during the works. Air Quality, Climate and Resources <i>The coordination, implementation and ongoing monitoring of dust produced by site activities. The key aspects of controlling dust are listed below:</i> <i>The development of a documented system for managing site practices with regard to dust control;</i> <i>Spraying of exposed earthwork activities and site haul roads during dry weather;</i> <i>Provision of wheel wash at exit points;</i> <i>Covering of stockpiles;</i> <i>Control of vehicle speeds, speed restrictions and vehicle access; and</i> <i>Sweeping of hard surfaced roads.</i> <i>Erection of a 2.4m high hoarding will be provided around site camp where allowable to minimise the dispersion of dust from working areas.</i> <i>Stockpiles will be located as far away as possible from sensitive receivers and covered/dampened during dry weather;</i> <i>Generators will be located as far away as practicable from sensitive receivers;</i> <i>To prevent the harmful emissions from vehicle exhausts, on-site and delivery vehicles will be prevented from leaving engines idling, even over short periods.</i> <i>Where Asbestos Contaminated Material (ACM) is uncovered on site during construction, the ACM will be double-bagged and removed from site by a competent contractor and disposed of in accordance with the relevant procedures and legislation.</i> <i>All vehicles will be required to switch off engines when stationary (no idling);</i> <i>All vehicles will be serviced and maintained to ensure emissions are minimised;</i>

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• <i>Where practicable, materials will be reused within the extent of the Proposed Development; and</i> • <i>Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport.</i> • <i>The Contractor's fleet of vehicles and machinery must use biofuels.</i> Additionally: • The NPWS will be informed if stringent and effective dust management practices are not being undertaken and/or potentially significant levels of dust are noticeable, particularly over the marshlands. • Regular inspections of the site and boundary should be carried out to monitor dust, records and notes on these inspections should be logged. • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book. • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Cover, seed or fence stockpiles to prevent wind whipping. • Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads/access points will be restricted to essential site traffic. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. • Cover earthworks and exposed areas/soil stockpiles to protect surfaces as soon as practicable. • Only remove the cover in small areas during work and not all at once. Noise and Vibration

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• 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 levels of noise and/or vibration during critical periods and at sensitive locations; and • All site access roads will be kept even so as to mitigate the potential for vibration from lorries. • No plant used on site will be permitted to cause an ongoing public nuisance due to noise. • The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. • All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract. • Vehicles required to wait on site will switch off engines. • Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. • Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use. • Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screens. • Location of plant shall consider the likely noise propagation to nearby sensitive receptors. • During the course of the construction programme, supervision of the works will include ensuring compliance with the noise limits prescribed using methods outlined in BS 5228-1. • For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant will be switched off when not in use and not left idling. • For percussive tools such as pneumatic concrete breakers and tools, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensuring any leaks in the air lines are sealed. Erection of localised screens around breaker or drill bit when in operation in close proximity to noise sensitive locations (NSLs) boundaries are other suitable forms of noise reduction. • Where compressors, generators and pumps are located in areas in close proximity to NSLs and have potential to exceed noise criterion, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		<i>Resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can be controlled by fixing resilient materials in between the surfaces in contact.</i> <i>Demountable enclosures can also be used to screen operatives using hand tools and may be moved around site as necessary.</i> <i>All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.</i> <i>The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item of plant will be selected wherever possible.</i> <i>Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative.</i> <i>For static plant such as compressors and generators used at work areas such as construction compounds etc., the units will be supplied with manufacturers' proprietary acoustic enclosures where possible.</i> <i>The contractor will evaluate the choice of excavation, breaking or other working method, taking into account various ground conditions and site constraints. Where possible, where alternative lower noise generating equipment are available that will provide equivalent that would economically achieve, in the given ground conditions, equivalent structural / excavation / breaking results, these will be selected to minimise potential disturbance.</i> <i>vibration monitoring programme should be adopted at the nearest properties during the most critical phases of construction e.g., rock breaking etc. to assure the property owners that the prescribed limits are not exceeded.</i> Material Assets and Waste <i>Welfare facilities (canteens, toilets etc.) will be available within the construction compound on site.</i> <i>Portable sanitary facilities will be provided with waste collected and disposed of appropriately until the on-site wastewater treatment plant is in situ.</i> <i>No silty or contaminated water from the construction works will be discharged to any open river or stormwater network. Where dewatering is required during the construction phase, dirty water will be fully and appropriately attenuated before being appropriately discharged.</i> <i>Where water is required for welfare facilities, dust suppression and general construction activities, this will be provided by either tanker or temporary connection to the public main by agreement between the Main Contractor and Uisce Éireann.</i>

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• <i>Electrical connections will be made by suitably qualified personnel following consultation with the relevant authorities and will be cognisant of subsequent construction works. High voltage connections will be established for heavy duty equipment and site facilities, as required. All electrical works, including connection to the ESB network will be carried out by a suitably qualified contractor.</i> • <i>A project specific Resource Waste Management Plan (RWMP) has been prepared as part of the EIA screening in line with the requirements of the EPA, Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021). The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.</i> • <i>Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP in agreement with Wicklow County Council (WCC) and in compliance with any planning conditions, or submit an addendum to the RWMP to WCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.</i> • <i>The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases.</i> • <i>Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.</i> • <i>Materials must not be stored within the right-of-way, as defined in Section 1.2 Subject Site.</i> • <i>Building materials will be chosen to 'design out waste';</i> • <i>No vegetation or soil will be removed from site to prevent spreading of rhododendron.</i> • <i>On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated: concrete rubble (including ceramics, tiles and bricks), plasterboard, metals, glass, and timber.</i> • <i>Left over materials (e.g., timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible;</i> • <i>All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;</i> • <i>Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);</i> • <i>A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;</i>

Table 12. Mitigation Measures.

Sensitive Receptors	Potential Impacts	Designed-in Mitigation
		• <i>All construction staff will be provided with training regarding the waste management procedures;</i> • <i>All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;</i> • <i>All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and</i> • <i>All waste leaving the site will be recorded and copies of relevant documentation maintained.</i> Additionally: • Materials, plant and equipment shall be stored at least 15 metres from drains, watercourses and marshlands; • Hazardous liquid materials or materials with potential to generate run-off shall not be stored within 50 m of drains, watercourses or marshlands. • All oils, fuels and other hazardous liquid materials shall be clearly labelled and stored in an upright position in an enclosed bunded area within the proposed development site compound. The capacity of the bunded area shall conform with EPA Guidelines – hold 110% of the contents or 110% of the largest container whichever is greater; • Fuel may be stored in the designated bunded area or in fuel bowsers located in the proposed compound location. Fuel bowsers shall be double skinned and equipped with certificates of conformity or integrity tested, in good condition and have no signs of leaks or spillages; • Smaller quantities of fuel may be carried/stored in clearly labelled metal Jeri cans. Green for diesel and red for petrol and mixes. The Jeri cans shall be in good condition and have secure lockable lids. The Jeri cans shall be stored in a drip tray when not in use. They will not be stored within 50 m of waterbodies, marshland or drains, and when taken out of storage will be used to refuel equipment immediately; • All hazardous liquid materials shall be stored in a bunded area and spill containment measures will be in place; • Drip trays will be turned upside down if not in use to prevent the collection of rainwater; • Waters collected in drip trays must be assessed prior to discharge. If classified as contaminated, they shall be disposed by a permitted waste contractor in accordance with current waste management legal and regulatory requirements; • Plant and equipment to be used during works, will be in good working order, fit for purpose, regularly serviced/maintained and have no evidence of leaks or drips; • No plant used shall cause a public nuisance due to fumes, noise, and leakage or by causing an obstruction; • Re-fuelling of machinery, plant or equipment will be carried out in a designated area at least 50 m from drains and the watercourse;

Cumulative Impacts

The following is a list of planning application(s) as identified on the Department of Housing, Local Government and Heritage's 'National Planning Application Database' portal (Table 10)¹:

Table 13. Planning applications proximate to the subject site

Ref. No.	Address	Proposal
2484	Upper Main Street, Arklow, Co. Wicklow	demolition of existing derelict buildings (1292 sqm); construction of 99 residential units comprising 59 no. apartments with four blocks, ranging in height from 4 to 7 storeys (7 no. 1 bed units, 42 no. 2 bed units and 10 no. 3 bed units) and 40 no. 3 storey houses (20 no. 4 bed units); construction of a 350 sqm mixed use building of four storeys containing 350 sqm of retail space at ground floor and residential units above; refurbishment, extension and change of use from a derelict two storey house to a 146.3 sqm creche; refurbishment of the former Ormonde Cinema (Record of Protected Structure Ref. A39) for commercial use comprising 322.5 sqm office at first floor and 32 sqm office, 181 sqm lounge/café and 59 sqm café uses at ground floor; relocation of a Victorian letterbox (Record of Protected Structure Ref. A40) within the scheme; provision of public open space including a new amphitheatre, a new plaza, communal and private open space; provision of internal access roads with vehicular, pedestrian and cyclist access and new vehicular access onto Upper Main Street; 169 no. car parking spaces and 196 no. bicycle parking spaces provided at basement and surface level; realignment of Coomie Lane to create a new pedestrian links between Vale Road, Upper Main Street and the River Avoca walkway; all associated and ancillary site development works above and below ground, including signage, 2 no. ESB substations, alteration to existing landscape features, play area, sculpture, retaining walls, clearance works, landscaping, excavation, bin stores, boundary treatments and services provision
23843	Site at Avoca River Park, Arklow, Co. Wicklow	proposed development. The proposed development includes an amendment to the development permitted under Reg. Ref. 21/1080, The proposed development will consist of the following to facilitate the above. Demolition of the existing structures on the western part of the site that comprises 4 no. industrial commercial buildings, an associated hut / outbuilding, a gas enclosure, and a tank with bund wall. The removal of the remains of a previously demolished building, areas of hard standing, and existing surface treatments. The relocation of the Energy Centre 1 to the western part of the site, which will supersede the previously permitted 110kV GIS substation compound at that location under ABP Ref: VA27.309252. The proposed development will provide for a revised energy centre design, to include the provision of 8 no. gas turbines (with associated flues of 25.15m in height), 4 no. black start emergency generators and associated transformers, 2 no. single storey fuel oil pump rooms with a gross floor area (GFA) of 90.17sq.m, a single storey air compressor building with a GFA of 88.9sq.m, 4 no. fuel tanks, 2 no. MCC control rooms with a GFA of 44.17sq.m, 3 no. fire water tanks, a single storey welfare, storage, and pump room building with a combined GFA of 160.97 sq.m, a two storey MV /LV building with a GFA of 655.54sq.m, 8 no. 11kV/ 33kV step-up transformers in the north of the site, water treatment equipment, and a security hut, all within a fenced compound. The proposed development includes landscaping and planting, boundary treatments, lighting, security fencing, car parking, and all site works including underground foul and storm water drainage network (including on-site wastewater treatment system), and utility cables, along with all associated and ancillary works. An EPA- Industrial Emissions Directive (IED) licence will be applied for to facilitate the operation of the proposed development
2372	Site located at Avoca River Park, Arklow, Co. Wicklow	the proposed development occupies part of the site of (and will supersede) a previously permitted data centre development under Reg. Ref. 20/1285. The proposed development, for which a ten-year permission is sought, consists of the following: Demolition of the existing structures on site (industrial structures and outbuildings) and site clearance works; construction of 3 no. three storey information and communication technology (ICT) facility buildings, each with a gross floor area (GFA) of c. 16,206 sq.m (c. 48,618sq.m GFA in total), and with a parapet height of c. 19.5 metres; each of the 3 no. ICT buildings will accommodate ICT equipment rooms, mechanical equipment rooms, staff welfare facilities, ancillary office space, security rooms, storage, and loading bays; a customer compound, a power trunk building, a transformer compound and a water tank compound area are provided to the

¹ <https://housinggov.ie/maps.arcgis.com/apps/webappviewer/index.html?id=9cf2a09799d74d8e9316a3d3a4d3a8de>

Ref. No.	Address	Proposal
		north of the ICT facility buildings; the development includes the extension of the existing road and serving the existing industrial park to access the subject site, with gated access points to the proposed ICT facility development to be provided off this roadway; construction of internal road network and circulation areas, footpaths, provision of 124 no. car parking spaces and motorcycle and cycle parking spaces; landscaping and planting, boundary treatments, lighting, security fencing, and all associated site works including underground foul and storm water drainage network, attenuation and percolation areas, and utility cable (including connections to the substation permitted under ABP Ref. 310090-21, resulting in the partial culverting of an existing drainage ditch), on an application site area measuring c. 9.69 hectares. An Environmental Impact Assessment Report (EIAR) has been prepared and will be submitted to the Planning Authority with the planning application
23756	Lands at Kilbride, Arklow, Co. Wicklow	86 no. residential units with a mix of detached, semi-detached, terraced houses and duplex apartments ranging in height from 2 to 3 storeys; comprising of 8 no. 1-bed and 8 no. 2-bed duplex apartments, 10 no. 2-bed houses and 60 no. 3-bed houses; all residential units will have associated private open spaces facing north/south/east/west; alterations to Kilbride Road (L6179) to provide a section of the new road into the wider Kilbride Masterplan lands with vehicular, pedestrian and cycle access provided; a new dedicated pedestrian and cyclist access will also be provided to the south-east of the development connecting via the Marshland's sports club lands, and through Avondale Crescent to the Dublin Road; landscaping, public open spaces and all associated site development works to enable the development including boundary treatments, attenuation storage area and other service provision
2360437	Shelton Abbey Open Prison, Arklow, Co. Wicklow, Y14 T638	the installation of circa. 3,492sq.m array of solar photovoltaic (PV) panels on ground mounted frames on an agricultural plot within the existing Shelton Abbey Open Prison, together with ducting, underground electrical cabling, and all associated site works The proposed development is considered to be within the curtilage of a protected structure (RPS No. 40-05) listed under the current Wicklow County Development Plan 2022-2028. The proposed solar array installation will have no impact on the protected structure, located over 330.00 meters away from the proposed site.
23320	Avoca River Park, Arklow, Co. Wicklow	for proposed change of use from industrial/warehouse to plastics recycling facility and associated works
22433	townlands of Killiniskyduff, Tiknock, Kilbride, and Shelton Abbey	the installation of underground electrical infrastructure between the existing Arklow Gas-insulated Switchgear (GIS) 220kV Substation and the permitted Pollahoney GIS Substation. This will include the installation of approximately two underground electricity cable circuits, each at 3.12km in length and associated underground ducting, horizontal directional drilling, joint bays, communication cabling infrastructure between the existing Arklow GIS 220kV Substation and the permitted Pollahoney GIS substation, (WCC reg ref 20/1285). All associate and ancillary site development, remedial and construction works will be concentrated along the public road network, i.e. R772, L2180, L6179-0 and L-61791-0 to facilitate the underground cabling infrastructure within the townlands of Killiniskyduff, Tiknock, Kilbride and Shelton Abbey.
22213	Kilbride Educational Campus, Kilbride, Arklow, Co. Wicklow	construction of a new educational campus and a new link road that will serve the school campus which will include the provision of two school buildings. Gaelscoil an Imbhir Mhóir a two-storey, 16 classrooms primary school with two special needs rooms and ancillary spaces with total floor of circa 3093sqm serving 480 pupils. Gaelshólaiste na Mara a three-storey, post primary school with two special needs rooms, PE hall and ancillary spaces with a total floor area of circa 6585sqm serving 400 pupils. Proposed site works to include the construction of all new hard play areas, six play-courts, grass pitch, 182 no. car-parking spaces together with boundary treatment, 79 bicycle stands, ancillary infrastructure works, pedestrian links and landscaping.
201285	Avoca River Park, Shelton Abbey & Kilbride, Arklow, Co. Wicklow	1. Demolition of existing ind building units totalling (C.2784.4m2) comprising of a c.7.1m high Overall Main Building (c.2460m2), a c.4.2m high Sub-station (c. 107.3m2), a c.3.6m high Guardhouse (c.106.2m2), a c.3.6m high East-Building (c.39.1m2), c.5m high Water Tank (c.56.8m2) & c.2.6m high Pump House Building (c.15.1m2), assoc works. 2. Dev of 3 no. Data Centre Buildings, ancillary offices & plant comprising of: Data Centre Building A, - a single storey Data Centre Building, with mezzanine 1st floor level offices (GFA c.10,564m2, building height c.13,658m & structures c.15,137m), made up of 2 no. Data Halls & loading areas with assoc 2 no. Dock Levellers & including 10 no. c.14m high flues, & adjacent 1 no. Standby

Ref. No.	Address	Proposal
		Power Generation Compounds, consisting of 10 no. HV Diesel Generators & belly tanks (GFA c.530 m2), 1 no. storage fuel tank (GFA c.15m2). Data Centre Building B – a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m2, building height c.13,658m & structures c.15,137m), made up of 4 no. Data Halls & loading areas with associated 2 no. Dock Levellers & including 20 no. c.14m high flues, & adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. HV diesel Generators & belly tanks (GFA c.1,060 m2), 2 no. storage fuel tanks (GFA c.30m2). Data Centre Building C – a single storey data centre building with mezzanine 1st floor level offices (GFA c.18,508m2, building height c.13,658m & structures c.15,137m), made up of 4 no. Data Halls & loading areas with associated 2 no. Dock Levellers & including 20 no. c.14m high flues, & adjacent 2 no. Standby Power Generation Compounds, consisting of 20 no. HV Diesel Generators & belly tanks (GFA c.1,060 m2), 2 no. storage fuel tanks (GFA c.30m2). 3. Upgrading of existing 110 kV Substation to comprise of Compound (c. 8539m2) consisting of 11 kV GIS Switch Room (GFA c.708m2), & 4 no. External Transformers (GFA c.550m2), a grid connection, security fence & all assoc works & services. 4. Dev of 1 no. Fire Hydrant Pump Hse (GFA c.129m2) with Sprinkler Tank (c.49m2), 1 no. single storey Security Guard Hse (GFA c.48m2) & 2 no. vehicular accesses, internal access rds & 224 no. surface car parking spaces. 5. An upgraded attenuation basin, a proposed ww treatment plant & polishing filter. 6. All assoc site services, with c.2.7m high palisade fence, landscaping, boundary & all assoc site development works above & below ground. An EIAR has been prepared in respect of the proposed dev
20383	Kilbride Cottage, Kilbride Road, Arklow, Co. Wicklow	154 sqm rear and side dormer style extension to 48 sqm dwelling, front dormer window to roof, proposed front porch, replacement wastewater treatment system to EPA standards in lieu of existing septic tank and associated works
18326	Glenhaven Foods (Arklow) Ltd, Kilbride Industrial Estate, Arklow, Co. Wicklow	amendments to a previously approved planning permission for the subject site - Planning Permission Reference Number 16A/446. The amendments will comprise of modifications to the planning approved layouts and elevations, the associated changes include recladding of existing building elevations, the relocation of storage tanks, extended and reconfigured plant room layouts, extended and reconfigured storage areas, incorporating a total increased to the building size of 416 sqm (from 1891 sqm to 2307 sqm) with a revised ridge height not exceeding 10.2m
ABP 302556-18	Arklow, Co. Wicklow	Arklow Wastewater Treatment Plant Project. Application made directly to An Bord Pleanala under Strategic Infrastructure provision.

The projects outlined were reviewed. It is considered that cumulative effects on biodiversity, with other existing and proposed developments in proximity to the application area, would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on European sites will be seen as a result of the proposed development alone or combination with other projects.

Residual Impacts and Conclusion

The construction and operation of the proposed development is not predicted to impact on terrestrial, mammalian, avian and aquatic sensitive receptors through the application of standard construction and operational controls. No significant effects on biodiversity are likely.

An AA Screening has been prepared and there are no SPA's within 15km. Potential effects of the project on SAC's would be unlikely due to the fact that the identified hydrological pathway to SACs is across a substantial marine environment where dilution, settlement and mixing would occur prior to reaching designated sites.

Residual effects on biodiversity are considered to be: Low adverse / site / Negative Impact / Not significant / short term.

References

1. Bat Conservation Ireland 2004 on-going, *National Bat Record Database*. Virginia, Co. Cavan
2. Boyd, I. and Stebbings, R.E. 1989 Population changes in brown long-eared bats (*Plecotus auritus*) in Bat Boxes at Thetford Forest. *Journal of Applied Ecology* 26: 101 - 112
3. Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982
4. Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979
5. EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992
6. Jefferies, D.J. 1972 Organochlorine insecticide residues in British bats and their significance. *Journal of Zoology*, London 166: 245 - 263
7. Kelleher, C. 2004, Thirty years, six counties, one species – an update on the lesser horseshoe bat *Rhinolophus hipposideros* (Bechstein) in Ireland – *Irish Naturalists' Journal* 27, No. 10, 387 – 392
8. Kelleher, C. 2015 *Proposed Residential Development, Church Road, Killiney, Dublin: Bat Fauna Study*. Report prepared for Altamar Marine and Environmental Consultants
9. Marnell, F., Kingston, N. and Looney, D. 2009 *Ireland Red List No. 3: Terrestrial Mammals*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin
10. Racey, P.A. and Swift, S.M. 1986 The residual effects of remedial timber treatments on bats. *Biological Conservation* 35: 205 – 214
11. Smal, C.M. 1995 *The Badger & Habitat Survey of Ireland*. The Stationery Office, Dublin
12. Wildlife Act 1976 and Wildlife [Amendment] Act 2000. Government of Ireland.
13. NPWS (2021) Conservation Objectives: Vale of Clara (Rathdrum Wood) SAC 000733. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
14. NPWS (2017) Conservation Objectives: Buckronev-Brittis Dunes and Fen SAC 000729. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
15. NPWS (2017) Conservation Objectives: Kilpatrick Sandhills SAC 001742. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
16. NPWS (2017) Conservation Objectives: Magherabeg Dunes SAC 001766. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
17. NPWS (2011) Conservation Objectives: Slaney River Valley SAC 000781. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

DUB20 Infrastructure

Outline Construction Environmental Management Report

240021-X-X-X-XXX-RP-DBFL-CE-00004

October 2025

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1 Introduction

1.1 Overview

DBFL have been commissioned by the applicant (referred to herein as 'the Client') to prepare this Outline Construction Environmental Management Plan (OCEMP) to accompany the planning application for the proposed Watermain and Foul Rising Main connection (referred to as "the Proposed Development") for the Avoca River Park ICT facility at the Avoca River Park Industrial Estate. The OCEMP applies to all works associated with the construction of the proposed civil works including the pre-construction site clearance works within the right of way which runs through the Avoca Marshlands (referred to as the "Subject Site"). As a contractor has not yet been appointed, this OCEMP has not been formally adopted and further development and commitment to the OCEMP will be undertaken following selection of Contractors and before commencement of site works.

This Outline Construction Environmental Management Plan (OCEMP) sets out the procedures, standards, work practices and management responsibilities to address potential environmental effects that may arise from construction of the proposed scheme.

The OCEMP provides the environmental management framework for the appointed Contractors and Subcontractors as they incorporate the mitigating principles to ensure that the work is carried out with minimal impact on the environment. The construction management staff as well as Contractors and Subcontractors staff must comply with the requirements and constraints set forth in this OCEMP in developing their CEMP. The key environmental aspects associated with the construction of the Proposed Scheme, and the appropriate mitigation and monitoring controls, are identified in the OCEMP.

The implementation of the requirements of the OCEMP will ensure that the construction phase of the project is carried out in accordance with the commitments made by the client in the planning application process for the scheme, and as required under the planning approval. Once adopted, the CEMP is considered a living document that will be updated according to changing circumstances on the proposed scheme and to reflect current construction activities. The CEMP will be reviewed on an ongoing basis during the construction process and will include information on the review procedures.

1.2 Subject Site

The Subject Site, shown in Figure 1-1, forms part of the Wicklow County Council owned marshlands, north-west of Ferrybank Road in Arklow Town. The Subject Site is approximately 3.93 hectares in area and lies within a Right of Way established for the existing water supply connection to the Arklow Business Park.

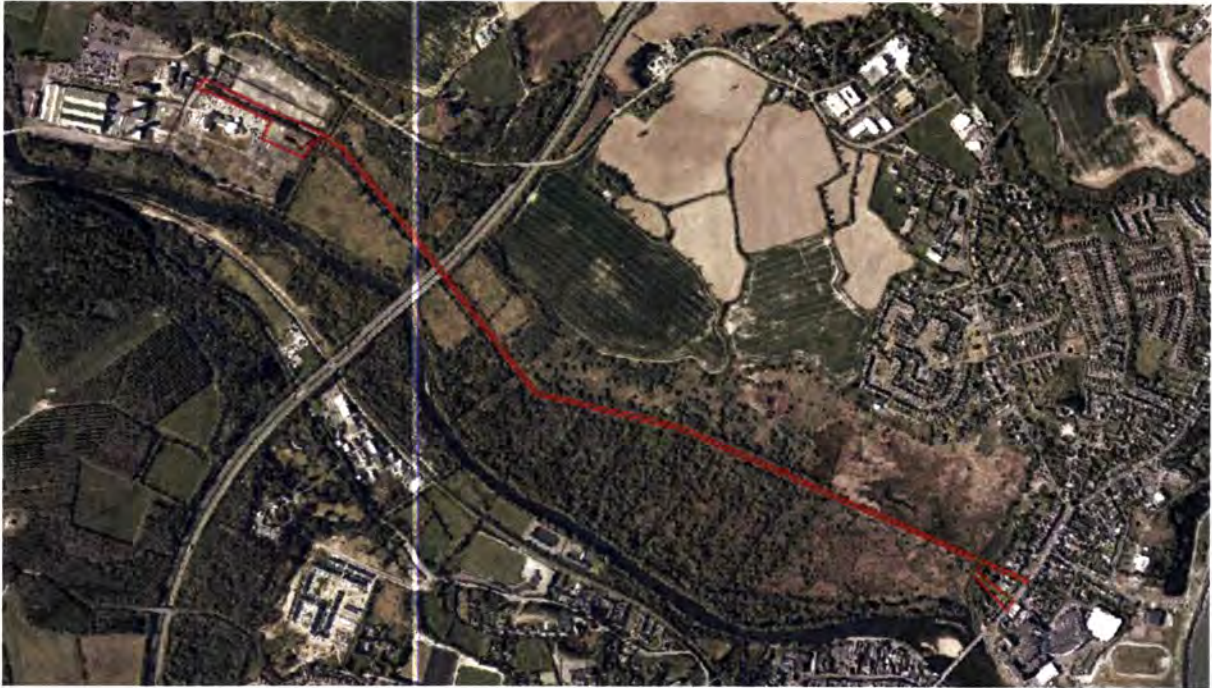


Figure 1-1: Site Location

1.3 Proposed Scheme Summary

The proposed scheme involves the installation of approximately 2.2km of watermain and foul rising main in support of several developments within the Avoca River Business Park Lands

The proposed development includes the following:

- Foul pump station
- c. 2240m 200mm diameter foul rising main
- c. 2240m 160mm diameter watermain
- c. 2240m 4x4 160mm diameter fibre ducts
- Connection to Uisce Éireann foul network
- Connection to Uisce Éireann watermain network

Access to the site will be provided via the existing access to the Avoca River Park, down the existing service road which extends through the Marshlands up to the intersection with Ferrybank road in Arklow Town. The intersection with Ferrybank road would be used as a secondary access.

1.4 Physical Constraints and Opportunities

The constraints and opportunities, both natural (i.e., existing natural environment) and physical (the built environment), for the Proposed Scheme include:

- Environmental impacts and engineering constraints associated with working in confined conditions.
- Topology and environmental impacts related with construction across the drainage ditch.
- Arklow Town Marsh in which the Proposed Works traverses through denoted as a proposed Natural Heritage Area (pNHA) of ecological importance.

2 Description of the Proposed Scheme

2.1 Proposed Works

The proposed scheme involves the installation of approximately 2.2km of watermain and foul rising main in support of several developments within the Avoca River Business Park Lands.

The proposed development includes the following:

- Foul pump station
- c. 2240m 200mm diameter foul rising main
- c. 2240m 160mm diameter watermain
- c. 2240m 4x4 160mm diameter fibre ducts
- Connection to Uisce Éireann foul network
- Connection to Uisce Éireann watermain network

On 14th June 2023 a planning application was granted under Wicklow County Council (WCC) ref. 2372, for a proposed ICT facility. Subsequently the latest planning submission, an amendment to a granted Energy centre, had also been granted by WCC (planning ref. 23843), in which a confirmation of feasibility (CoF) was issued by Uisce Eireann (UE).

In the CoF, upgrades were required in the form of a new installation of watermain with minimum 100mm diameter with a length of approx. 2.6km. This UE proposed that the watermain be installed adjacent to the existing 50mm diameter UE asset, which was installed within a Right of Way through the Arklow Town Marsh. The installation of a new watermain had not been accounted for in prior planning applications.

Additionally, the developer now proposes a new foul rising main to provide a connection opportunity for the campus to the public network, as an amendment to the previous reliance on localised on-site treatment. This has been borne out of design development on the granted ICT facility campus and associated end user requirements.

The Uisce Éireann Conformations of Feasibility are included in Appendix A of this report.

2.2 Construction Programme Sequencing

As an environmental mitigation to the underlying hydrology, it is proposed that all construction excavation and backfilling occurs during the 12-week summer period (typically June to August). A detailed construction programme will form part of the Final CTMP which will be completed prior

to commencement of construction. The appointed construction contractor will be required to prepare the Final CTMP.

The following is an indicative sequencing for the anticipated construction activities:

1. Site access establishment and initial compound set up,
2. Site Clearance and mulching of cleared vegetation,
3. Advance Excavation laying and backfill of Watermains and Foul Rising Mains in 50m sections,
4. Excavation laying and backfill of fibre ducting in 50m sections,
5. Spreading of stockpiled topsoil,
6. Close out / defects period

2.3 Working Hours

This plan will include the permitted site operation hours which are expected to be 07:00-19:00 on weekdays and 09:00-13:00 on Saturdays with no works on Sundays or bank/public holidays in accordance with the Environmental Noise regulations 2006.

2.4 Construction Site Access

Only SafePass accredited and C-19 inducted personnel (as required) will be permitted on site and daily in-out attendance records will be maintained.

All relevant health and safety requirements will be adhered to as specified and required by the CIF. This plan will be amended pending any changes to these requirements. Access to the site will be via the main Avoca River Business Park access road and entrance which is illustrated graphically in Figure 2-1 following. An alternative access may be made available as required from Ferrybank road pictured in Figure 2-2.

All delivery and waste vehicles approaching and departing the site will be directed to do so via the M11 at Junction 20.



Figure 2-1: Site Access Arrangement (Source: Google Earth)

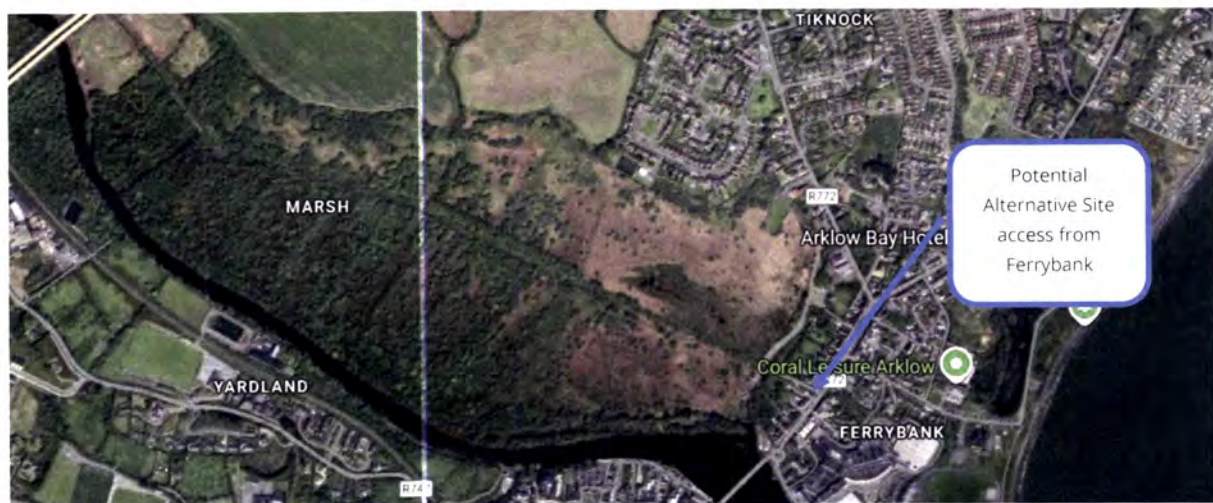


Figure 2-2: Alternate Site Access

2.5 Construction Compounds

The Contractors compound will contain welfare facilities, sign-in/out facilities, Construction Management Team (CMT) offices and storage/workshop areas for the contractors and sub-contractors.

No pedestrians are permitted within the Proposed Works boundary.

HGV traffic will be directed through a wheel wash located at the exit from the contractor's compound.

Just-in-time ordering, and off-site pre-fabrication will be used to limit storage space required on site.

Site compounds are provisionally proposed to be located within the proposed transformer compound area as indicated in Figure 2-2. This space is centrally located offering efficient vehicle movement to facilitate construction. A portion of the compound, located at least 50m away from any watercourse, will be designated as a material store. As construction for the development nears completion, the compound will be de-erected, and the transformer compound being constructed as part of separate works.



Figure 2-3: Potential Location of Primary Construction Compound

3 Construction Environmental Management Plan (CEMP)

3.1 Overview

This OCEMP will be used to develop a Construction Environmental Management Plan (CEMP) by the contractor to meet the requirements of ISO 14001 and all site works shall be undertaken in compliance with the CEMP. The CEMP shall include details of the topics listed below:

- Environmental Policy
- Environmental Register
- Project Organization and Responsibilities
- Project Communication and Co-ordination
- Training
- Operational Control
- Checking and Corrective Action
- Environmental Protection Measures
- Complaints Procedure.

The CEMP shall detail all the environmental aspects and impacts associated with this contract such as waste management, pollution prevention, protection of flora and fauna and water quality in watercourses. The Environmental Register shall provide the framework for identifying the potential environmental impacts generated by construction and the associated works. The environmental procedures and activity specific method statements shall detail the working methods necessary for managing and mitigating these impacts, whether it is by prevention or mitigation. Prior to the commencement of construction activities, the environmental procedures and activity-specific method statements shall be completed providing site-specific requirements at the location of the various construction elements along the Proposed Scheme.

3.2 Environmental Policy

If the contractor does not already have an environmental policy, they shall be required to develop an Environmental Policy with consideration for impacts on the natural and built environment. All project personnel will be accountable for the environmental performance of the project and will be made aware of the Environmental Policy at induction. The environmental policy will consider and make commitments with regard to the protection of Natura 2000 sites, and any proposed

Natural Heritage Area (pNHA) and / or Natural Heritage Area (NHA) sites, emissions to the atmosphere, maintenance of water quality, resource usage, energy consumption and waste management.

The nearest Natura 2000 site that could be affected by the Proposed Scheme is the Arklow Town Marsh pNHA located approximately 1.2km to the southeast of the scheme.

3.3 Environmental Register

Once appointed, the Contractor will prepare a register of all sensitive environmental features which have the potential to be affected by the construction works, together with details of commitments and agreements made during the Section 5 process and the Contract Documentation, with regards mitigation of potential environmental impacts.

The Environmental Register provides the relevant information for the preparation of construction method statements and will be regularly updated during the works.

The Environmental Register will consider sensitive environmental features as listed below (please note this list is not exhaustive and will be amended and expanded upon as required by the contractor):

- Identification of all waterways for the protection against ingress of suspended solids or any pollutant;
- Air emissions;
- Noise and Vibration emissions;
- Light emissions;
- Sanitary and domestic sewage discharge
- Waste generation;
- Treatment of contaminated materials
- Treatment of Asbestos Containing Materials
- Treatment of invasive species;
- Use of hazardous materials;
- Energy usage;
- Water usage;

- Discharge of wastewater;
- Traffic generation;
- Biodiversity;
- Landscape and Visual impacts;
- Soils, Geology and Hydrogeology;
- Archaeology, Architectural and Cultural Heritage.

3.4 Project Organisation and Responsibility

The Contractor appointed by the client to undertake the construction works shall be responsible for developing, and managing, the project specific Construction Environmental Management Plan (CEMP) incorporating the methodologies described in this preliminary plan. The plan will be developed in consultation with the client.

The contractor shall be responsible in ensuring that all members of the Project Team, including sub-contractors comply with the procedures set out in the CEMP. The Contractor will ensure that all persons working on site are provided with sufficient training, supervision and instruction to fulfil this requirement.

The Contractor will ensure that all persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

The adopted CEMP will define the roles and responsibilities of the project team. The overall responsibility lies with the Site Manager whose responsibility it will be to approve key personnel required for employment on the project. They will liaise with the Site Environmental Manager (SEM).

3.4.1 The Project Manager

The Project Manager will lead the works on site. They will be responsible for the management and control of the activities and will have overall responsibility for the implementation of the CEMP. They will be assisted in this by the SEM.

3.4.2 Site Environmental Manager

A SEM will be appointed by the contractor to ensure that the CEMP is effectively implemented. The main duties and responsibilities of the SEM include and are not limited to the following:

- Liaise with the Site Manager during the finalisation of the CEMP to assign individual duties and responsibilities bearing in mind the overall organisational structure, the nature of the Environmental Commitments and Requirements and the proposed scheme specific characteristics;
- Ensuring that the CEMP is finalised, implemented and maintained.
- Liaising with the client's Environmental Manager on all Method Statements, any alterations to live documents and any other works.
- Being familiar with the information in the pre-construction surveys, construction requirements, the competent authority's decision, and all relevant Method Statements.
- Being familiar with the baseline data collated during the compilation of the Section 5 documentation;
- Assisting management in liaising with the client and the provision of information on environmental management during the construction of the proposed scheme;
- Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP, to individual members of the main contractor's project staff;
- Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil best practice requirements;
- Liaising with management in agreeing site specific Method Statements with Third Parties;
- Ensuring that all relevant works are undertaken in accordance with the relevant legislation;
- Bring any legal constraints that may occur during certain tasks to the attention of management;
- Keeping up to date with changes in environmental practices and legislation and advising staff of such changes and incorporating them into the CEMP;
- Hold copies of all permits and licenses provided by waste contractors;
- Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc have appropriate authorization;

- Gathering and holding documentation with respect to waste disposal;
- Liaising with contactors and consultants prior to works;
- Procuring the services of specialist environmental contactors when required;
- Ensuring that all specialist environmental contactors are legally accredited and proven to be competent;
- Ensuring that environmental induction training is carried out on all personnel on site and ensuring that toolbox talks include aspects of environmental awareness and training;
- Respond to all environmental incidents in accordance with legislation, the CEMP and company policy/procedures;
- The SEM is responsible for notifying the relevant statutory authority when environmental incidents occur and producing the relevant reports as required;
- Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licenses, certificates;
- Carrying out daily documented inspections of the site to ensure that work is being carried out in accordance with the CEMP and relevant site-specific Method Statements;
- Responsible for reviewing all environmental monitoring data and ensuring that they all comply with stated guidelines and requirements; and
- Liaising with management in preparing and inspection of site-specific method statements for activities where there is a risk of pollution or adverse effects on the environment.

3.4.3 Site Manager

A site manager will be appointed by the contractor to over-see the day-to-day management of working areas within the site. The Site Manager's environmental management responsibilities include, but are not limited to:

- Close liaison with the SEM to ensure adequate resources are made available for implementation of the CEMP;
- Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor's project staff;
- Ensure that all personnel undergo suitable and sufficient environmental induction prior to starting work;

- Undertake a programme of daily environmental inspections in liaison with the SEM and site staff;
- Ensuring that the risk assessments for control of noise and environmental risk are prepared and effectively monitored, reviewed and communicated on site;
- Managing the preparation and implementation of method statements; and
- Ensuring that the SEM reviews all method statements and that relevant environmental protocols are incorporated and appended.

3.4.4 Design Manager

The main duties and responsibilities of the Design Manager having regard to the implementation of the CEMP:

- Be familiar with the CEMP and relevant documentation referred to within; and
- Participate in Third Party Consultations and liaising with third Parties through the SEM.

3.4.5 Supervisors

The supervisors' environmental management responsibilities include, but are not limited to:

- Ensuring all personnel affected by a method statement are briefed and fully understand its content;
- Monitoring operatives for compliance, including sub-contract operatives;
- Implementing environmental management activities required by the CEMP and works method statements;
- Ensuring that all inspections are carried out as prescribed in the CEMP;
- Ensuring that the procedures agreed during third party consultations are followed;
- Reporting immediately to the SEM any incidents where there has been a breach of agreed environmental management procedures, where there has been a spillage of a potentially environmentally harmful substance, where there has been an unauthorised discharge to ground, water or air, damage to habitat, etc.; and
- Attending environmental review meetings and preparing any relevant documentation as required by management.

3.4.6 All Project Personnel

All project personnel have the following responsibilities:

- Attend environmental training as required; and
- Reporting immediately to their supervisor or SEM any spillage incidents or observations regarding adverse effects to the environment.

3.5 Project Communication and Co-ordination

Environmental issues and performance aspects will be communicated to the workforce on a regular basis. Weekly project meetings, which follow a set agenda incorporating the environment, will be held alongside overall management meetings.

All staff and sub-contractors involved in all phases of the project will be encouraged to report environmental issues.

3.6 Training

All employees and subcontractors involved on with the Proposed Scheme will be given a comprehensive induction prior to commencement of the works on site which will include environmental awareness training. The training will ensure that all personnel are familiar with the following:

Training will include:

- Overview of the Environmental Manager and their role;
- Overview of the goals and objectives of the Environmental Policy and Construction Environmental Management Plan;
- The contents of the CEMP and the consequences of departure from the procedures therein;
- Awareness in relation to risk, consequence and methods of avoiding environmental risks as identified within the Environmental Register;
- The requirements of due diligence and duty of care;
- Requirements associated with community engagement and stakeholder consultation;
- Identification of environmental constraints and notable features related to the site; and
- Procedures associated with incident notification and reporting.

A record will be kept of a signed register on the project files of all attendees of the environmental induction.

Toolbox talks based on specific activities being carried out will be given to personnel by the nominated project representative. These will be based on specific activities being carried out and will include environmental issues, particularly in relation to proposed scheme, including the impact on water quality namely:

- Oil/Diesel spill prevention and safe refuelling practice;
- Storage of materials including oil/diesels and cement;
- Emergency response processes used to deal with spills;
- Minimising disturbance to wildlife; and
- Consideration of importance of containment of vehicle washing, containments of concrete /cement / grout washout etc, bank protection using hessian to prevent excessive scour and mobilisation of suspended solids, maintenance of vegetation corridors etc.

3.7 Operational Control

Site works will be checked against the CEMP requirements. Any mitigation measures that have been agreed with the statutory authorities, will be put into place prior to the undertaking of the works for which they are required, and all relevant staff will be briefed accordingly.

Method statements that are prepared for the works will be reviewed by the Client's Design Team including where necessary the relevant environmental specialist.

A Quality Management System (QMS) will also be put into operation for the project. Document control will be in accordance with this QMS and copies of all audits, consents, licences, etc will be maintained by the SEM and their team and kept on site for review at any time.

3.8 Checking And Corrective Action

Daily inspections of the site and the works will be undertaken to minimise the risk of environmental damage and to ensure compliance with the CEMP. Any environmental incidents are to be reported immediately to the Site Supervisor. The SEM will undertake daily inspections and complete an assessment of the project's environmental performance with regard to the relevant standards/legislation and the contents of the CEMP. Following these inspections, the SEM will produce a report detailing the findings which will be provided to the Client's Design Team and reviewed at the following project meeting.

3.9 Environmental Control Measures

Licensing requirements will be in place and specific procedures to manage the key environmental aspects of the project, as detailed in the environmental register will be developed by the contractor prior to work commencing. Environmental control and mitigation measures are covered in Section 4.

3.10 Complaints Procedure

The SEM or a nominated liaison officer will be available for members of the public or interested parties to make complaints or inquiries about the construction works. The CEMP will contain details of the complaints procedures, and a monitoring system will be implemented to ensure that any complaints are addressed, and comments are documented, so that a satisfactory outcome is achieved for all parties.

4 Construction Methodology

4.1 Site Office Set Up

Figure 4-1 below shows the proposed location for the contractor site compound, which has an approximate area of 6,500m² and is outlined in Magenta below with a portion, in green, to be allocated for material storage. This space shall accommodate site offices, material storage, plant parking, welfare services, canteen and other associated requirements for construction.



Figure 4-1: Proposed Site Office Location

The proposed location was chosen as it is close to the proposed entrance to the site and beginning of the line of works, and shall allow efficient movement of stored materials, tools, personnel etc. to these sites as indicated. If an alternative location is proposed by the contractor, then this case shall be made to the Civil Engineer for this project.

4.2 Stockpiling

Stockpiling shall be in accordance with the relevant TII Specification's for Road Works.

Topsoil, wherever practicable, shall be stripped and stockpiled linearly adjacent to the works area. All vegetation will be chipped or mulched and spread within the Right of Way as recommended in *The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads* (Included in Appendix B of this report, See Table 12). No disposal of vegetation will occur within any

watercourse along the route. No cut vegetation will be removed from site and wheel washes will be positioned such that any vehicle exiting site will not carry vegetation out of the works area.

Topsoil stockpiles must not exceed 2.0m in height, with subsoil and general fill stockpiles not exceeding 4.0m in height, unless otherwise directed by competent engineer. Stockpiles will be managed linearly along the right of way adjacent to the works with double silt trenching installed between the works area and the existing watercourse. A protective membrane shall cover the stockpiled materials to prevent erosion from wind and rain throughout the course of the works. This membrane cover shall only be removed in small areas during work and not all at once. Where stockpiles are to remain longer than four weeks, seeding or hydroseeding will be considered as an alternative to sheeting.

Stockpiling of loose materials shall be kept a minimum of 50m from watercourse, subject to approval by Engineer / Environmental Clerk of Works. Stockpiles and runoff areas following clearance shall have suitable barriers in place to prevent runoff of fines into drainage system and watercourses.

During construction, silt traps are to be provided in the vicinity of all runoff channels of the stream to prevent sediment from entering the watercourse.

Stockpiles must not be surcharged, or otherwise loaded and multiple handling shall be kept to a minimum. Stockpiles are to be sloped gently (1:2 or flatter) to reduce erosion and shall be shaped to promote surface water runoff as no ponding is permitted. Stockpiles are to be clearly signed and fenced as necessary. Sufficient dust suppression (e.g. water spraying) in windy/dry periods shall be undertaken.

4.3 Trenching through Existing Right of Way

All demolition, excavation and enabling works in marshlands are to be supervised by an appointed ecological clerk. During construction, silt traps are to be provided in the vicinity of all runoff channels of the stream to prevent sediment from entering the watercourse. Trenched double silt fencing is to be provided at the top of the watercourse embankment, immediately to the north of a 1m vegetation buffer, to protect the watercourse. An additional trenched silt fence will be provided at the northern edge of the existing right of way to protect the marshlands. Chipped vegetation from site clearance should be retained and spread over the surface of the right of way to prevent erosion from machinery movements.

The Foul Rising Main and Watermain will be installed in a single trench within the bounds of the existing Right of Way which connects the Arklow Business Park to Ferrybank Road in Arklow, pictured in Figure 2 1 below. The right of way has a width of at least 8m in which all construction activities will be managed. The trench will be installed parallel to the existing 50mm diameter watermain (which will remain in place through the marshlands) respecting relevant Uisce Éireann separation distances. The combined trench will have the advantage of reducing the construction stage impact for installation of the respective services.

Construction works will take place in stages of approximately 50m in length to aid in managing of stockpiles and efficiency of construction vehicle movements.



Figure 4-2: Right of Way through Arklow Marsh (Source: landdirect.ie)

Pipes will be installed within an imported granular bedding and blanket and backfilled with excavated material and topsoil respectively. Levels of the existing surface may be raised marginally to accommodate the additional imported bedding material thereby ensuring no excess removal of material from site.

The typical cross-sectional arrangement is shown in Figure 4-3 below. The contractor is to carry out the works in sections no longer than 50m and backfill as soon as reasonably practicable. The contractor will position their machinery to not undermine the trench. Where required, trenches will be shored to prevent side wall collapse during excavation, laying and backfilling.

To accommodate the construction of additional fibre ducts along the route, a staggered construction process is proposed. Trenching, laying of pipes and backfill of the Foul Rising Mains and Watermains will take place first. A second construction team will begin trenching for the fibre ducts behind the first team and complete their operation in 50m sections.

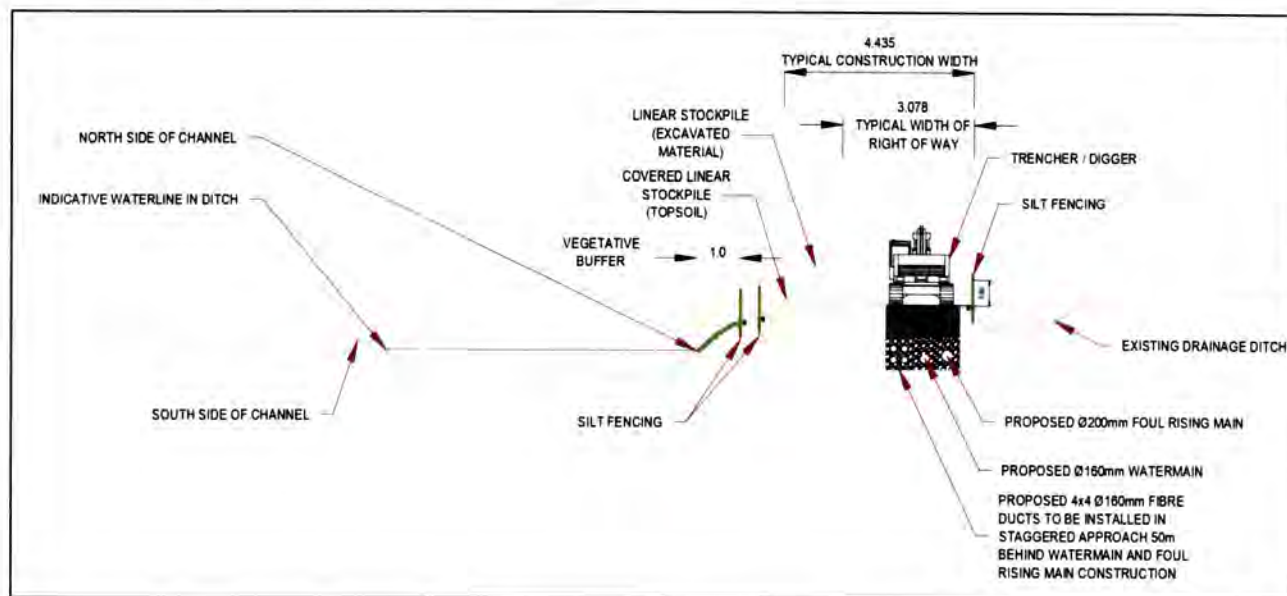


Figure 4-3: Typical Cross-Section for Trenching Activity.

4.4 Coordination with Arklow Flood Relief Scheme

The Arklow flood relief scheme has been granted with planning reg. ref. ABP-310368-21. A portion of this scheme seeks to build a flood defence berm on the eastern edge of the Arklow Marsh. The flood defence proposals would intersect the route of the Proposed Scheme near Ferrybank Road. The Flood relief scheme proposes to divert the existing stream

A meeting was held between representative's from Wicklow County Council and the Design Team for the Proposed Scheme. It was highlighted by flood relief designers that proposed sheet piling could sever the proposed pipelines. It was agreed that a coordinated design would be required to manage this interaction. Figure 4-4 is an extract of DBFL long section drawings (240021-X-05-Z00-DTM-DR-DBFL-CE-3301, 240021-X-05-Z00-DTM-DR-DBFL-CE-3302 & 240021-X-05-Z00-DTM-DR-DBFL-CE-3303) shows indicatively how the pipelines could be laid above the proposed sheet piling. The section is based on planning stage proposals for the Flood Relief scheme and is therefore subject to amendments as per the required coordination.

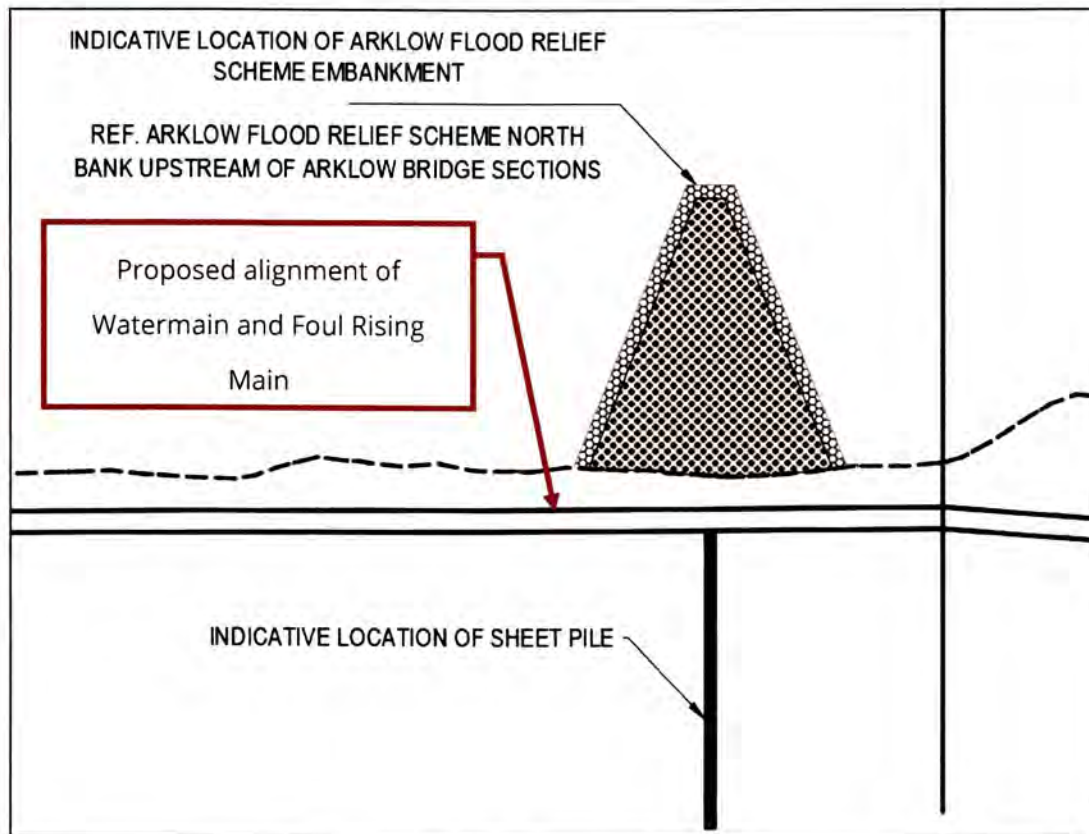


Figure 4-4: Indicative Section of Crossing with Flood Protection Berm

Plan layouts of the proposals can be found on DBFL drawing 240021-X-05-Z00-DTM-DR-DBFL-CE-1301.

5 Environmental Commitments & Mitigation Measures

Project Environmental mitigation will be detailed in the final CEMP in accordance with this OCEMP and shall adhere to the mitigation measures set out in the Environmental Impact Assessment Screening Report (EIA screening) submitted with this application. The final CEMP will provide a framework for compliance auditing and inspection to ensure that these construction practices and mitigation measures are adhered to.

5.1 Population and Human Health

In conjunction with mitigation measures set out in the EIA screening in relation to Population and Human Health (Chapter 4), the following mitigation measures will apply during the construction phase of the proposed scheme:

- A final CEMP and CTMP will be implemented as part of the construction stages to account for all works associated with the construction of the proposed development, including pre-construction site clearance works. These documents will address likely human health risks and ensure construction practices and measures are put in place to minimise any effects on road users. The overall aim is to minimise risk to population and human health during construction works;
- A final CTMP will be prepared by the appointed contractor prior to the commencement of any construction works as part of the Environmental Management Plan. This plan will ensure that temporary traffic works, and road safety measures will be put in place during the construction of the proposed scheme and in particular during the transition to the new junction layouts. The plan will ensure that the required diversions and traffic management measures are put in place to minimise the impact on local road users. The CTMP will also inform the Contractor of the relevant guidance documentation which will need to be followed during construction phase;
- A Construction Waste Management Plan (CWMP) will also be prepared by the contractor prior to the works. This will address all types of material to be disposed of, recycled and/or retained and reused on-site, and will ensure that the treatment waste from site is carried out in line with the relevant waste and environmental management legislation particularly in relation to vegetation and soil considering the abundance of rhododendron through the site to prevent spread;

- All construction areas, including the proposed temporary construction compounds, will be suitably fenced and screened, and access to the site will be limited to authorised personnel in the interest of public health and safety; and
- Safe working practices, in accordance with the relevant legislation, will be in place during the Construction Phase to protect the workers and visitors to the construction sites.

5.2 Land, Soils, Geology and Hydrogeology

The proposed development in some cases is traversing an area of the landholding which has been previously developed. As noted, the section of the works area is located within the existing right of way. The majority of the works area is traversing Arklow Marsh with the area within the site boundary being developed previously for the existing watermain which is to remain.

It is also noted that, environmental testing was carried out as part of the site investigation works and Ground Investigations Ireland (GII) issued an Environmental Assessment Report in September 2020. The report indicates potential environmental issues with the ground across the wider Avoca River Park area. A total of 30 No. samples were tested of which 5 No. were identified as hazardous due to elevated levels of several metals, hydrocarbons and arsenic. The remaining samples were classified as being not hazardous. A waste classification exercise has been carried out and Waste Acceptance Criteria (WAC) has been laid out to advise of the disposal options available at the time of writing of the report.

As such, the following mitigation measures relating to the protection of soils, geology and hydrogeology, will apply during the construction phase of the proposed development in conjunction with the mitigation measures set out in the EIA screening in relation to Land, Soils, Geology, Hydrogeology and Hydrology:

- The construction works will be carried out with the least feasible disturbance of soils, thereby minimising the amount of excavated soil. The inert excavated soil will be reused within the scheme wherever possible which may result in the backfilled trench being mounded.
- Where applicable, design measures will be put forward to minimise the excavation of soil that cannot be reused due to their mechanical properties or contamination.
- All waste produced as part of the proposed development will be dealt with in accordance with the relevant waste and environmental management legislation.

- The contractor will be required to prepare a CWMP which will address all types of material to be disposed of.
- Where soil stripping and excavation occurs, the resulting excavated soil fractions will be segregated into material that can be disposed of in the appropriate manner in accordance with Waste Management legislation.
- All unsuitable topsoil, inert soil, and all hazardous soil waste will be separately removed off site to an appropriately licenced facility by a licensed contractor
- Non-hazardous waste exceeding inert Waste Acceptance Criteria (WAC) will be sent to a licensed non-hazardous landfill for disposal/recovery.
- Construction personnel will be required to wear appropriate Personnel Protection Equipment (PPE) and carry out other protective measures outlined in this OCEMP when handling hazardous waste.
- All associated hazardous waste residuals will be stored within temporary bunded storage areas prior to removal by an appropriate EPA approved waste management contractor for off-site treatment/recycling/disposal.
- Imported material is not expected to be required, but nevertheless for the importation of topsoil and imported good-quality granular soils materials, the material will be sourced from nearby sites where possible, to reduce transport distances.
- To minimise any impact on the underlying subsurface strata from material spillages, fuels, oils, solvents and paints used during construction will be stored within specially constructed bunded areas or within bunded containers located at least 50m from watercourses.
- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place away from the Right of Way, particularly the existing open ditches and ponds, or open excavations which could result in contamination of standing ground water.
- Spill kits and hydrocarbon absorbent packs will be stored in the site compound and relevant personnel will be fully trained in the use of this equipment.
- Fuel for vehicles will be stored in a mobile double skinned tank.

- The Contractor must use biofuels in their fleet of construction vehicles and machinery. If this is not possible, the project engineer is to be notified as soon as possible.
- Silt and sediment barriers will be installed at the perimeter of earthworks construction areas to limit transport of erodible soils outside of the site.
- Where applicable, all excavated and/or stripped surfaces will be covered with a required depth of topsoil to encourage the growth of the vegetation after the construction stage, in order to eliminate erosion and negative visual impacts.

5.3 Hydrology

In conjunction with the mitigation measures set out in the EIA screening in relation to Land, Soils, Geology, Hydrogeology (Chapter 5), Hydrology (Chapter 6), the following mitigation measures relating to the protection of water quality will apply:

- The CEMP will detail procedures for the control, treatment and disposal of potentially contaminated surface water including monitoring systems and oversight required throughout the construction phase.
- The contractor will be required to implement industry best practice pollution prevention measures in accordance with guidance documents (for example CIRIA Guideline Document C532 Control of Water Pollution from Construction Sites), during both construction and operation in order to control the risk of pollution to surface waters. In addition, pollution of aquatic systems during the construction phase will be reduced by the implementation of the protection measures as outlined in Section 5.3 of this OCEMP.

The following mitigation measures shall apply in relation to both Hydrology and Biodiversity (Section 5.4 herein):

- Routine practice and procedures to prevent pollution of the environment will apply. These include:
 - During the construction stage, standard construction and site management practices will be implemented by the contractor.
 - Silt fences and grassed swales/catchment ditches will be constructed around the perimeter of work areas, compounds, storage yards and stockpile areas where practicable.

- Weather conditions and typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimising soil erosion.
- The construction compound(s) will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound(s) will be transported off site to a licensed facility.
- The construction compound(s)'s potable water supply shall be protected from contamination by any construction activities or materials.
- All material including oils, solvents and paints will be stored within temporary bunded areas or dedicated bunded containers.
- Refuelling will take place in a designated bunded area away from surface water gullies, drains and water bodies, and the Right of Way.
- All machinery and plant used will be regularly maintained and serviced and will comply with appropriate standards to ensure that leakage of diesel, oil and lubricants is prevented.
- Spill kits and hydrocarbon absorbent packs will be available throughout the site and drip trays will be used during refuelling.
- Drainage wardens/silt socks will be placed around drainage gullies connected to the live network.
- Ongoing monitoring of the water receptors throughout the works.
- Excavated material will be segregated into inert, non-hazardous and/or hazardous fractions.
- The excavation and handling of inert material will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment.

5.4 Biodiversity

As set out in the EIA Screening in relation to Biodiversity (Chapter 7) – and the associated Biodiversity Management Plan, the following mitigation measures relating to the protection of biodiversity will apply during the construction phase of the proposed scheme:

5.4.1 Habitats

In line with standard engineering design to comply with the Surface Water Regulations, the construction of the proposed development will be subject to specific construction management measures to avoid direct and indirect impacts on the water courses adjacent to the site. These measures are specific to the protection of water quality in the Sheepwalk Stream, Shelton Abbey Canal, Avoca River and Avoca Town Marsh and its associated drainage network and have no bearing on the European site located on the coast.

5.4.2 Bats

'Bat-sensitive lighting' for this development would have the following design principles:

- If lighting is required near site boundaries, the lighting poles will be installed on the boundary and will face inwards (i.e. towards the centre of the site). This will ensure that lighting is not directed outside the site boundaries.
- No lighting will be in operation outside of working times.
- All lights around the site boundary will be fitted with directional hoods and/or luminaires to direct the light downwards onto targeted areas and to prevent unnecessary light-spill.
- The intensity of lighting will be kept to the minimum level required for safety and security.
- Low-UV LEDs or low / high pressure sodium lamps will be the preferred bulb type, as they have least adverse effect on bats. Mercury, metal halide or high-UV LED bulbs will not be used.

These measures will apply both to temporary lighting during the construction of the proposed development, and to permanent lighting during the operation of the development.

5.4.3 Birds

Potential impacts on birds will be avoided by cutting of vegetation outside the bird nesting season March 1 to August 31.

5.4.4 Mammals

Open excavations will be covered before the end of a working day or have exit ramps placed to allow mammals/amphibians to escape if trapped.

5.5 Air Quality, Climate and Resources

In conjunction with the mitigation measures set out in the EIA screening in relation to both Air Quality (Chapter 8) and Climate (Chapter 9) – the contractor is required to implement the following measures during construction:

- The coordination, implementation and ongoing monitoring of dust produced by site activities. The key aspects of controlling dust are listed below:
 - The development of a documented system for managing site practices with regard to dust control;
 - Spraying of exposed earthwork activities and site haul roads during dry weather;
 - Provision of wheel wash at exit points;
 - Covering of stockpiles;
 - Control of vehicle speeds, speed restrictions and vehicle access; and
 - Sweeping of hard surfaced roads.
- Erection of a 2.4m high hoarding will be provided around site camp where allowable to minimise the dispersion of dust from working areas.
- Stockpiles will be located as far away as possible from sensitive receivers and covered/dampened during dry weather;
- Generators will be located as far away as practicable from sensitive receivers;
- To prevent the harmful emissions from vehicle exhausts, on-site and delivery vehicles will be prevented from leaving engines idling, even over short periods.
- Where Asbestos Contaminated Material (ACM) is uncovered on site during construction, the ACM will be double-bagged and removed from site by a competent contractor and disposed of in accordance with the relevant procedures and legislation.

At all times, the measures used to control dust will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

To minimise effects to the climate through harmful emissions, the following controls shall be put in place:

- All vehicles will be required to switch off engines when stationary (no idling);
- All vehicles will be serviced and maintained to ensure emissions are minimised;
- Where practicable, materials will be reused within the extent of the Proposed Development; and
- Where practicable, materials will be sourced locally to reduce the embodied emissions associated with transport.
- The Contractor's fleet of vehicles and machinery must use biofuels.

To mitigate the effects of excess water consumption, construction is to be limited to the summer months as this will reduce the need for dewatering.

5.6 Noise and Vibration

As set out in the EIA screening in relation to Noise and Vibration (Chapter 10) – and the associated Noise and Vibration Impact Assessment Report, the follow mitigation measures are required:

- 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 levels of noise and/or vibration during critical periods and at sensitive locations; and
- All site access roads will be kept even so as to mitigate the potential for vibration from lorries.

The final CEMP shall detail appropriate mitigation measures to manage any risk of noise impacting the community.

The contract documents will clearly specify that the Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures.

These measures will typically include:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.

- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
- Vehicles required to wait on site will switch off engines.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screens.
- Location of plant shall consider the likely noise propagation to nearby sensitive receptors.
- During the course of the construction programme, supervision of the works will include ensuring compliance with the noise limits prescribed using methods outlined in BS 5228-1.
- For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant will be switched off when not in use and not left idling.
- For percussive tools such as pneumatic concrete breakers and tools, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensuring any leaks in the air lines are sealed. Erection of localised screens around breaker or drill bit when in operation in close proximity to noise sensitive locations (NSLs) boundaries are other suitable forms of noise reduction.
- Where compressors, generators and pumps are located in areas in close proximity to NSLs and have potential to exceed noise criterion, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.

- Resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can be controlled by fixing resilient materials in between the surfaces in contact.
- Demountable enclosures can also be used to screen operatives using hand tools and may be moved around site as necessary.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

Selection of Quiet Plant:

- The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item of plant will be selected wherever possible.
- Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative.
- For static plant such as compressors and generators used at work areas such as construction compounds etc., the units will be supplied with manufacturers' proprietary acoustic enclosures where possible.
- The contractor will evaluate the choice of excavation, breaking or other working method, taking into account various ground conditions and site constraints. Where possible, where alternative lower noise generating equipment are available that will provide equivalent that would economically achieve, in the given ground conditions, equivalent structural / excavation / breaking results, these will be selected to minimise potential disturbance.

Construction vibration management measures for the scheme shall include:

- A vibration monitoring programme should be adopted at the nearest properties during the most critical phases of construction e.g., rock breaking etc. to assure the property owners that the prescribed limits are not exceeded.

5.7 Landscape and Visual

As set out in the EIA screening chapter relating to Landscape and Visual Impact (Chapter 11), the following mitigation measures will apply during the construction phase of the proposed scheme:

- Where practicable, site hoarding will be erected to restrict views of the site; and
- Hours of construction activity will be restricted in accordance guidance from the client.

5.8 Cultural Heritage and Archaeology

As set out in the EIA screening in relation to Cultural Heritage and Archaeology (Chapter 12), no features of archaeological significance were identified in this study, and therefore no specific mitigation measures are required for archaeological and cultural heritage during the construction phase of the Proposed Development.

5.9 Traffic and Transportation

The mitigation measures relating to traffic and transportation which will apply during the construction phase of the proposed scheme are set out in the EIA screening in relation to Traffic & Transportation (Chapter 13) submitted with this application – with further requirements also described within Section 5 herein.

In general, the Contractor will implement health and safety measures in relation to the safety of the workforce and the public. Additionally, measures will be applied to minimise traffic delays, disruption and maintain access to residences and businesses along the public road approaching the Avoca River Business Park and locally into Arklow.

In the event that other infrastructure projects are taking place concurrently within the vicinity of the Proposed Scheme, traffic management and phasing of works and transport/haulage routes will be co-ordinated by all stakeholders through the various construction stages. The appointed contractors Construction Traffic Management Plan (CTMP) will be required prior to construction.

5.10 Material Assets and Waste

As set out in the EIA screening in relation to Material Assets and Waste Management (Chapter 14), the following mitigation measures will be implemented during the construction phase of the proposed development:

- Welfare facilities (canteens, toilets etc.) will be available within the construction compound on site.
- Portable sanitary facilities will be provided with waste collected and disposed of appropriately until the on-site wastewater treatment plant is in situ.
- No silty or contaminated water from the construction works will be discharged to any open river or stormwater network. Where dewatering is required during the construction

phase, dirty water will be fully and appropriately attenuated before being appropriately discharged.

- Where water is required for welfare facilities, dust suppression and general construction activities, this will be provided by either tanker or temporary connection to the public main by agreement between the Main Contractor and Uisce Éireann.
- Electrical connections will be made by suitably qualified personnel following consultation with the relevant authorities and will be cognisant of subsequent construction works. High voltage connections will be established for heavy duty equipment and site facilities, as required. All electrical works, including connection to the ESB network will be carried out by a suitably qualified contractor.
- A project specific Resource Waste Management Plan (RWMP) has been prepared as part of the EIA screening in line with the requirements of the EPA, *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects* (2021). The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.
- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP in agreement with Wicklow County Council (WCC), or submit an addendum to the RWMP to WCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases.
- Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.
- Materials must not be stored within the right-of-way, as defined in Section 1.2 Subject Site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen to 'design out waste';
- No vegetation or soil will be removed from site to prevent spreading of rhododendron.
- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
 - Concrete rubble (including ceramics, tiles and bricks);
 - Plasterboard;
 - Metals;
 - Glass; and
 - Timber.
- Left over materials (e.g., timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible;
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Nearby sites requiring clean fill / capping material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on

another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 of the EC (Waste Directive) Regulations (2011-2020). EPA approval will be obtained prior to moving material as a by-product.

These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, and the EMR Waste Management Plan 2015 – 2021. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

5.11 Emergencies

- The contractor shall prepare an Emergency Response Plan detailing the procedures to be undertaken in the event of a spill of chemical, fuel or other hazardous wastes, a fire, or non-compliance incident with any permit of license issues;
- The Emergency Response requirements will be displayed at several locations throughout site and at sensitive locations.
- The Contractor shall ensure that relevant staff are trained in the use of spill kits.
- The Contractor will prepare a site plan showing the location of all surface water drainage lines and proposed discharge points. This will also include the location of all existing and proposed surface water protection measures, including monitoring points, sediment traps, settling basins, interceptors, etc.

6 Traffic Management

6.1 General

In order to construct the proposed development, it is important that construction traffic and traffic on the existing road network are managed to maximise construction efficiency and safety while minimising risk, inconvenience and nuisance to the public. This will be achieved through careful management, programming and co-ordination of all works and traffic accessing the site.

The appointed construction contractor will be required to appoint a Construction Traffic Manager. The Construction Traffic Manager will be required to coordinate and schedule all deliveries to the site, ensure that roadways are kept clear of mud and debris, advise haulage contractors on routes and ensure adherence with good traffic management principles.

6.2 Access and Egress

Refer to 2.4 *Construction Site Access* for details.

6.3 Proposed HGV Routes

The following provides details of the likely routes of HGV movements travelling to and from the site in association with the proposed development. With the M11 in close proximity to the site, equipment and materials will be transported to site via the public road network by standard road vehicles. Works requiring multiple vehicle deliveries, such as concrete pours, will be planned so as to ensure there will be no queuing on the public roadways on approach to the Subject Site. Deliveries will, where appropriate, be limited to outside of peak traffic hours.

Figure 6-1 below shows the anticipated route for the site deliveries to take as to avoid having construction vehicles commuting through the town by coming from the South. The construction vehicles approaching either from the north or the south will exit the M11 at Junction 20 and cross southwest through the roundabout onto R772, travelling for 1.2km until taking a right turn onto Beech Road, after 170 m they will turn left onto the access road to the industrial estate and then travelling for 1.8km to reach the main site entrance.



Figure 6-1: HGV Access Route (Source: Google ©)

The traffic routes used seek to minimise excess mileage whilst ensuring that the chosen route is suitable for the types of construction related vehicles likely to be used and represent reasonably direct routes.

The above routing strategy is considered appropriate in terms of seeking to minimise disruption and inconvenience on the road network, and more specifically Arklow town and main street, in the area during construction of the site.

It should be noted that there may be a number of the components associated with the proposed infrastructure which may be very large both in terms of their weight and their dimensions. These larger items, if required, will likely be delivered by ship to Dublin Port before being transported to the site by a specialist haulage contractor using a low loader. Appropriate abnormal load permits will be applied for, and escort vehicles provided. Details of routing and timings will need to be discussed and agreed with the relevant authorities however, at this stage, it is considered that routing will primarily be via the M50 tunnel (Port Tunnel) north to Junction 3 before heading west and then south on the M50 to Junction 17. From here the M11 will be followed as per the route set out in Figure 6-1 towards the site.

It is noted that the Port Tunnel has a height limit of 4.65m and therefore may not be suitable for all of the abnormal loads envisaged. An alternative route to access the M50 north via the N1 (bypassing the tunnel) would therefore be to depart the Port, follow the R131 East Wall Road to access the R834 Alfie Byrne Road. The R807 Clontarf Road then heads west under the railway bridge which has a height limit of 5.1m. The R107 Malahide Road then leads north with the R103 linking west to the N1 and onwards to the M50. While there is a potential route continuing along the R131 westwards under the railway bridge which has a height limit of 5.26m, turning onto the R132 / N1 at Drumcondra and continuing north, this route is currently restricted to cars only.

As highlighted previously, routing details will need to be discussed further and agreed with the relevant authorities prior to transporting the larger components of the proposed development. These discussions will be led by the specialist haulage contractor at the appropriate time.

6.4 Traffic Management Principles

To minimise the impact of HGV movements on the existing road network the following construction traffic management principles will be observed:

- The main access routes to and from the site will be discussed with Wicklow County Council with all drivers accessing the site being advised of these routes and instructed accordingly.
- To minimise the impact that the construction works will have on local residents and the surrounding environment, the Contractor will be required to appoint a Construction Traffic Manager.
- The Construction Traffic Manager will be responsible for ensuring all delivery vehicles to and from the site are managed efficiently and reduce nuisance or unnecessary disruption to the operation of the existing road network.
- The Construction Traffic Manager role will also include advising haulage contractors and their drivers of the most appropriate route to follow when approaching the site in particular providing advice on local width and weight restrictions.
- The Construction Traffic Manager will ensure that the traffic management principles and the mitigation measures are implemented, and that the public road is kept clear of mud and debris through ensuring that loads are suitably sheeted and secured and undertaking regular street cleaning as necessary.
- To assist the Construction Traffic Manager, a Banksman will be stationed at the main site access gates to directly control HGV movements as they arrive and depart the site. The

role will include ensuring loads are appropriately sheeted, ensuring vehicles have passed through the wheel wash and mud is not deposited on the public road, ensuring drivers follow any informal vehicle routings within the site, addressing any immediate issues raised by the public and supervising turning movements in and out of the site.

- In the event that other infrastructure projects are taking place concurrently within the vicinity of the Proposed Scheme, traffic management and phasing of works and transport/haulage routes will be co-ordinated by all stakeholders through the various construction stages. The appointed contractors Construction Traffic Management Plan (CTMP) will be required to be agreed and approved by Wicklow County Council prior to construction.
- The Final Construction Traffic Management Plan will be incorporated as part of the overall Health and Safety policy for the site.

6.5 Road Safety

The Contractor will organise the construction site so that vehicles and pedestrians are kept separate. Gatemen will ensure that the interface between deliveries and road traffic will be controlled at delivery gates.

All vehicles entering site will be restricted to suitable speed limits and will be directed to the relevant area by the gateman.

Construction site vehicle incidents can and should be prevented by the effective management of transport operations throughout the construction process. The gateman will assist in the entry and leaving from the site.

Key issues in dealing with temporary traffic management on site are:

- Keeping pedestrians and vehicles apart.
- Minimising vehicle movements.
- People on site.
- Turning vehicles.
- Visibility.
- Signs and instructions.

Accidents occur from site establishment to finishing works and managers, workers, visitors to sites and members of the public can all be at risk. Inadequate planning and control are the root causes of many construction vehicle accidents.

Most of construction transport accidents result from the inadequate separation of pedestrians and vehicles. This will be avoided by careful planning, and by controlling vehicle operations during construction work.

The following actions will help be taken to keep pedestrians and vehicles apart:

- Entrances and exits - The construction company will provide separate entry and exit gateways for pedestrians and vehicles with a gateman in attendance to interface with the traffic and public to facilitate safe access and egress of vehicles.
- Walkways - firm, level, well-drained pedestrian walkways will be provided.
- Crossings - where walkways cross roadways, The Contractor will provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
- Visibility - The contractor will make sure drivers driving out onto public roads can see both ways along the footway before they proceed;
- Obstructions - The contractor will not block walkways so that pedestrians must step onto the roadway;
- The contractor will take steps to make sure that all workers are fit and competent to operate the vehicles, machines and attachments they use on site.

People who direct vehicle movements will be trained and authorised to do so. Accidents can occur when untrained or inexperienced workers drive construction vehicles without authority. Access to vehicles will be managed and personnel alerted to the risk.

The Contractor will provide:

- Mirrors and reversing cameras will be provided on site vehicles to aid drivers in seeing movement all-round the vehicle;
- Reversing alarms will be provided on site vehicles to alert pedestrians and site personnel to the hazard of moving vehicles;
- Properly trained gatemen and spotters will be appointed to control vehicle manoeuvres on site and at access/exit gates.

- The site, particularly access routes, will be lit to provide adequate visibility to alert drivers and pedestrians of potential hazards. Additional lighting may be required after sunset or during inclement weather;
- All personnel on site are required to wear high visibility clothing.
- Warning signs and instructions shall be provided where required around site to inform vehicle operators and other personnel of potential hazards. Standard road signs are to be used where appropriate.
- The Contractor will make sure that all drivers and pedestrians know and understand the routes and traffic rules on site.

The Contractor will provide induction training for drivers, workers and visitors and send relevant instructions out to visitors before attending site. The Contractor will make sure that all the drivers and supply chain personnel are competent and have relevant training and certification appropriate for their job.

6.6 Signage

Traffic Management signage will be erected by the contractor in accordance with the Final CTMP, and as agreed with Wicklow County Council.

Signage will include construction site entrance warning signs and HGV routing signage. All signage shall be provided in accordance with the Department of Transport's Traffic Signs Manual, Chapter 8 – Temporary Traffic Measures and Signs for Roadworks.

6.7 Speed Limits

Within the site boundary, all traffic will be limited to 15 km/h with this being made clear through appropriate signage at the site entrance. In community areas, HGV drivers will be advised not to exceed 50 km/h and/or the existing speed limit. Cars, vans and non-construction related traffic will observe the speed limit of the relevant road.

The above speed restriction will be communicated to HGV drivers by the Construction Traffic Manager. It is not proposed to erect temporary signage relating to speed restrictions.

6.8 Wheel Wash

Use of a formal wheel wash will be a requirement for all vehicles leaving the site. The wheel wash will assist in reducing the displacement of materials onto the local road network.

The wheel wash facility will be located adjacent to the site reception office which will be manned full time to register all vehicles entering and departing the site and to monitor use of the wheel wash. This will ensure that vehicle wheels are as clean as possible before returning to the public roads.

6.9 Road Cleaning

The Construction Traffic Manager will ensure that the traffic management principles and the mitigation measures are implemented and that the public roads are kept clear of mud and debris. This will involve ensuring that loads are suitably sheeted and secured and undertaking regular street cleaning as necessary.

6.10 Road Closure / Abnormal Loads

The requirements for abnormal loads and their associated routing have been identified and discussed previously. These will be subject to further discussions between the specialist haulage contractor and the relevant authorities in due course.

At this time, it is not envisaged that any road closures will be required during the construction process.

6.11 Additional Mitigation Measures

In order to reduce the impact of construction works on the surrounding area, the following measures will be introduced and retained through the course of the construction works:

- Watering of on-site access roads – During dry weather, all on-site access roads will be watered at suitable intervals to reduce the likelihood of dust clouds forming and escaping from the site. This will reduce the overall impact of the works on any neighbouring uses; and,
- No vehicles idling – Where possible, on-site vehicles will be encouraged to turn off their engines when parked, waiting to unload or when not in use. This will reduce the noise impact on the surrounding area and will result in lower vehicle emissions.

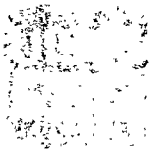
7 Summary

This OCEMP has set out the procedures, standards, work practices and management responsibilities to address potential environmental effects that may arise from construction of the proposed scheme.

This OCEMP has also addressed the environmental impacts and Health and Safety concerns associated with construction traffic during the scheme, and has set out procedures, standards and work practices to address these issues.

This OCEMP is indicative only, however, it is expected that the adopted CEMP to be prepared by the Contractor will incorporate the items outlined above and ensure that all requirements identified as part of the Section 5 Request will be included in the adopted CEMP.

Appendix A : Uisce Éireann Confirmations of Feasibility



CONFIRMATION OF FEASIBILITY

Declan Haugh
Ormond House
Upper Ormand Quay
Dublin
D07 W704
Ireland

2 November 2022

**Our Ref: CDS22006647 Pre-Connection Enquiry
Avoca River Business Park, Arklow, Wicklow**

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Irish Water has reviewed the pre-connection enquiry in relation to a Water connection for a Multi/Mixed Use Development of 3 unit(s) at Avoca River Business Park, Arklow, Wicklow, (the **Development**).

Based upon the details provided we can advise the following regarding connecting to the networks;

- Water Connection**
- Feasible Subject to upgrades
 - In order to accommodate the proposed water connection at the development, significant upgrade works are required to the water network. Approximately 2.85km of existing network will require upsizing (see watermain marked orange in Section B, Fig.1). These extension works are not currently on an Irish Water investment plan therefore, the applicant will be required to fund these local network upgrades. The fee will be calculated at Connection Application stage. The applicant shall note that these upsizing works will require traversing the M7 motorway and require works on third party lands which will require all statutory, ecological and environmental consents to be granted prior to any works taking place.
 - The applicant shall also advise of the maximum daily and maximum yearly water required for Process/Cooling needs at the development at application stage. Adequate storage will be required at the development to provide for the annual needs.

- It is recommended that the water demand for the development be reviewed with Irish Water at application stage to ensure accuracy and ensure required upgrades are proportional to the actual development demands.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Irish Water.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

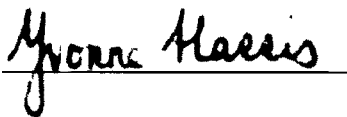
Where can you find more information?

- **Section A** - What is important to know?
- **Section B** - Details of Irish Water's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Irish Water's network(s). This is not a connection offer and capacity in Irish Water's network(s) may only be secured by entering into a connection agreement with Irish Water.

For any further information, visit www.water.ie/connections, email newconnections@water.ie or contact 1800 278 278.

Yours sincerely,



Yvonne Harris
Head of Customer Operations

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Irish Water's network(s). • Before the Development can connect to Irish Water's network(s), you must submit a connection application <u>and be granted and sign</u> a connection agreement with Irish Water.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Irish Water connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Irish Water's network(s), including works in the public space, must be carried out by Irish Water*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • What to do? - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • What to do? - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Irish Water's network(s)?	• Requests for maps showing Irish Water's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water pipes and related infrastructure to be installed in this Development shall comply with <i>the Irish Water Connections and Developer Services Standard Details and Codes of Practice</i>, available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Irish Water’s Network(s)

The map included below outlines the current Irish Water infrastructure adjacent the Development: To access Irish Water Maps email datarequests@water.ie

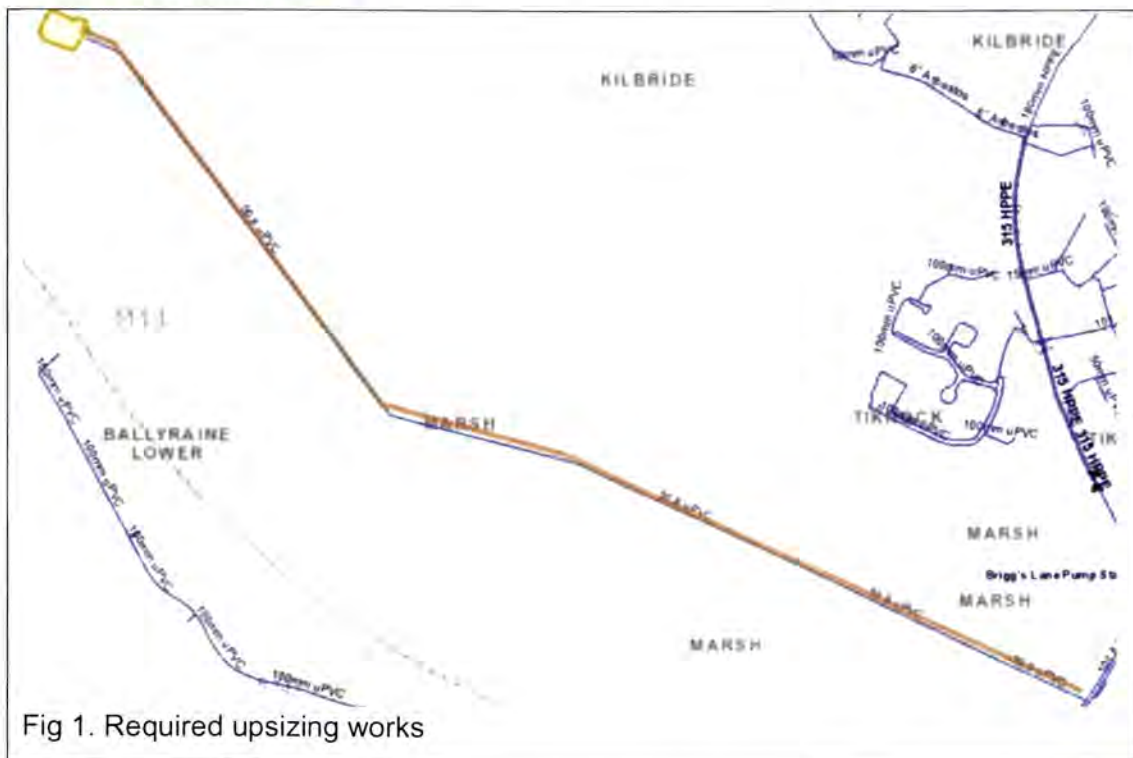


Fig 1. Required upsizing works

Reproduced from the Ordnance Survey of Ireland by Permission of the Government. License No. 3-3-34

Note: The information provided on the included maps as to the position of Irish Water's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Irish Water.

Whilst every care has been taken in respect of the information on Irish Water's network(s), Irish Water assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Irish Water's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Irish Water's underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

CONFIRMATION OF FEASIBILITY

Vincenzo Koopman
Ormond House
Ormond Quay Upper
Dublin 7
Dublin
D07W704

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

11 October 2024

**Our Ref: CDS24007212 Pre-Connection Enquiry
Avoca River Park, Industrial Estate, Arklow, Wicklow**

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Wastewater connection for a Business Connection of 5 unit(s) at Avoca River Park, Industrial Estate, Arklow, Wicklow, (the **Development**).

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Wastewater Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- Feasible subject to the completion of the WwTP in Arklow Q1 2025. Exact connection point to be determined at connection stage.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

Stiúrthóirí / Directors: Tony Keohane (Cathaoirleach / Chairman), Niall Gleeson (POF / CEO), Christopher Banks, Fred Barry, Gerard Britchfield, Liz Joyce, Patricia King, Eileen Maher, Cathy Mannion, Michael Walsh.

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a design activity company, limited by shares. Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

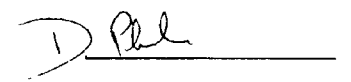
Where can you find more information?

- **Section A** - What is important to know?

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit www.water.ie/connections, email newconnections@water.ie or contact 1800 278 278.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'D Phelan', is written over a horizontal line.

Dermot Phelan
Connections Delivery Manager

Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application <u>and be granted and sign</u> a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works
Fire flow Requirements	• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine. • What to do? - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • What to do? - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Wastewater pipes and related infrastructure to be installed in this Development shall comply with <i>the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice</i>, available at www.water.ie/connections
Trade Effluent Licensing	• Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Appendix B : The Management of Noxious Weeds and Non- Native Invasive Species on National Roads

Guidelines on

The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads

Revision 1, December 2010

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Health & Safety Requirements

Compliance with the Plant Protection Product Regulations

Acknowledgements

Disclaimer

Health and Safety Requirements

The focus of this document is to provide guidance on how noxious weeds and non-native invasive species are treated on national road schemes. While the document alludes to various precautionary measures that should be addressed when undertaken various activities, e.g., using chemical sprays, it is important that the requirements of the following documentation is complied with:

- 1) Safety Health and Welfare at Work Act, 2005
- 2) Safety Health and Welfare at Work (Construction) Regulations, 2006
- 3) Chapter 8 of the Traffic Signs Manual
- 4) Guidance for the Control and Management of Traffic at Road Works
- 5) Safety Health and Welfare at Work (General Application) Regulations, 2007
- 6) Safety Health and Welfare at Work (Chemical Agents) Regulations, 2001 and
- 7) European Communities (Authorisation, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003

In addition, it is also recommended that the Health and Safety Authority's 2007 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations is consulted.

Compliance with the Plant Protection Products Regulations

Regulation 4(1) of the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003, (hereinafter referred to as the Plant Protection Products Regulations) (S.I. No. 83 of 2003) provides that 'A person shall not [...] use the [plant protection product] or cause or permit another person to use the product unless these Regulations are complied with ' Regulation 6 indicates, inter alia, that a person shall only use a plant protection product:

1. in compliance with conditions established under the authorisation
2. in compliance with conditions stated on the label
3. within the field of application of the plant protection product
4. in accordance with the principles of 'good plant protection practice' and
5. where possible, in accordance with the principles of integrated control. #

[Notes:

* 'Good plant protection practice' is defined under Regulation 2(1) of the Plant Protection Regulations to mean the responsible use of plant protection products in accordance with the guidelines issues from time to time by the Minister

#Paragraph 10.1 of Appendix 13 of the Plant Product Protection Regulations defines 'integrated control' as follows

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The term integrated control is defined as the rational application of a combination of biological, biotechnological, chemical, cultural or plant-breeding measures whereby the use of chemical plant protection products is limited to the strict minimum necessary to maintain the pest population at levels below those causing economically unacceptable damage or loss.]

Regulation 34 (1) of the Regulations provides:

A person who fails to comply with any Regulation under these Regulations shall be guilty of an offence and shall be liable on summary conviction to a fine not exceeding €3,000, or to imprisonment for a term not exceeding 6 months, or to both.

It is, therefore, essential that the Plant Protection Products Regulations are complied with at all times.

Further guidance in relation to the appropriate use of plant protection products is available from.

Pesticides Control Service,
Department of Agriculture, Food and Fisheries
Laboratories,
Backweston Campus,
Young's Cross,
Celbridge
Email: pesticides@agri.gov.ie
Telephone: +353-1-6157552

Further information is also available from the Pesticides Control Service website

It should be noted that some plant protection products used in other countries to treat noxious

weeds and non-native invasive species are not authorised for use in Ireland. For example, plant protection products containing Picloram are often used, due to their effectiveness, in the treatment of Japanese knotweed. However, currently (December, 2010), no plant protection products containing Picloram are approved in Ireland. **Equally, many of the common methods of application used to treat non-native invasive species are not covered by the Irish conditions of authorisation or conditions of use reflected on approved labels.** Indeed, some of the methods outlined in this document, particularly in relation to the control of non-native invasive species, do not comply with the Irish conditions of authorisation or conditions of use reflected on approved labels. Where it is hoped to use such methods or, indeed, unauthorised herbicides, the **Pesticides Control Service should be contacted.** It may be that the use of such methods and herbicides can be approved under derogation procedures provided in the Plant Protection Regulations. For example, Regulation 16 allows for an '[e]xtension of the field of application of a plant protection product.' Regulations 24 and 25 provide for trial authorisations and permitting respectively. Also, the Pesticides Control Service have a facility to approve 'off label' use of plant protection products. Again, it must be stressed that the herbicides used and the method of use must always be in compliance with the law.

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Disclaimer

While every care has been taken to ensure that the content is accurate, the National Roads Authority and any contributing third party shall have no legal responsibility for the content or the accuracy of the information so provided or for any loss or damage caused arising directly or indirectly in connection with reliance on the use of such information

1 Introduction

This document provides guidance on the management of noxious weeds and non-native invasive plant species on national road schemes.

Due to the legislative requirements to control the spread of noxious weeds and non-native invasive plant species, it is important that any activities associated with the planning, construction and operation of national road schemes comply with the requirements of the Noxious Weeds Act, 1936, and the Wildlife (Amendment) Act, 2010.

There is increasing awareness and concern over the threat non-native invasive plant species pose to Ireland's indigenous biodiversity and national legislation governing the control of these plant species is currently being revised. Ireland also has international obligations under a number of conventions and within the EU Habitats Directive to address non-native invasive species issues.

As non-native invasive species have the potential to significantly impact national biodiversity, obstruct signage and sightlines at junctions and damage road infrastructure, the National Roads Authority (NRA) is providing guidance for the treatment of the predominant species likely to be encountered during the planning, construction and maintenance of national road schemes.

In the absence of current national legislation addressing the issues associated with non-native invasive species, it is important to consult with the National Parks and Wildlife Service in advance of undertaking any treatments for such plant species. Numerous non-native invasive plants have established in Ireland over the last century, many arising as escapees from cultivation such as rhododendron, montbretia and giant rhubarb. Many of the plants we classify as invasive are those that have evolved to grow in nutrient-poor or highly dynamic environments and so have the capacity to survive and indeed thrive in disturbed environments.

Many are also problematic due to their capacity to reproduce asexually by fragmentation of a rootstock (e.g. Japanese knotweed) or through massive seed production (e.g. giant rhubarb). The vigorous growth typically displayed by non-native invasive species out-competes native vegetation and results in mono-typic stands. In conjunction with the loss of floral diversity, faunal diversity is also significantly reduced both at the macro and micro level.

Chapter 2 of this document outlines the legislative background to noxious weeds and non-native invasive species while Chapter 3 addresses procedures for assessing the presence/risks of noxious weeds and non-native invasive species at the environmental impact assessment stage and the pre-construction phase of national road schemes. Chapter 4 provides guidance on the control and management of noxious weeds and non-native invasive species during site clearance and the construction of national road schemes while Chapter 5 provides control and management guidance during the operation of such schemes. Finally, the identification, ecology and physical and chemical control measures for noxious weeds and non-native invasive species are outlined in Chapters 6 and 7, respectively.



2

An overview of legislation and background to the issues

The introduction and spread of noxious weeds and non-native invasive species is a growing problem in Ireland.

2.1. Road Schemes, Noxious Weeds and Non-Native Invasive Species

The introduction and spread of noxious weeds and non-native invasive species is a growing problem in Ireland. Many activities, including the construction of road projects, can or have the potential to contribute to the spread of such plants. It is vital that practical measures to control the presence and spread of noxious weeds and invasive plants are incorporated into the planning, construction practices and maintenance regimes of national road schemes.

Road schemes may act as a pathway for the spread of noxious weeds and non-native invasive species, enabling their spread along the road corridor and therefore, impacting on the landscape and native biodiversity. Machinery, construction equipment and soil/gravel/stones used in the construction of a new road scheme can introduce new species and disperse species to new areas. The disturbance of vegetation during road maintenance can disperse seeds and plant fragments (by wind and on vehicles). Strimming of vegetation during road maintenance activities presents the greatest potential for spreading plant material. Of particular importance are works taking place near watercourses.

Many of the non-native invasive species of most concern in Ireland are freshwater plants (see www.invasivespeciesireland.com for further details) and plant fragments can be spread downstream following disturbance or be accidentally transported along with construction materials.

Early identification and management of noxious weeds and non-native invasive species can significantly reduce the resources needed to minimise the spread of these species. The aim of these guidelines is to provide the information needed for personnel involved in road schemes to effectively manage the problem while ensuring their own activities do not contribute to the further establishment of these species.

2.1.1. Noxious Weeds

Noxious weeds, most of which are native plants of disturbed ground, impact adversely on agriculture. They may compete for space with tillage or forage crops, harbour pests or diseases, or be injurious to livestock or human beings. Some species produce seed which are wind-distributed and can remain viable in the soil/gravel/stones for many years, while several spread by vegetative means and can re-sprout from fragments after cultivation or attempted clearance.

It is important to note that, as native species, noxious weeds are part of our natural biodiversity and are utilized by a range of invertebrate and bird species. The natural habitat of these plants is disturbed ground making them prime opportunist colonizers of over-grazed or cultivated land. The management objective for these native species should be control and not complete eradication in order to prevent them from dominating road verges and thus becoming major reservoirs from which surrounding land may become infested. The loss of such species will also result in the loss of species that depend on them as a food source. Creeping thistle (*Cirsium arvense*) for example, is a food plant for over twenty species of

2

An overview of legislation and background to the issues

butterfly and moth, with four species of moth depending on the genus *Cirsium* as their sole food plant. Thistle seed is also an important food resource for goldfinch. Ragwort (*Senecio jacobea*) has four species of moth dependant on it including the day-flying cinnabar moth. There is anecdotal evidence of a reduction in the population of cinnabar moths in the United Kingdom where aggressive control methods have all but eliminated ragwort from roadside landscapes.

2.1.2. Non-Native Invasive Species

Non-native plant species are defined as those species that have been introduced, either intentionally or unintentionally, outside their natural range. Many of these species live in harmony with our native species causing no adverse impacts. A few non-native species though, such as those plant species that are detailed in this document, become what is known as 'invasive' as they thrive in our habitats and out-compete our native flora and fauna. They not only have negative environmental impacts but they can also adversely impact on recreational activities and have serious associated economic costs. Non-native invasive



Figure 1: Japanese Knotweed breaking through a paved surface (Photo: Mike Dodd)

plants are so-called as they typically display one of the following characteristics or features:

- 1) Prolific reproduction through seed dispersal and/or re-growth from plant fragments.
- 2) Rapid growth patterns, and
- 3) Resistance to standard weed control methods

They have in common the ability to spread aggressively by seed or vegetative means, particularly in open or disturbed sites. They can produce large colonies which threaten biodiversity by over-whelming native plant communities. Typically, they do not provide a habitat for native fauna and so these may be lost too. When a non-native species displays invasive qualities and is not managed it can potentially: (Dolan 2004).

- 1) Out-compete native vegetation affecting plant community structure and habitat for wildlife.
- 2) Cause damage to infrastructure including road carriageways, footpaths, walls and foundations (see Figure 1).
- 3) Result in soil erosion and collapse of river banks through exposure of the soil during winter when plants dieback.
- 4) Have an adverse effect on landscape quality through a loss of naturalness, aesthetics and regional identity.
- 5) Impact on road safety by blocking sightlines at junctions and road signage in general

Box 1 outlines examples of the impacts of non-native invasive species on native habitats and species.

2

An overview of legislation and background to the issues

“ Box 1

Examples of the Impacts of Invasive Species on Native Habitats and Species

Examples:

The impact of rhododendron on native oak woodland in various parts of the country (Kerry, Cork, Donegal, Wicklow etc.) has been well documented. The rhododendron forms a dark evergreen sub-canopy blocking all light to the understorey. The natural suite of woodland plants and their associated invertebrate biota is lost from infested areas and the natural regeneration of oak ceases. Without control, as the existing oak trees reach senility and die-back naturally, the woodland will transform into a thicket of rhododendron.

Many invasive plant species thrive along river banks including giant hogweed, Himalayan balsam and Japanese knotweed. These three species are often found together where they effectively out-compete the native riparian vegetation. As these plants dieback during the winter, the soils become exposed and the riverbanks subject to erosion and collapse. This in turn gives rise to instream siltation which can clog the spawning gravels of salmonids and other fish, result in direct mortality of the internationally rare and protected freshwater pearl mussel, and result in the further spread of the invasive plants downstream.

It should be noted that non-native invasive species are also commonly referred to as alien or exotic species.

2.2. The Legislative Framework

2.2.1 Noxious Weeds

Current legislation in Ireland pertaining to noxious weeds dates from 1936 when the Noxious Weed Act was enacted (repealing the Weeds and Agricultural Seeds (Ireland) Act, 1909). The Act aimed to enforce the control of particular weed species by individual landowners or managers by placing the onus of control on them. The owner, occupier, user or manager of lands on which noxious weeds are growing is liable, upon conviction, to a fine. Section 3 of the Act states *“Where any noxious weeds are growing on any land the responsible person in respect of such land or if there are two or more such persons, each of them severally, shall be guilty of an offence under this section and shall be liable on summary*

conviction thereof to a fine not exceeding twenty pounds”.

In the case of the verges, medians and other landscaped areas of public roads, the local authority charged with the maintenance of such roads is responsible under the Act.

Following the enactment of the Act, a number of Orders were made relating to specific plants, and these are as follows:

- Noxious Weeds (Thistle, Ragwort, and Dock) Order, 1937 (S.I. No. 103 of 1937);
- Noxious Weeds (Common Barberry) Order, 1958 (S.I. No. 120 of 1958);
- Noxious Weeds (Male Wild Hop Plant) Order, 1965 (S.I. No. 189 of 1965); and
- Noxious Weeds (Wild Oat) Order, 1973 (S.I. No. 194 of 1973).

2

An overview of legislation and background to the issues

The Noxious Weeds (Thistle, Ragwort, and Dock) Order, 1937, (S.I. No. 103 of 1937) does not detail the specific species for which control is mandatory. The interpretation by Fleming J. (2008) of the Department of Agriculture, Fisheries and Food defines the noxious species as the spear thistle (*Cirsium vulgare*) and the creeping or field thistle (*C. arvense*), common ragwort (*Senecio jacobea*) and two species of dock, the curled dock (*Rumex crispus*) and the broad-leaved dock (*Rumex obtusifolius*). It should be noted that there are numerous other species of thistle, ragwort and dock that are not classified as noxious weeds. These other species are typically less invasive or problematic than the classified species and may be confined to specific habitat types or geographical regions such as Oxford ragwort (*Senecio squalidus*) which is confined primarily to walls and waste places in Dublin and Cork, or marsh ragwort (*S. aquaticus*) which occurs in wet grassland and marshes

2.2.2 Non-Native Invasive Species

The Wildlife Acts, 1976 and 2000, contain a number of provisions relating to non-native invasive species covering several sections and subsections of the Acts. With regard to exotic species, it is prohibited without licence to plant or otherwise cause to grow in a wild state, in any place in the State, any species of flora, or the flowers, roots, seeds or spores of flora. The Minister may also issue regulations prohibiting possession or introduction of any species of wild bird, animal or flora, or any part, product or derivative of such wild bird, wild animal or wild flora which may be detrimental to native species. A review of legislative provisions is currently being undertaken on the island of Ireland and new regulations are likely to be forthcoming. Therefore, the legislative context is likely to change in the coming years.

Ireland has also ratified a number of international conventions that oblige the Government to address the

issues of non-native invasive species including the Convention on Biological Diversity, the Bern Convention and the International Plant Protection Convention. In addition, there are obligations under the EU Habitats Directive to address any threats to the conservation status of the various habitats and species listed for protection under the Directive. There are a significant number of non-native invasive plant species in Ireland and it was not possible to include detailed information for all of them in this guidance document. Those species selected for inclusion are those which have been shown to have an adverse impact on landscape quality, native biodiversity or infrastructure, and are likely to be encountered during road schemes. These are

- Japanese Knotweed (*Fallopia japonica*)
- Giant Hogweed (*Heracleum mantegazzianum*)
- Himalayan Balsam (*Impatiens glandulifera*)
- Giant Rhubarb (*Gunnera tinctoria*)
- Montbretia (*Crocasmia x crocosmiflora*)
- Winter Heliotrope (*Petasites fragrans*),
- Old Man's Beard (*Clematis vitalba*).
- Common or Pontic Rhododendron (*Rhododendron ponticum*) and
- Buddleia (*Buddleja davidii*)

2.3. Control Options

Control of both noxious weeds and non-native invasive species can be broken into either physical methods or chemical treatment. Physical methods include cutting, digging or excavating, hoeing and pulling by hand. Chemical treatment may involve the application of herbicide either by targeted spraying or direct application to the individual plant by wiping or direct injection.

Control options for the various species are dealt with individually in Sections 6 (noxious weeds) and 7 (non-native invasive species).

3 Assessing the presence/risks of Noxious Weeds and Non-Native Invasive Species at the EIA and pre-construction phase of National Road Schemes

As part of the Environmental Impact Assessment (EIA) process for the planning of a proposed new national road project, the presence and abundance of noxious weeds and non-native invasive species of plant should be noted as part of the general species composition data recorded.

During habitat mapping, details of the presence of noxious weeds or non-native invasive species should be recorded on data recording sheets (A sample data recording sheet and outline management plan is presented in Appendix 1) with the location and extent of infestation plotted on a map at a scale of 1:5,000 or less. Details of the scale of infestation should be recorded using a three-point abundance scale of high, medium or low infestation (where high equates to 30% or greater cover, medium equates to 10–30%, and low is less than 10%). In order to improve the national database on the distribution of non-native invasive species records should be submitted to the National Biodiversity Data Centre through the Invasive Species in Ireland website (see Submitting Invasive Species Records to the National Invasive Species Database).

Large infestations in particular, of noxious weeds should be identified as requiring specific treatment during the site clearance and topsoil-stripping phase of construction (see Section 4.1). All infestations of non-native invasive species should be noted as requiring specific treatment because if left unattended, they have the potential to cause significant problems in the future. Where infestations extend outside of the road footprint, the risk for re-infestation following control is high and this should be noted accordingly. Appropriate control measures should be prescribed within the Environmental Impact Statement (EIS) and should detail:

- the area requiring treatment;
- the type of treatment required;
- an assessment of the risk of re-infestation from surrounding land

The potential risks associated with the future spread of the particular plant may need to consider the potential for re-infestation of the road margin from adjacent lands and how activities undertaken during the project may spread non-native invasive species to adjacent areas or along the proposed route. The specific management requirements to control the future spread of the weeds should be addressed within the mitigation section of the EIS, which will subsequently be reflected in the contractual documents and the Environmental Operating Plan (EOP) for the scheme.

Many sites may have multiple noxious weeds and/or non-native invasive species requiring different management methods over different timeframes. A management plan for noxious weeds and non-native invasive species should be drawn up detailing the control and management measures being undertaken at the site (see Appendix 1). This is particularly important if Japanese knotweed is present. The plan should identify a point of contact for noxious weeds and non-native invasive species to ensure effective communication of the issues to all contractors as well as ensuring compliance with relevant guidelines and Codes of

3 **Assessing the presence/risks of Noxious Weeds and Non-Native Invasive Species at the EIA and pre-construction phase of National Road Schemes**

Practice. The management plan should set out a clear process for eradicating, controlling and containing these species, including, an implementation schedule, records of treatments undertaken; and locations where materials are disposed of

4

Control and management of Noxious Weeds and Non-Native Invasive Species during site clearance and construction of roads

When the site becomes available to the contractor for fencing and commencement of site clearance, areas identified as requiring specific treatment within the EIS should be demarcated and the designated control measures implemented at the earliest possible stage to reduce the risk of spread along the scheme or beyond the landtake.

Any additional lands that have been temporarily acquired for the construction of a scheme should also be subjected to a similar level of assessment and treatment for noxious weeds and non-native invasive species as those lands inside the fence line. During the construction of a road scheme, raw materials e.g., rock, topsoil, sands and gravel may be imported from a range of different locations. It is important that all such locations e.g., quarries, gravel pits etc., are assessed for the presence of noxious weeds and non-native invasive species in advance of removing any material from such sites.

Priority should be given to reducing the risk of seed transfer by preventing the plants from flowering and to reducing the risk of material transfer by instigating appropriate controls on movement of machinery and soil/gravel/stones in the infected area.

A systematic approach should be taken to clearance and control of noxious weeds and non-native invasive species ensuring that the use of tracked machinery is limited in infested areas and vehicles and equipment are cleaned between sites. This will minimize the risk of reintroducing contaminated soil/gravel/stones, seeds or plant fragments into treated areas. The outline management plan for noxious weeds and non-native invasive species presented in Appendix 1 provides a template for strategic management which should

commence with a thorough assessment of the plants distribution within the lands in question. Following this, the approach to control and preventing the further spread of the plant can be elaborated depending on the species, extent of infestation and other variables including

- the scale and extent of infestation (including whether confined to the road footprint or not),
- the species in question,
- the sensitivity of the local environment,
- the growth stage, etc.

Care should be taken to choose the most appropriate method for the specific circumstances of each site. In particular, chemical control of noxious weeds may risk damaging adjacent rare or valuable flora and fauna in sites of special conservation interest or in adjacent waterbodies. Where infestation occurs in lands adjacent to the road scheme, control along the road verges may prove ineffective due to the constant re-colonization of material from the adjoining lands.

Where chemical treatment is required, the use of such chemicals should be undertaken in accordance with the product label and Good Plant Protection Practice. In keeping with *A Guide to Landscape Treatments for National Road Schemes in Ireland* (NRA 2006a), the use of herbicides should be minimized and application

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Control and management of Noxious Weeds and Non-Native Invasive Species during site clearance and construction of roads

should be targeted rather than broad-spread application. Where there is a need to use herbicides in and around waterbodies, it is imperative that only herbicides specifically approved for such use are used and that they are used in line with the manufacturers' specifications.

Those involved in the application of herbicides/pesticides must be competent to do so and, consequently, must have sufficient training, experience and knowledge in the area of herbicides/pesticides application. It is important that all staff involved in the application of herbicides/pesticides have received appropriate training, which may include achieving competency certification in the safe use of herbicides/pesticides through a National Proficiency Tests Council registered assessment centre or achieving an appropriate FETAC award in this area.

4.1. Soil Management and Storage

Control of noxious weeds and non-native invasive species on national road schemes during the construction phase requires adherence to an appropriate and effective soil management plan (See Section 5.5 in *A Guide to Landscape Treatments for National Road Schemes in Ireland* (NRA, 2006a)).

Where the presence of non-native invasive plants goes unchecked, contamination of soil stores can occur, which, can result in the unintentional spread of the plant over a wide area during spreading and final shaping of soils in preparation for landscape treatments. In circumstances where soils/gravel/stones are imported from outside the compulsory purchase order (CPO) lands, appropriate pre-construction surveys, recorded on the data recording sheet presented in Appendix 1 should be carried out to determine the presence of noxious weeds or non-native invasive species at the site

of extraction. If such plants are found to be present at the site of extraction, soil should not be imported from this location due to the risk of spreading these species. In situations where Japanese knotweed is identified on the site it may not be possible to use soil stores due to contamination. Soils containing Japanese knotweed will need to be treated or disposed of appropriately.

The disturbance of soils can result in the release of nutrients which can give rise to a flush of weed species such as thistles or docks, whose seeds have lain dormant in the soil. Where this arises during soil storage, appropriate control measures should be instigated prior to the soil being used in the completion of the landscaping element. This may entail the regular topping of weed growth to prevent flowering and seed-set thereby restricting the potential for further dispersal. Where soil stores are due to be in place for extended periods (greater than one year) they should be seeded with grass (a non-perennial ryegrass mix or sterile ryegrass) which will reduce the potential for weed germination and prevent degradation of the soil by maintaining microbial action. Periodic topping is recommended, as germination of noxious weeds is likely to occur to some extent. A facility for monitoring and implementation of weed control form part of the Soil Management Plan. This will necessitate the visual inspection or monitoring of soil stores by personnel capable of identifying the various plant species at the seedling stage. Monitoring should commence four weeks after the laying down of the soil store or re-laying of the soil during landscaping. Thereafter, monitoring should be undertaken monthly during the growing period (April to September) or every 2 months during the dormant period (October to March) for the first year and subsequently on an annual basis (for the period of the landscape defects rectification period).

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Control and management of Noxious Weeds and Non-Native Invasive Species during site clearance and construction of roads

4.2. Landscaping and Landscape Contractor Maintenance

Under no circumstances should the planting of non-native invasive species be recommended in the Landscape Mitigation Masterplan for a national road scheme. All plant species selected for use in landscape treatments should be checked against the Invasive Species Ireland website (<http://www.invasivespeciesireland.com/>).

In accordance with the standard Works Requirements, the Landscape Contractor will generally be required to maintain and manage the landscape treatments during the Defects Rectification Period (normally 3 years), once all landscaping works have been completed. The maintenance regime should provide for the continued management of any noxious and non-native invasive plant species which were present during construction works and/or which may arise post construction. The contractor should also abide by the *Horticulture Code of Practice* (Invasive Species Ireland 2008) which identifies a range of actions that should be undertaken to reduce the risks from non-native invasive species.

All vehicles and equipment that have been used in control operations should be cleaned once control work in that section has been completed. On leaving each individual site, any tracked machinery, excavators (including buckets), trailers, dumper trucks, etc., should be thoroughly cleaned within a designated area to prevent the spread of material. It is important to remove soil which may contain seeds and plant fragments which otherwise could be transported along the road corridor as works are being undertaken. This also includes footwear, tools, etc.

4.3. Disposal of Material

Where cut, pulled or mown noxious weed or non-native invasive plant material arises, its disposal should not lead to a risk of further spread or pose a risk of poisoning to livestock in the case of ragwort. Particular care should be taken near watercourses as water is a fast medium for the dispersal of plant fragments and seeds. Material that contains flower heads or seeds should be disposed of either by composting or burial at a depth of no less than 0.5m in the case of noxious weeds, or by incineration (having regard to relevant legislation, including: Section 32 of the Waste Management Act, 1996 to 2008; Section 4 of the Air Pollution Act, 1987; and relevant local authority byelaws) or disposal to licensed landfill in the case of non-native invasive species. The taproots of docks and roots of creeping thistle are not suitable for composting or shallow burial, requiring disposal to landfill, incineration or burying at a depth of no less than 1.5m (practical only during the construction phase). It should be noted that particular care is required in relation to the disposal of non-native invasive species and, in particular, to the disposal of Japanese knotweed. Where burial is being used to dispose of Japanese knotweed, the material should be buried to a depth of 5m and overlain with a suitable geotextile membrane. All disposals should be carried out in accordance with the Waste Management Acts

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Control and management of Noxious Weeds and Non-Native Invasive Species during maintenance of National Roads

The control of noxious weeds and non-native invasive species should be undertaken in three distinct phases:

Phase 1: Undertake a detailed assessment.

Phase 2: Implement the appropriate control measures.

Phase 3: Undertake post control monitoring

5.1. Phase 1: Assessment

An assessment of the presence of noxious weeds or non-native invasive species should be undertaken to guide the selection of control measures and the appropriate risk management requirements (see Appendix 1). A suitably qualified person, with experience in identifying noxious and non-native invasive weed species in all growth phases, should undertake the assessment. This assessment will provide data on the species present, scale of infestation, age of plants and physical site conditions which will facilitate determining the most appropriate control measure. It should also record any previous attempts at control or eradication detailing the success or failure of the measures applied. This data will facilitate the development of a systematic control programme, which, due to the invasive nature of the various non-native invasive species, may require a long term commitment. This requirement in terms of planning and resources needs to be accommodated within the contractual and management arrangements for the particular scheme.

The assessment should also take account of the presence and location of any planting or landscaping on the section of road in question, as well as any sensitive ecological receptors (e.g. watercourses, species-rich grassland, designated conservation areas, etc.) that may be in the immediate vicinity. Consideration will also need to be given to whether there is potential bird nesting habitat in the vicinity where control is being undertaken during the bird nesting season (1st March to 31st August)

In circumstances where designated conservation areas (including Natura 2000 sites, Natural Heritage areas, proposed Natural Heritage Areas, Nature Reserves and National Parks etc.) adjoin the roadside, local authorities are advised to consult with the local National Parks and Wildlife Ranger in advance of undertaking any controls in such areas.

Figure 2 presents an overview of the assessment procedure and factors determining the choice of control measure employed

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Control and management of Noxious Weeds and Non-Native Invasive Species during maintenance of National Roads

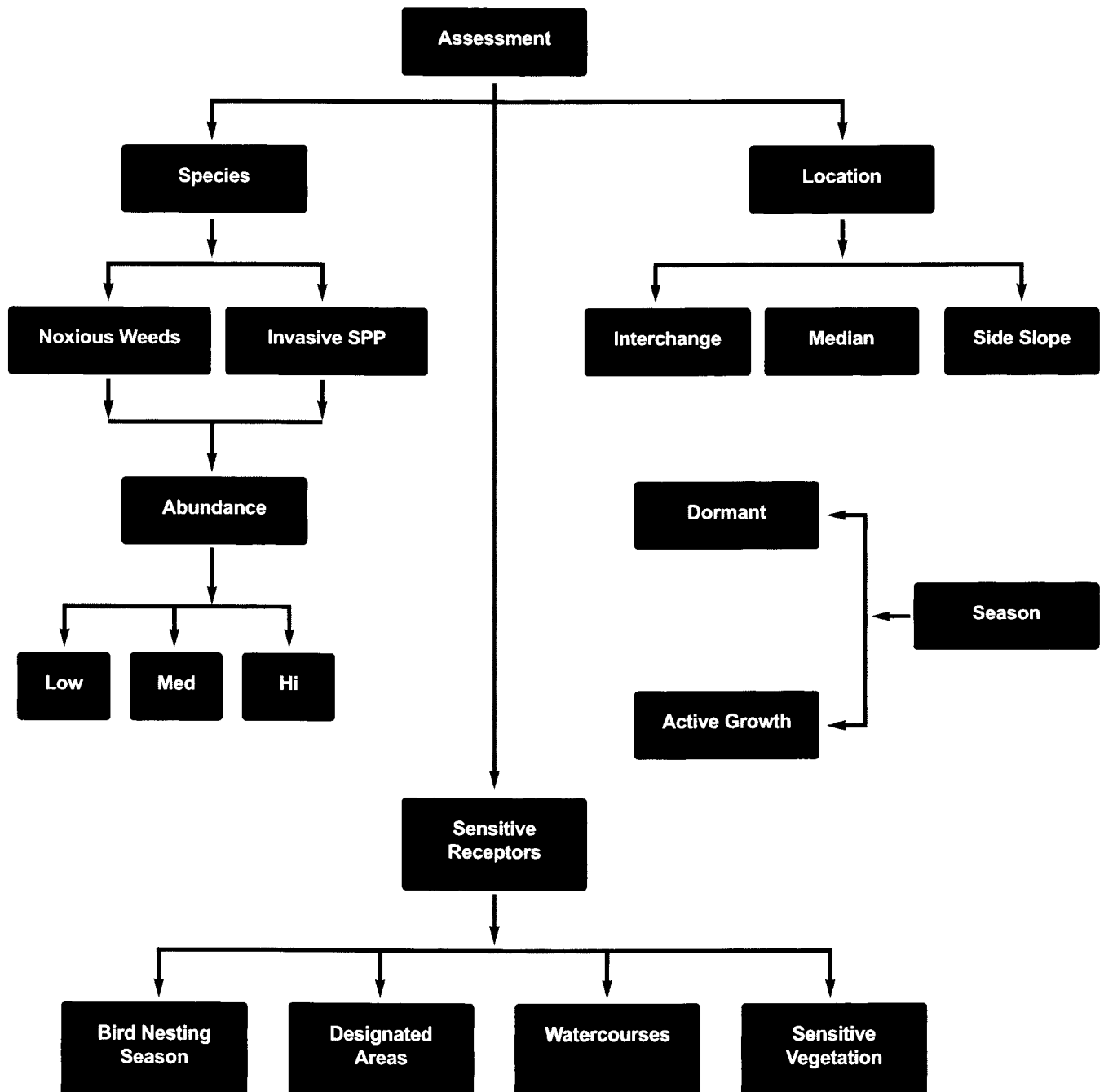


Figure 2: Overview of the Assessment Procedure and Factors influencing choice of Control Option

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Control and management of Noxious Weeds and Non-Native Invasive Species during maintenance of National Roads

5.2. Phase 2: Implement the Appropriate Control Measures

The decision to use a particular type of treatment in the control of noxious weeds and non-native invasive species will always be made on a case-by-case basis. Whilst there should generally be a preference for physical control methods, chemical control may in some cases be more appropriate

In situations where it is deemed that chemical treatments are the most appropriate, then all chemicals should be used in compliance with the product label and in accordance with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003)

In general, the application of herbicides and pesticides should not be undertaken, in windy weather where there is a risk of spray drift occurring, during or preceding rainfall, which can result in the chemical being washed off; or, during periods of particularly cold weather, which can reduce the plants ability to uptake the chemical. When chemicals are being used it is important to refer to the Official Register of Plant Protection Products in Ireland (www.pcs.agriculture.gov.ie). This website specifies the list of approved products and the crops/situations for which they are approved. Control measure options are presented on a species by species basis in Section 6.

As the flowering period for the most species is from June onwards, control measures should optimally be initiated during spring (late February to late May) to prevent plants flowering and thus setting seed. Application of herbicides close to the flowering period of a plant may not prevent the plant from developing viable seed.

The approach to weed control and the specific requirements vis-à-vis health and safety will vary according to where one wishes to control weeds, e.g. embankments, verge, median, interchanges, etc. National road cross-sections vary considerably. For example, the current standard Type 1 Dual Carriageway (D2AP) cross-section generally includes a 2:1 embankment (where in cut or fill), a 2.0m grass verge adjacent to the hard shoulder and a hard central reserve with concrete median barrier. Older standard cross sections typically contained wide grassed medians to which wire-rope crash barriers were generally retro-fitted. Grade separated junctions will generally incorporate roundabouts and will generally have a combination of grassland and landscape planting with fringing crash barriers.

Traditionally, the central reserves of Irish motorways and dual carriageways have been grassed and consequently can be subject to infestation by noxious weeds. Treatment of noxious weeds in the central reserve is complicated by the presence of wire rope and other barriers and anti-dazzle screens. More recent construction however, incorporating a paved narrow median, eliminates the problem of noxious weeds. Grade separated junctions may incorporate roundabouts and crash barriers and will generally have a combination of grassland and landscape planting

Road verges are accessible from the road carriageway or hard shoulder, for the treatment of noxious weeds. Traffic management for road verge treatment is likely to be more onerous in the absence of a hard shoulder. The standard road cross section will include sections of cut and fill, with typical 2:1 side slopes. Difficulties with access will, in many situations, preclude the use of machinery to treat noxious weeds or non-native invasive species on cut and fill slopes.

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Control and management of Noxious Weeds and Non-Native Invasive Species during maintenance of National Roads

In all situations, a risk assessment should be undertaken to identify the hazards at the particular site and to facilitate planning of the noxious weed or non-native invasive plant control and traffic management design in accordance with Chapter 8 (DoT 2008) of the *Traffic Signs Manual* (DoT 1996) and the *Guidance for the Control and Management of Traffic at Road Works* (LGMSB 2007).

5.2.1. Soil/Scree Slopes and Embankments

Side slopes on roads will vary in height according to the extent of cut or fill, but will generally have a gradient of two horizontal to one vertical. Chemical weed control on standard side slopes can be undertaken using hand-operated lances fed from a vehicle-mounted bowser. It is important to ensure that such treatments are targeted and every effort made to avoid chemical spread onto neighbouring plants. The vehicle will be able to operate within the hard shoulder. Where infestation levels are low (i.e. 10% or less cover) use of knapsack sprayers may be more efficient.

Where weed control is required on slopes greater than 2:1, specific measures may be required to facilitate access. Such slopes are normally rock-cuttings or rock faces. Some rock faces can be very inaccessible and they can support the growth of non-native invasive species such as *Buddleia* and *Rhododendron ponticum*.

The use of machinery on such slopes is typically not an option and physical control methods or herbicide application may require the use of self-arrest or belay systems by personnel. In areas of rock cutting where the surface is uneven and the potential for loose rock is present, an anchored tender should belay the operator from the top of the slope. The belay equipment required is similar to that used in tree-surgery with the operator wearing a harness to which is attached a static rope. As abseiling requires the operator to control their own descent, this does not leave

them with both hands free to operate a knapsack sprayer or swiper.

On steep uniform slopes that are under grass or trees and shrubs, spiked boots or fitted crampons will enable the operator to traverse the slope with greater control than in standard working footwear. The requirement for a belay in such situations will depend on the characteristics of the site.

5.2.2 Central Reserves or Medians

The configuration of barriers, landscaping and the width of the central reserve or median, in conjunction with the scale of infestation by the particular weed, will dictate what type of control measure is most appropriate in the central reserve. Physical control by cutting, topping or pulling may be undertaken using hand-operated machinery or hand tools. It should be noted that handpulling or cutting are not suitable control measures in the treatment of Japanese knotweed and giant hogweed. Chemical weed control in central reserves may be undertaken using vehicle-mounted or knapsack sprayers or weed-wipes.

5.2.3. Grade Separated Junctions or Interchanges

As with central reserves or medians, the configuration of barriers, landscaping and scale of infestation will determine the approach to be adopted to weed control at grade separated junctions or interchanges. A similar approach to that adopted for central reserves or medians is recommended.

5.2.4. Immediate and Wider Verge areas

Regular mowing of verges as part of the standard road maintenance programme ensures that noxious weeds are unlikely to be a problem because mowing keeps the

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Control and management of Noxious Weeds and Non-Native Invasive Species during maintenance of National Roads

plants in check and prevent flowering. While lane closures are not typically required during mowing of verges, appropriate traffic management using advance warning signage or vehicles should be in place.

Prior to the undertaking of any mowing activities on the immediate and wider verge areas, it is important to ensure that there is an absence of non-native invasive species.

It should be noted that mowing or strimming Japanese knotweed is not appropriate as it will only exacerbate the problem. Mowing of giant hogweed is also not suitable as it creates an increased risk of the toxic sap spreading onto the mower operator.

5.3. Phase 3: Undertake Post-Control Monitoring

Monitoring of the control measures should be undertaken approximately six to eight weeks after treatment to determine the success of the measures used. Further follow up may be needed to ensure complete eradication. It should be noted that certain types of noxious weeds, and in particular ragwort, are highly robust species and in certain situations can be difficult to control, particularly where it has not been managed for a number of years. As a result, it may be necessary to use a variety of control methods over an extended period to reduce populations. Similarly follow up treatment for several years (around five years) will be required for Japanese knotweed and giant hogweed due to the soil seed bank of giant hogweed and the extensive underground rhizome of Japanese knotweed not fully taking up the herbicide resulting in regrowth. Noxious weeds may also have a seed bank, which will also need extended treatment.

Following control of large areas of noxious weeds or non-native invasive plants, disturbance of the soil may give rise to a flush of seedling germination. To avoid this scenario, bare soil should be mulched (covered with a natural or synthetic barrier such as wood chip, straw, geo-textile, etc.) and planted at the earliest opportunity with an appropriate replacement vegetation to stabilize the soil and deter subsequent re-invasion. On the issue of planting regard should be had to the NRA's (2006a) *A Guide to Landscape Treatments for National Road Schemes in Ireland* and Invasive Species Ireland's (2008) *Horticulture Code of Practice*.



Figure 3: Ageing Spear Thistle – Down

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Noxious Weeds Identification, Ecology and Control Measures

The following two chapters provide details on a plant-by-plant basis covering the identification, ecology and a synopsis of control measures for the various noxious weeds and non-native invasive species.

The choice of control will depend on the scale of infestation, the age of the plants, their location and accessibility on the road, their proximity to sensitive neighbouring vegetation or habitat and the time of year.

The decision to use a particular type of treatment in the control of noxious weeds and non-native invasive species will always be made on a case-by-case basis. The NRA's policy is that the use of natural resource inputs (water, fertilizers, herbicides, pesticides, etc.) should be minimised and, therefore, there should generally be a preference for physical control methods. Notwithstanding this preference, chemical control may, in some cases, be deemed more appropriate.

Where chemicals are identified to be used as a control measure, priority should be given to those with the least potential to impact on the environment. All plant protection products should be used in accordance with the product label and Good Plant Protection Practice (see [Appendix 3 – Recommendations for Using Herbicides](#)). In accordance with *A Guide to Landscape Treatments for National Road Schemes in Ireland* (NRA 2006a), the Landscape Contractor should minimise the use of herbicides by spot treatment, if appropriate and only where required.

In general, chemical application is optimally undertaken using wipers or hand-held lances where application can be directed to the target plant. In general, the application of herbicides and pesticides should not be undertaken: in windy weather where there is a risk of spray drift occurring; during or preceding rainfall, which can result in the

chemical being washed off; or, during periods of particularly cold weather, which can reduce the plants ability to uptake the chemical. When chemicals are being used it is important to refer to the Official Register of Plant Protection Products in Ireland see "www.pcs.agriculture.gov.ie". This website specifies the list of approved products and the crops/situations for which they are approved. Again, it is important to note that all plant protection products should be used in accordance with the product label and Good Plant Protection Practice.

6.1. Spear Thistle (*Cirsium vulgare*)

6.1.1. Identification and Ecology

- The spear thistle is a member of the Asteraceae or daisy family, which is characterised by its production of dozens of small flowers (or florets) in a massed head giving the impression of a single large flower.
- Spear thistles are biennial plants (living for 2 years only), which grow from 70–150cm in height.
- The leaves are wavy and deeply pinnatifid with small prickles on the upper surface and white and cottony below. The leave tip ends in a stout prickle.
- The flower heads are few, formed on a globular and giant involucre, with a tuft of deep purple florets (25–30mm across).

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Noxious Weeds Identification, Ecology and Control Measures

- Flowering occurs during July to August after which seeds are formed with a pappus of long, soft feathery hairs, which allows for ready dispersion by the wind, the plants only means of spread.
- Spear thistles are common in pasture, roadsides and waste ground throughout the country.

6.1.2. Means of Control

Since spear thistles do not produce a spreading root system, it is possible to control them by hand hoeing individual plants and small patches provided the growing point and the top 20 to 40mm of the tap-root are removed. Cutting or slashing when the plants are in the late bud or early flower stage (before mid-July), may help to reduce seed production. However, because spear thistles tend to mature over an extended period, this method of control is of limited value. Moreover, in years when there is adequate soil moisture, thistles are likely to recover and re-grow.

For effective chemical control, the thistles must be growing actively. In most winters when the temperature falls to near freezing, spear thistles become dormant and are very much less susceptible to herbicides.

Susceptibility increases again with the onset of spring. When practicable, spraying should be completed before the centre flowering stem develops (i.e. up to the end of June). Although spear thistle remains reasonably susceptible even up to flowering, treatment at this late stage involves the use of more active forms of the herbicides and of higher application rates. The use of a wiper applicator, where appropriate and possible and if the thistle population is reasonably uniform in size, can overcome most of the problems arising from treatment of mature plants. Plant protection products containing MCPA or 2,4-D amine should be applied to give a light overall wetting of the plant in the seedling or rosette stages.



Figure 4: Spear Thistle – Flower

Once plants have started to shoot, plant protection products containing 2,4-D ester is more effective than the amine form of the chemical.

6 Noxious Weeds Identification, Ecology and Control Measures

Table 1: Summary of Physical and Chemical Control Measures for **Spear Thistle**



Physical Control

Method	Season	Follow-up	Comment
Hand hoeing	Before mid-July.	Must remove the top 20–40mm of the root crown.	As spear thistle does not produce a spreading root system it is possible to control by hand hoeing individual plants and small patches provided the growing point and the top 20 to 40mm of the tap-root are removed.
Cutting or slashing	Before mid-July – when plants are in late bud or early flower stage.	Of limited value except in small infestations.	May help to reduce seed production but is however of limited value as spear thistles mature over an extended period and if soil moisture is adequate thistles are likely to recover and re-grow.



Chemical Control

Chemical	Season	Follow-up	Comment
MCPA or 2,4-D amines	Spring to end June – in the seedling or rosette stages.	Wiper applicator.	Plant protection products containing MCPA or 2,4-D amine should be applied to give a light overall wetting of the plant in the seedling or rosette stages.
2,4-D	Early summer – when plants have begun to shoot flowering stem.	Wiper applicator or spot spray.	Once plants have started to shoot, plant protection products containing 2,4-D ester are more effective than the amine form of the chemical.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

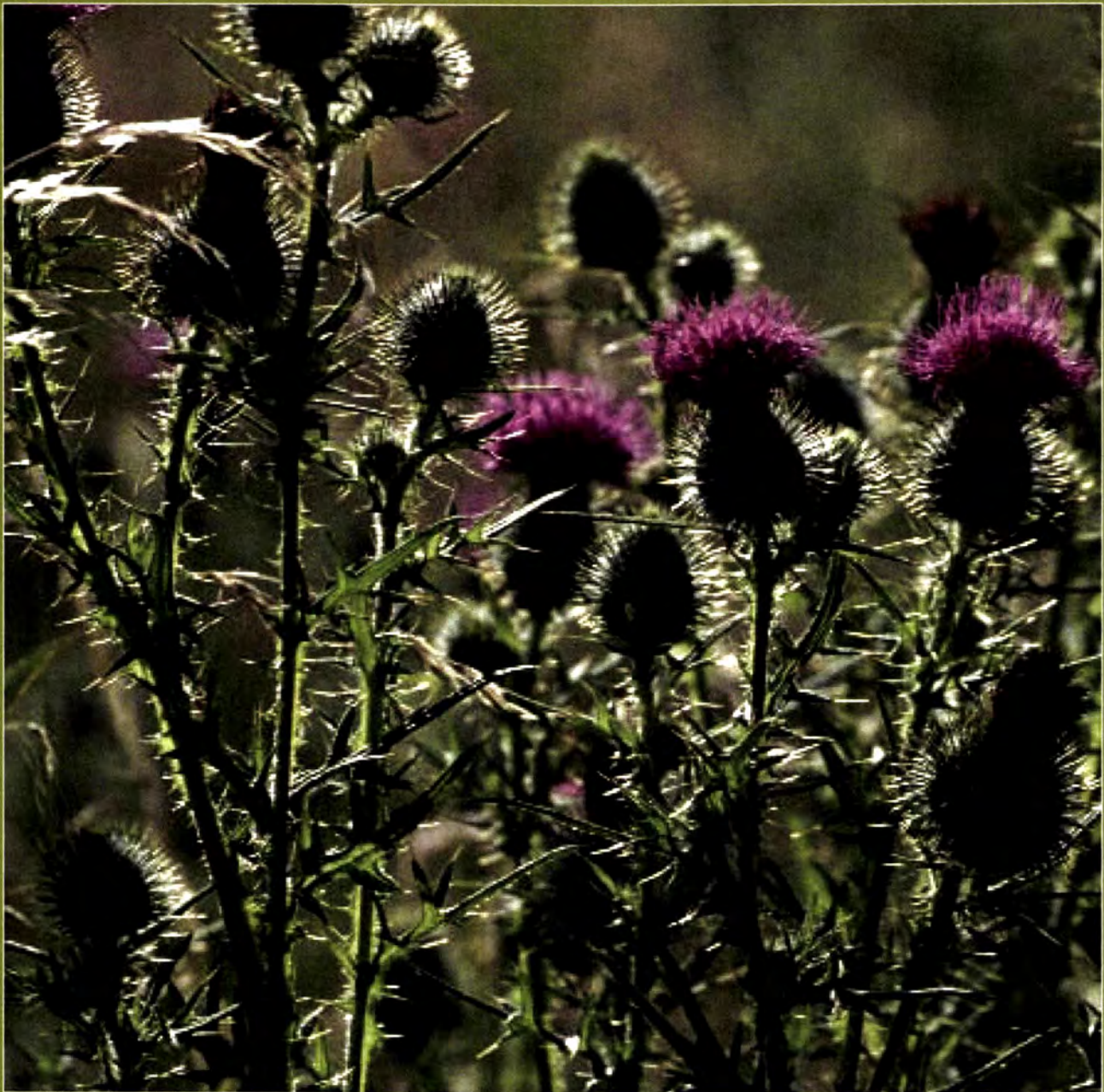


Figure 5: Spear Thistle – Flower and Foliage (Photo: Mike Dodd)



Figure 6: Spear Thistle – Foliage



Figure 7: Spear Thistle – Rosette

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Noxious Weeds Identification, Ecology and Control Measures

6.2. Creeping or Field Thistle (*Cirsium arvense*)

6.2.1. Identification and Ecology

- The creeping thistle, also a member of the Asteraceae, is a perennial plant that spreads readily with its creeping root system. The plant forms upright stems up to 100cm in height.
- The leaves are deeply pinnatifid with toothed and very prickly margins, pale green above and white below.
- The creeping thistle is dioecious with separate male and female plants; male flowers are slightly larger than females (15–20mm across). The florets in both are dull lilac.
- Seeds are similar to that of the spear thistle and dispersed by the wind.
- Creeping thistles are abundant in dry pastures and along roadsides. As the name suggests, they are capable of spread by their underground root system as well as by seed dispersal.

6.2.2. Means of Control

Cultivation is not an effective means of control for creeping thistle, as the roots are simply cut to fragments capable of regeneration thus giving rise to an increased infestation. Cutting of flower stems before opening of the flower buds will prevent seed spread for that particular season and repeated cutting at the same growth stage over several years may 'wear down' an infestation.

Although the top growth of creeping thistle is susceptible to many herbicides, long-term control is difficult to obtain, as it is with most deep-rooted perennials.



Figure 8: Creeping Thistle – Early Growth



Figure 9: Creeping Thistle – Flower

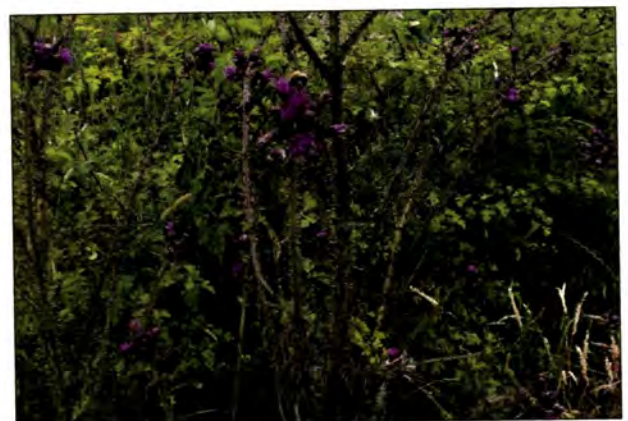


Figure 10: Creeping Thistle – Foliage

6 Noxious Weeds Identification, Ecology and Control Measures

Plant protection products containing MCPA have been found to be suitable for controlling deep rooted plants and effective against creeping thistle. Because it acts fairly slowly, the correct spray timing is essential to get good translocation down into the thistle's root system.

Plant protection products containing MCPA applied during the early bud stage (as the flower bud is forming – typically mid-May to mid-June) will kill the aerial parts of the plant, but repeat treatments the following year may be necessary for complete control.

Table 2: Summary of Physical and Chemical Control Measures for **Creeping Thistle**



Physical Control

Method	Season	Comment
Hand hoeing	(Not effective)	N/A
Cutting or slashing	Before mid-July.	Cutting is not an effective means of control for creeping thistle, as the roots are simply cut in to fragments capable of regeneration thus giving rise to an increased infestation. Cutting is effective mainly in preventing seeding and cutting of flower stems before opening of the flower buds will prevent seed spread for that particular season and repeated cutting at the same growth stage over several years may "wear down" an infestation.

Chemical Control

Chemical	Season	Application	Comment
MCPA	Mid-May to mid-June – in the early bud stage – may require follow-up in following year.	Wiper applicator.	Although the top growth of creeping thistle is susceptible to many herbicides, long-term control is difficult to obtain, as it is with most deep-rooted perennials. Plant protection products containing MCPA have been found to be suitable for general use. Because it acts fairly slowly, the correct spray timing is essential to get good penetration down into the thistle's root system. Plant protection products containing MCPA applied during the early bud stage (as the flower bud is forming – typically mid-May to mid-June) will kill the aerial parts of the plant, but repeat treatments the following year may be necessary for complete control.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

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Noxious Weeds Identification, Ecology and Control Measures

6.3. Common Ragwort (*Senecio jacobea*)

6.3.1. Identification and Ecology

- Ragwort, another member of the Asteraceae (also known as ragweed and buachalan bulc he) is a stout biennial or short-lived perennial (where topped regularly as in lawns).
- It forms a rosette of leaves in its first year and in the second year produces a robust stem up to 130cm in height on which the flowers are produced.
- The leaves are deeply pinnatifid with the lower segments toothed. As a member of the Asteraceae, the plant produces masses of little florets in a striking yellow flower head born terminally in a dense corymb (or flat-topped cluster).
- The seeds (or achenes) have a tuft of simple hairs that enables seed dispersal by wind.
- Ragwort is a common plant of pasture, waste ground, sandhills and roadsides.
- Ragwort is toxic to cattle, horses, deer, goats, pigs and chickens, though sheep appear less affected by it. The poisonous substances in ragwort are toxic alkaloids (Jacobine, Jacodine and Jaconine) which cause the liver to accumulate copper, causing ill health and death. The toxicity of the poisons does not diminish following the death of the plant and ragwort in hay or silage remains toxic.

6.3.2. Means of Control

Pulling by hand is suitable for limited areas and is best undertaken when the ground is moist after recent rainfall. The plant is best pulled after it has sent up its flowering stalk but before seed set. Alternatively, cutting at the early



Figure 11: Common Ragwort likely distribution in meadow land (Photo: Mike Dodd)

flowering stage (pre-seed set) will reduce the risk of spread but does not destroy the plant and may result in the plant becoming more vigorous in the following year. In both instances, as seedlings and first year plants in the rosette stage will not be targeted, it is necessary to undertake pulling or cutting in 2 consecutive years to ensure control. As cut or pulled plants retain their poison, thus posing a serious risk to grazing animals, and may also still set seed, they should be removed and burned, or disposed to landfill.

No single herbicide treatment will completely eliminate a ragwort infestation due to successive germinations of the weed. Treatment with selective herbicides can be made to the plant rosettes (plants in their first year) optimally in late spring (April – May) or early autumn (mid-August to mid-October) before frost damages the foliage. The most effective plant protection products for the control of ragwort are those containing 2,4 D, but these are broad spectrum herbicides and will affect a number of other plant species. While spraying can be undertaken at any time of year for plants in their second or flowering year, it is optimally undertaken in March to May or while the flowering shoot is developing and the plant is in active growth. MCPA-based plant protection products also offer effective herbicide control for spot treatment of ragwort.



Figure 12: Common Ragwort – Flower and Foliage

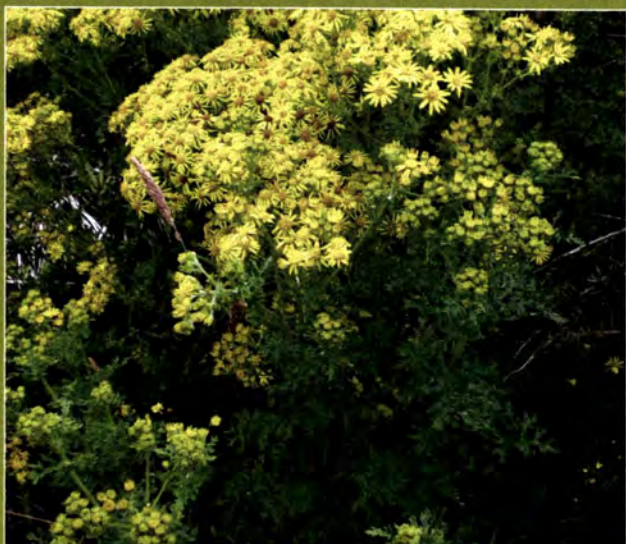


Figure 13: Common Ragwort – Flower and Foliage



Figure 14: Common Ragwort – Rosette

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Noxious Weeds Identification, Ecology and Control Measures

Table 3: Summary of Physical and Chemical Control Measures for Ragwort



Physical Control

Method	Season	Comment
Cutting or slashing	Before flowering: Optimally mid-June . Effective mainly in preventing seeding.	Requires follow up in the following year. Although it may reduce seed population it can promote perennialization of ragwort, which will come back the following year more vigorously. Cut or pulled plants retain their poison thus posing a serious risk to grazing animals and may still set seed. Where there is a potential danger of animals coming into contact with the cut ragwort, it should be removed and burned, or disposed of to landfill.
Hand Pulling	Early summer before flower heads mature. Best done following recent rain.	Requires follow up in following year. Gloves must be worn. Best results when soil is wet. Very dependant upon spotting plants and some may be missed. Cut or pulled plants retain their poison thus posing a serious risk to grazing animals and may still set seed. Where there is a danger of animals coming into contact with the cut ragwort, it should be removed and burned, or disposed of to landfill.



Chemical Control

Chemical	Season	Application	Comment
2,4 D	To rosettes For young plants (Year 1) in April – May or mid-August to mid-October For adult plants (Year 2) March – May	Wiper application or spot treatment.	Wiper applicator or spot treatment. Plant protection products containing 2,4 D offer the most effective means of control. Using herbicides to control ragwort is very effective if the correct timing and rates of application are used. 2,4D is a broad-spectrum herbicide and will affect a number of other plant species. Autumn application must be done before frost damages the foliage.
MCPA	As for 2,4 D	Wiper application or spot treatment.	Wiper applicator or spot treatment. Using herbicides to control ragwort is very effective if the correct timing and rates of application are used.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

6

Noxious Weeds Identification, Ecology and Control Measures



Figure 15: Curled Dock



Figure 16: Curled Dock – Foliage



Figure 17: Broad-Leaved Dock (Photo: Mike Dodd)

6.4. Curled Dock (*Rumex crispus*)

6.4.1. Identification and Ecology

- The curled dock, a member of the Polygonaceae family, is a robust, glabrous (lacking hairs) perennial with a well-developed tap-root system.
- It grows to 100cm in height and forms a short-branched, upright plant with distinctive lanceolate, wavy-edged leaves reaching 15cm in length.
- The small greenish flowers are produced in a terminal panicle (or loosely branched spike) and produce triangular nut-like seeds.
- The withered stalks of the curled dock remain standing well into the spring.
- Curled docks are common in pasture, along roads, on shingle shores and in waste ground throughout the country.

6.5. Broad-Leaved Dock (*Rumex obtusifolius*)

6.5.1. Identification and Ecology

- The broad-leaved dock, also a member of the Polygonaceae family, is a robust, glabrous plant similar in structure to the curled dock but growing to 120cm and with significantly broader leaves.
- Both species are capable of hybridizing and while the hybrids may produce less or no seed, they are generally much more vigorous than either parent.
- The leaves of the broad-leaved dock are large, slightly oblong with crenate (scalloped) edges and square bases.

6

Noxious Weeds Identification, Ecology and Control Measures

- The panicles (flower stems) are erect, leafless and stiff. The flowers are small and green, with ensuing small reddish brown nuts.
- The broad-leaved dock is abundant throughout the country in pasture, roadsides and waste places and thrives in high nitrogen environments and where there is heavy treading by stock or machinery.

6.5.2. Control of Docks

Both dock species produce many seeds that can remain viable in soil for decades. The plants can also be spread from fragments of the taproot which can produce new plants if they contain a dormant bud. Physical control of either species of dock is practical only on a limited scale. Specific hand tools have been designed (e.g. www.lazydogtoolco.co.uk) to extricate the extensive and forked taproot intact. Hand-pulling of the shoots before they have set seed can be effective on days when the soil is moist, but care needs to be exercised to avoid leaving fragments of root behind. Regular topping of the foliage may slowly wear the taproot down but does not appear to be present a reliable control method, though it will prevent seed set.

Chemical treatment for mature dock plants can be achieved by a number of plant protection products containing asulam, fluroxypyr, dicamba, 2,4-D, triclopyr or thifensulfuron. Control of seedlings (carried out within a few weeks of germination) can be achieved with plant protection products containing MCPB, MCPA or Mecoprop.

A combination of glyphosate/dicamba can be used selectively for large plants using a wiper applicator. Treatment should be carried out when docks are well grown and flowering stems are at least 500mm in height as the success of this treatment depends on being able to wipe a reasonable length of the docks' stems.

Spraying is optimally undertaken during the period May to August while the plants are growing vigorously but have not yet set seed. Cutting or topping should not be carried out for at least 2 weeks after spraying to allow the herbicide to be fully translocated into the root.

Control using plant protection products containing Asulam should be undertaken in warm weather during April – May before flowering shoots are developed, or during late August – September. In heavy infestations, a second spray may be required.

6

Noxious Weeds Identification, Ecology and Control Measures

Table 4: Summary of Physical and Chemical Control Measures for **Curled and Broad Leaf Docks**



Physical Control

Method	Season	Follow-up	Comment
Pulling by hand	After shooting flower stalk (June-July). Best done following recent rain.	Requires follow-up in following year.	Effective only in small infestations. Hand-pulling of the shoots before they have set seed can be effective on days when the soil is moist, but care needs to be exercised to avoid leaving fragments of root behind.
Cutting or topping	Regularly before flowering (mid-June).	Requires follow-up in following year.	Effective mainly in preventing seeding though continued topping will wear down taproot. Cutting or topping should not be carried out for at least 2 weeks after spraying to allow the herbicide if used to fully penetrate into the root.
Hand-hoeing	Not effective except for seedlings.		

Physical control of either species of dock is practical only on a limited scale. Specific hand tools have been designed (www.lazydogtoolco.co.uk) to extricate the extensive and forked taproot intact.



Chemical Control

Chemical	Season	Application	Comment
Asulam, Fluroxypyr, dicamba, 2,4-D, triclopyr or thifensulfuron	May to August – prior to seed set.	Wiper applicator or spot treatment.	For mature dock plants.
Glyphosate / dicamba	May to August – On well-grown plants (>0.5m height).	Wiper applicator.	For large plants. Treatment should be carried out when docks are well grown and flowering stems are at least 500mm in height as the success of this treatment depends on being able to wipe a reasonable length of the docks' stems.
MCPB, MCPA or Mecoprop	Control of seedlings carried out within 3–4 weeks of germination.	Wiper applicator or spot treatment.	For control of seedlings.
Asulam	April to May – before flowering shoots or late August to September .	Wiper applicator or spot treatment in warm weather. Second spray may be required for heavy infestations.	

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

7 Non-Native Invasive Species Identification, Ecology and Control

7.1. Japanese Knotweed (*Fallopia japonica*)

It is recommended that readers also refer to the Environment Agency's (n.d.) *Managing Japanese knotweed on development sites - the knotweed code of practice* when dealing with Japanese knotweed issues.

7.1.1. Ecology and Distribution

Japanese knotweed is a member of the Polygonaceae (docks and rhubarb family), native to Japan and northern China. It has however, become widely distributed throughout Europe, North America, Canada, New Zealand and Australia. The plant is subject to some taxonomic confusion due to a combination of numerous synonyms and its capacity for hybridization between closely related species. In Ireland, the species is known as *Fallopia japonica* (Houtt.) (with the synonyms *Reynoutria japonica* and *Polygonum cuspidatum*). Giant knotweed (*Fallopia sachalinensis*) is also widespread in Ireland but is not found to the same extent along roadsides as Japanese knotweed. Hybrids between Japanese knotweed and giant knotweed also occur (*Fallopia X bohemica*), though thus far appear limited in distribution. The hybrid is a particularly large plant up to 3m tall. The closely related Himalayan knotweed (*Persicaria wallichii* or *Polygonum polystachium*) (see [Figure 19](#)) occurs occasionally along roads in parts of the country; it rarely exceeds 1.5m in height.

Only female plants have been recorded in Ireland and while seeds are sometimes produced, these are hybrid and rarely survive. Indeed the entire population appears to be a single female clone (Montgomery n.d.). Dispersal typically occurs through rhizome fragments being transported in soil by humans or to a lesser extent, through passive mechanical means such as in floodwaters. Dispersal is also achieved through vegetative reproduction



Figure 18: Japanese Knotweed – Foliage

from plant fragments. The plant typically occurs along roadsides, riverbanks and waste ground in Ireland where it forms dense, monotypic stands. During the winter, the brown stalks remain standing even though the plant dies back to the rootstock.

Japanese knotweed causes a range of problems due to its prolific and dense growth habit including blocking sight-lines on roads, damage to paving and structures, erosion of riverbanks and flood defence structures, damage to archaeological sites, loss and displacement of native habitats and species. Japanese knotweed is widespread throughout Ireland and is spreading rapidly (see [Figure 22](#) for current distribution).

7.1.2. Identification

- Japanese knotweed is a robust, herbaceous perennial plant with hollow, bamboo-like stems. It forms yellow cream flowers in late June or August. Its leaves are approximately the size of a human hand. Its hollow bamboo-like stems are green with red spots during summer, which turn brown during winter. It forms red side shoots off the main stem and its leaves are arranged in a zig-zag pattern.



Figure 19: Himalayan Knotweed – Foliage



Figure 20: Japanese Knotweed – Winter Stems

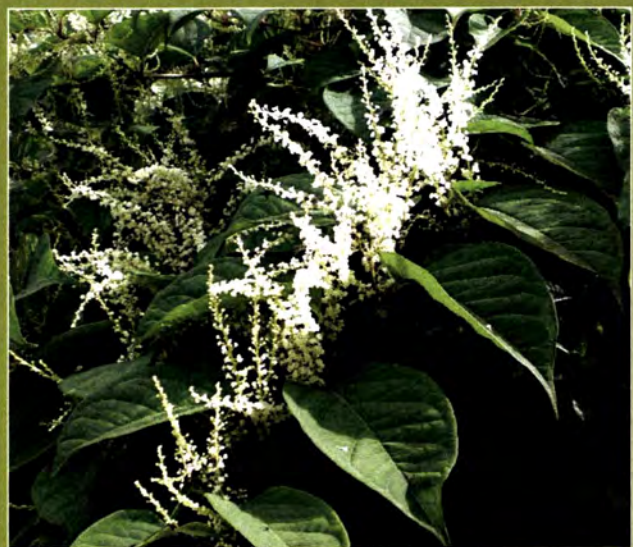


Figure 21: Japanese Knotweed – Foliage and Flowers

7 Non-Native Invasive Species Identification, Ecology and Control

- The plant is frost-sensitive and dies back in winter though the stems remain standing.
- *Fallopia japonica* grows from 120–300cm in height with leaves 7–12cm long with a square-cut base, while *Fallopia sachalinensis* grows from 150–300cm in height and has cordate (i.e. notched or indented at the base) leaves up to 30cm in length.
- A hybrid between the two species occurs which has increased vigour and produces even larger leaves. The root system is extremely extensive (extending 15 to 20m in length) and acts as a storage organ allowing for rapid growth in spring.
- The plant requires high light levels and the burst of growth in spring prevents other plants from outshading it.

7.1.3. Control

It is recommended that a person with sufficient training, experience and knowledge in the control of non-native invasive species should be employed to assist in the planning and execution of control measures in relation to Japanese knotweed.

Readers are advised to refer to the British Environment Agency's (n.d.) *Managing Japanese knotweed on development sites - the knotweed code of practice* for information on Japanese knotweed and in devising control measures for Japanese knotweed.

Due to its invasive nature, Japanese knotweed control has been the subject of considerable research and investigation. The primary objective of control should be total eradication by targeting the underground rhizome and not simply the aerial parts. It should be noted that none of the methods outlined below guarantee eradication.

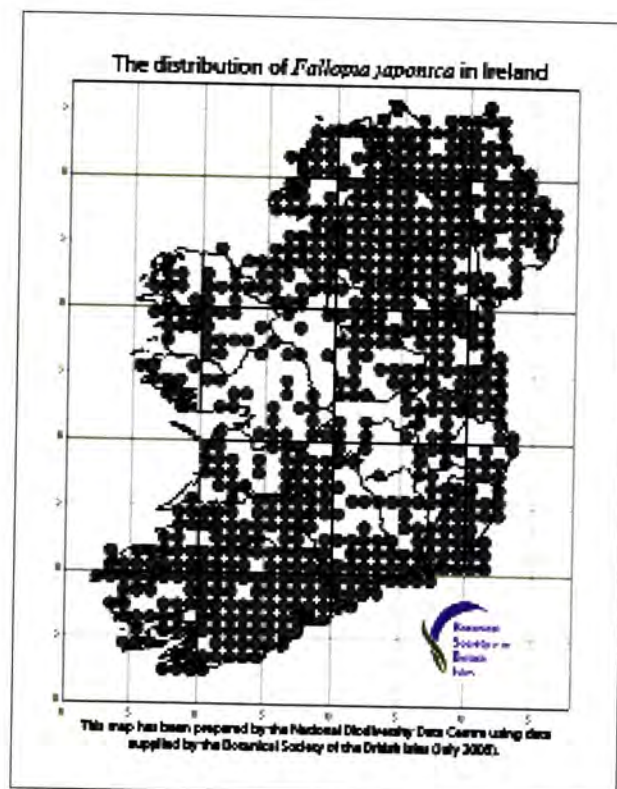


Figure 22: Distribution of Japanese Knotweed
(National Biodiversity Data Centre, July 2008)

Japanese knotweed is highly invasive and extremely difficult to eradicate completely. **All control measures will require follow-up to ensure complete eradication which should be undertaken for a minimum of two growing seasons (and up to five growing seasons) after control.**

The approach to control will depend on several factors including the scale of the infestation, the topography and terrain of the site, the proximity of watercourses or other sensitive receptors (such as protected flora), the funds available, etc. Current control measures are limited to a combination of physical and chemical means and chemical means alone, though biological control is actively being researched and a number of predatory organisms from the plant's native range are being investigated as potential control agents. However, according to current

7 Non-Native Invasive Species Identification, Ecology and Control

research, it appears that biological control agents will only stunt the plant's growth and that conventional control measures will have to be used alongside biological controls. Earlier in this document (at page 23) it was stated that when deciding on the choice of treatments to be applied for the control of noxious weeds and non-native invasive species on national road schemes, priority should generally be given to the use of physical methods. However, in the case of Japanese knotweed, the use of physical methods, on their own, are extremely unlikely to control Japanese knotweed. In all cases, chemical treatment, either on its own or in combination with physical treatment, will be required. Indeed, recent research indicates that a combination of physical and chemical treatments may be more effective than chemical treatment alone in controlling Japanese knotweed.

In controlling Japanese knotweed, preference should, where feasible, be given to treating Japanese knotweed in its original location (Environmental Agency n.d., p 26). According to the Environmental Agency (n.d., p.26), *'you should only consider excavating Japanese knotweed as a last resort, unless it is part of an on-site treatment method.'* In essence, one should only excavate Japanese knotweed where construction necessitates it

It is vital to accurately map the distribution of Japanese knotweed on a site as the area of infestation can extend 7m horizontally (and up to 3m in depth) from the nearest growth and the extent of the underground rhizomes should be mapped by digging a series of test pits. All treatments will require follow up monitoring and a management plan should be drawn up which sets out the programme of control measures and monitoring. The development of a management plan for the control of Japanese knotweed is highly recommended, as total control will require input over successive years. A draft outline management plan is presented in **Appendix 1**, which can be adopted for use as required.

Table 5 presents a summary of current control measures.

Physical and Chemical Control – Combined Treatment Methods

In using these methods, great care is needed to ensure plant material is not spread.

As indicated above, research has shown that a combination of physical and chemical treatments may be more effective than chemical treatment alone in controlling Japanese knotweed

The Environment Agency (n.d., p 18) indicates that combining digging and spraying is effective in reducing the time needed for chemical control. By digging and breaking up the rhizome, the aim is to stimulate leaf production leaving the plant more vulnerable to treatment with a plant protection product

The Japanese knotweed canes should first be cut using a cutter, hook or scythe. The cane should be carefully set aside on a suitable membrane surface until they have dried to a deep brown colour and are certain to be dead, or, can be double-bagged and disposed of at a licensed waste facility, where: (a) the facility have been informed in advance of the nature of the waste material, (b) the facility is licensed to accept this material, and, (c) the facility is prepared to accept the material. The canes may also be disposed of by 'deep burial' (see below). Again, the Waste Management Acts, 1996-2008, must be complied with. These Acts will require, *inter alia*, that a waste haulier employed to haul waste material is authorised by a waste collection permit or is exempt from such a requirement. Readers are referred to the NRA's *Guidelines for the Management of Waste from National Road Construction Projects* (2008d, p. 26) in this regard.

7 Non-Native Invasive Species Identification, Ecology and Control

A wheeled excavator may then be used to scrape the top 25cm of topsoil, containing the surface crown and rhizomes, into a pile. The exposed ground is then cultivated to a depth of at least 50cm and the piled material is then re-spread over the cultivated area. This process may be carried out during the winter months, if care is taken not to compact wet soil, which may increase runoff and spread Japanese knotweed across the site

Note that effective site hygiene is essential.

This process will stimulate the rhizome to produce a higher density of stems, leaving the plant more susceptible to treatment with a plant protection product (see chemical control methods outlined below)

Another combined treatment method that may be used is the cut and inject technique. The National Trust in the UK has developed a cut and inject technique that is particularly suitable for use on sites with sensitive associated flora. The effectiveness of this technique has been assessed through research by the University of Exeter (2007). The technique involves the cutting of the mature Japanese knotweed stems shortly before senescence (senescence refers to the biological processes of a living organism approaching an advanced age, which, in the case of Japanese knotweed, typically occurs with the first frosts in late October or November). Stem cuts should be approximately 200mm above the base of cane, preferably approximately 40mm above a node. The cut cane should be carefully set aside and disposed of appropriately. A measured dose of plant protection product is then applied into the hollow stem cavities. Reference to the University of Exeter's (2007) standard methodology is advised. In subsequent years, the stems may not be sufficiently large to inject. In such cases, spot application of plant protection products containing glyphosate will be required.

Again, it is essential that all plant protection products are used in accordance with the plant product label and with Good Plant Protection Practice as prescribed in SI 83 of 2003

Excavation and Containment/Disposal

A number of methods have been developed to deal with Japanese knotweed control in development sites which are all based on mechanical excavation of the rhizome material and its subsequent containment either at depth, within an impermeable membrane, or its disposal off-site. Again, the use of these methods should be avoided where possible. Where feasible, preference should be given to treating Japanese knotweed in its original location (Environmental Agency n.d., p.26). Excavation should only be considered where construction requires it

When excavation and containment/disposal control methods are deemed necessary it is essential that good site hygiene practices are employed to reduce the risk of contaminating other areas of the site. Measures employed may include fencing off and signing areas of infestation; not using tracked vehicles in the infested areas; pressure washing vehicles exiting infested areas in designated wash-down areas; and, ensuring adequate supervision

In considering excavation and containment/disposal control methods, regard must be had to the Waste Management Acts, 1996 to 2008, and to the NRA's *Guidelines for the Management of Waste from National Road Construction Projects* (2008d). It should be noted that, *inter alia*, a waste licence or a waste facility permit may be required for the containment/disposal of excavated material.

7 Non-Native Invasive Species Identification, Ecology and Control

Excavation

When planning an excavation it is important to determine the extent of rhizome infestation. Rhizome growth may extend up to 7m horizontally from the nearest growth. Generally, rhizomes will not penetrate deeper than 3m from ground level, with more recent infestations penetrating to a lesser depth. A person with sufficient training, experience and knowledge in the control of non-native invasive species should be employed to determine the extent of material to be excavated.

The Environmental Agency (n.d., p. 26) suggests that at least two weeks prior to excavation, the Japanese knotweed should be treated with a non-persistent herbicide (certain plant protection products containing glyphosate are non-persistent). It is important to note that certain plant protection products have a specified period of 'activity,' which will be described on the product label and which will dictate when the product can be applied. Choosing the right herbicide is very important. The herbicide must not be capable of causing groundwater contamination. **Under no circumstances should a persistent herbicide be used when excavation and containment/disposal techniques are being considered. To use a persistent herbicide in such circumstances would potentially cause the material to be classified as 'hazardous waste.'** The haulage and disposal of 'hazardous waste' material is extremely expensive. If any doubt remains as to the safety of the herbicide used or approach adopted, the supplier of the product should be contacted.

Excavation and 'Deep Burial'

Excavated material containing Japanese knotweed material, cut canes, etc., may be 'deep buried' on site. This involves burying the material on-site to a depth of **at least** 5m. Once buried, the Japanese knotweed material should

then be covered with a root barrier membrane layer before being in-filled to 5m deep with inert fill or topsoil.

Again, the provisions of the Waste Management Acts, 1996 to 2008, must be considered and complied with. The location of the buried material should be accurately mapped and recorded. It is also recommended that permanent signs be erected to inform people of the nature and quantity of the buried waste. Future owners of the land must be advised as to the position and content of the buried material.

Excavation and Disposal to Landfill

The Environmental Agency indicates that excavation and disposal to landfill is the method of last resort (Environmental Agency n.d., p. 29). Disposing of contaminated soil to landfill is extremely expensive, uses up valuable landfill capacity, and involves large-scale haulage.

Great care is required to ensure that no material is lost when the excavated material is being transported. For small quantities, the material can be 'double-bagged' in heavy duty waste bags. For larger quantities, the waste can be moved in skips lined and covered with appropriate membranes. The material can then be disposed of at a licensed waste facility, where: (a) the facility have been informed in advance of the nature of the waste material; (b) the facility is licensed to accept this material; and, (c) the facility is prepared to accept the material. The canes may also be disposed of by deep burial (see above).

Again, the provisions of the Waste Management Acts, 1996 to 2008, must be complied with. These Acts will require, *inter alia*, that a waste haulier employed to haul waste material is authorised by a waste collection permit or is exempt from such a requirement.

7 Non-Native Invasive Species Identification, Ecology and Control

Chemical Control

A review of chemical control methods for Japanese knotweed was undertaken by Kabat *et al* (2006). While a number of chemicals were found to be effective against the plant, many of these were undesirable due to their non-selective nature, persistence or toxicity to aquatic ecosystems.

The current most widely recommended chemical for Japanese knotweed control is glyphosate which breaks down in the soil relatively quickly. Glyphosate does, however, because of its broad spectrum nature, have the disadvantage of being potentially damaging to non-target plants. Great care is, therefore, necessary in applying this herbicide. As with all plant protection products, it should be used in compliance with the product label and in accordance with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). Plant protection products containing glyphosate should be applied in late September or early October. However, it is further advised that the plants be treated early in the growing season (May) to stunt the growth of the plant, consequently reducing the amount of viable above-ground

material and the height of the stand.

For small infestations, plant protection products containing 2,4-D Amine can be used. 2,4-D Amine has the advantage of being selective and specific to broadleaved plants. However, in general, it has a greater persistency when compared to Glyphosate. Plant protection products containing 2,4-D Amine should be applied in May with a follow up treatment in late September or early October.

Care is required in the selection of the appropriate plant protection product and method of application. In making this selection regard should be had to, *inter alia*, the abundance of the Japanese knotweed, the location of the stand, the proximity and nature of sensitive receptors, and, the season. Only certain plant protection products are approved for use in or near water. Not all plant protection products are selective in nature. And, the persistency of plant protection products varies. The method of application should be as targeted as possible, having regard to all other factors. Again, plant protection products should be used in compliance with the product label and in accordance with Good Plant Protection Practice. With all forms of chemical control in relation to Japanese knotweed follow-up treatment will be required in subsequent years.

7 Non-Native Invasive Species Identification, Ecology and Control

Table 5: Summary of Physical and Chemical Control Measures for Japanese Knotweed



Physical and Chemical Control - Combined Treatment Method

Method	Season	Follow-up
Combined digging and spraying.	Digging and spreading can take place in winter, chemical control as described below.	Chemical control may be required over five years.
Cut and inject technique.	Late October or November.	Chemical control may be required over five years.



Physical and Chemical Control

Method	Season	Follow-up
Chemical control followed by excavation.	Chemical control when Non-persistent herbicide is 'active'. Excavation two weeks later.	Monitor site of excavation regularly.
'Deep burial.'	Following excavation.	Monitor site of burial regularly.
'Disposal to landfill.'	Following excavation.	N/A.



Chemical Control

Method	Season	Follow-up
Glyphosate-based Plant Protection Product.	May and late September/early October.	Chemical control may be required over five years.
2,4-D Amine-based Plant Protection Product.	May and late September/early October.	Chemical control may be required over five years.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

7 Non-Native Invasive Species Identification, Ecology and Control

7.2. Giant Hogweed (*Heracleum mantegazzianum*)

7.2.1 Ecology and Distribution

Giant hogweed (*Heracleum mantegazzianum*) is a member of the carrot family (*Apiaceae*) and bears a close resemblance to the native and widespread hogweed (*H. sphondylium*). It is native to the Caucasus Mountains in south-west Asia. Giant hogweed is highly invasive due to its vigorous early-season growth, tolerance of shade and flooding, in combination with its efficient production and spread of seeds (several thousand seeds per flower head). Spread is by seed. The plant is highly tolerant of disturbed sites and can out-compete other vigorous weed species due to its height. As the plant frequently colonises along river banks, it can increase the risk of soil erosion as it dies back in winter leaving bare soil which its shallow root system does not bind efficiently.

The stem and undersides of the leaves of giant hogweed



Figure 23: Giant Hogweed – Plant

are coated with fine hairs that contain a phototoxic sap that renders skin sensitive to ultraviolet light. The slightest contact with the plant can result in the release of sap which then gives rise to severe and painful blistering of the skin. The reaction may take up to 24 hours to occur and may result in permanent recurrent phytophotodermatitis – a type of dermatitis that flares up in sunlight. As the plant hairs are extremely fine and brittle, they can pierce light clothing. In the event of contact with the sap, the skin should be covered to prevent exposure to sunlight and washed immediately with soap and water. Full protective clothing including masks or safety glasses and hood should be worn when undertaking any type of control.

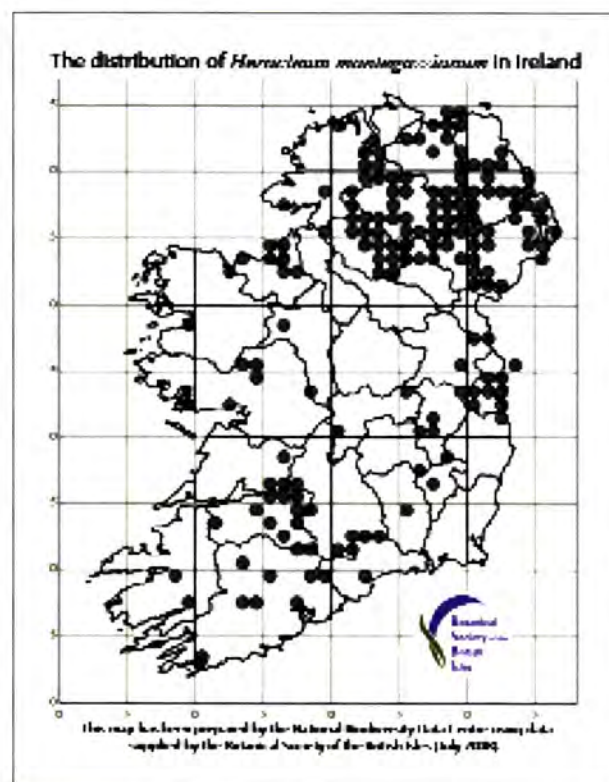


Figure 24. Distribution of Giant Hogweed
(National Biodiversity Data Centre, July 2008)

7 Non-Native Invasive Species Identification, Ecology and Control

7.2.2. Identification

- Giant hogweed is characterized by its size and can grow to 3–5m in height producing large umbels (flower heads) of small white flowers up to 0.5m across.
- It is usually biennial, forming a rosette of leaves in the first year before sending up a flower spike in the second. The plant typically dies after flowering and setting seed.
- Giant hogweed has a ribbed, purple-spotted, hollow stem with dark green, deeply lobed leaves up to 2m in length.
- It is distinguishable from the native hogweed (*H. sphondylium*), which does not have hairs on its stem, with less dissected leaves and is smaller in all its parts.
- Within Ireland, giant hogweed is locally widespread though still absent from much of the central part of the country and is frequently encountered in waste ground, along rivers and streams, and in woodland fringes.

7.2.3. Control

The control of giant hogweed should aim to eradicate the plant entirely or at minimum, prevent the plant from producing seed. As seed may remain viable for 15 years, control will require continued input over several years to be complete. Soil within 4m of established plants is likely to contain vast numbers of seed from previous years flowering and should not be transferred to other parts of a site unless as part of a control measure. The majority of seeds however, are contained within the top 5cm of soil and will only persist for 1–2 years (Booy & Wade 2007).

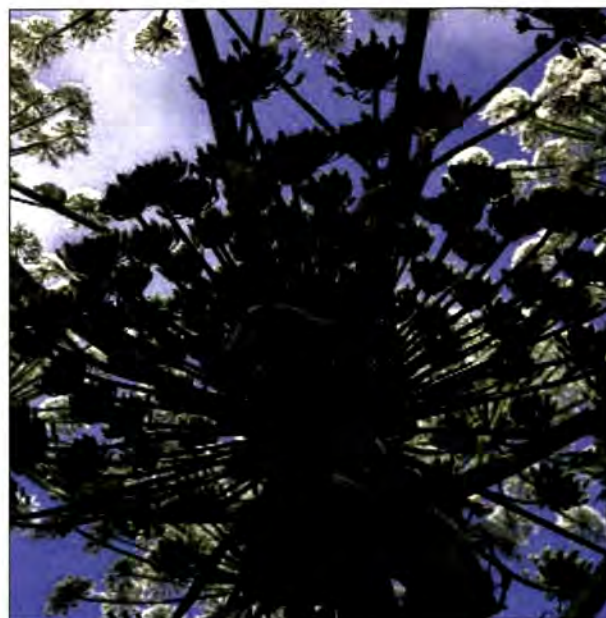


Figure 25: Giant Hogweed – Seeds (Photo: Mike Dodd)



Figure 26: Giant Hogweed – Flowers

7 Non-Native Invasive Species Identification, Ecology and Control



Figure 27: Giant Hogweed – Foliage

Such soil and all vegetative material should not be stock-piled within 10m of any watercourse due to the risk of material being transferred by water. The use of tracked machines should be limited in contaminated areas to prevent the transfer of vegetative material and seed-laden soil around the site within the tracks. On leaving the site, any tracked machinery should be thoroughly cleaned within a designated area to prevent the spread of material. Giant hogweed material and infected soil should be stored on top of a membrane of fabric in a designated area for appropriate disposal. On completion of the clearance, this area should be subsequently monitored for re-growth during the spring to autumn period and appropriate treatment undertaken as necessary.

Due to its phototoxic sap, a risk assessment should be prepared in advance of attempts at any control measures. All operatives engaged in giant hogweed control and personnel working on the site should be made fully aware of the phototoxic nature of the plants sap and its potential to result in permanent recurrent phytophotodermatitis. Personnel engaged in controlling Giant Hogweed should wear complete protective clothing. Haulage contractors

involved in transporting infected material to landfill and the landfill operators should similarly be made aware of the risks. Infected material being transferred from the site should be covered to avoid accidental spread during transport.

Where control has been implemented, it will be necessary to re-vegetate the soil following treatment to prevent erosion and to reduce the incidence of giant hogweed seeds germinating. Establishing a good sward of grasses will reduce the rate of recolonisation. Monitoring of the site and subsequent follow-up control of hogweed seedlings will be required for a minimum of 5 years following treatment or after any soil disturbance at the site. [Table 6](#) presents a summary of control measures for giant hogweed.

Physical Control

All personnel engaged in control should be made aware of the serious health, safety and environmental risks associated with the plant and provided with complete protective clothing. Young plants can be readily pulled or teased out of the soil using hand tools. This is best undertaken when the soil is moist following recent rain and care should be taken to extract the plants intact. Where plants are larger than approximately 1.5m, the upper part can be cut back and the lower part of the stem used to lever the roots out. The central crown of the root must be removed to prevent the plant regenerating; small fibrous side roots cannot send up new plants. Where plants are well-established, continuous germination of seedlings will occur following the removal of mature plants and periodic removal of these will be required to ensure control. Seed heads on old stems should be removed by individually bagging seed heads and cutting to prevent accidental spread of seeds. Seedlings are best left for a few weeks to establish before removal as they are easier

7 Non-Native Invasive Species Identification, Ecology and Control

removed. Follow-up removal will be required for a period of at least 5 years to ensure complete control. Subsequent soil disturbance in the area however, may give rise to a new flush of seedlings.

Mowers, strimmers or weed-whackers should not be used as they: tend only to stimulate additional budding on the root crown; do not reduce the plants rigour; and, can flail sap onto operators and through clothing.

Chemical Control

The use of chemical herbicides for giant hogweed control is effective but will require follow-up treatment to deal with seedling re-growth even where the initial infestation has been controlled. The most effective chemical for the control of giant hogweed is glyphosate. Foliar sprays of glyphosate are suitable for large infestations, but as the

chemical is broad-spectrum, it will kill all sprayed plants. Injection into the stem of the plant approximately 30cm above the ground with 5ml of a 5% v/v solution can be used where spot treatment is required.

Where a site contains sensitive vegetation, giant hogweed is best controlled by injecting herbicide into the stem or using a weed swipe. Foliar spray application should be undertaken before the flowering stem has fully elongated in mid-spring during periods of mild, dry weather. Where control is being undertaken later in the year after stem elongation, the stems should be cut back to ground level and the re-growth sprayed.

Table 6: Summary of Physical and Chemical Control Measures for **Giant Hogweed**



Physical Control

Method	Season	Follow-up
Removal using appropriate hand tools and Full P.P.E.	Spring following recent rain.	Follow-up to deal with seedlings for 5 years.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	Foliar spray in mid-spring before stem elongation. Otherwise, cut back and spray re-growth. Stem injection during growing season.	Foliar spray, wiper applicator, spot treatment or stem injection.
2,4-D	Foliar spray in mid-spring before stem elongation. Otherwise, cut back and spray re-growth. Stem injection during growing season.	Wiper applicator or spot treatment.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

7 Non-Native Invasive Species Identification, Ecology and Control

7.3. Indian or Himalayan Balsam (*Impatiens glandulifera*)



Figure 28: Indian or Himalayan Balsam

7.3.1. Ecology and Distribution

Himalayan balsam is a member of the busy Lizzie family (*Balsaminaceae*) and as its name suggests, is native to the Himalaya region of Asia. It was introduced as a garden plant in the mid-1800's (Royal Horticultural Society 2008a) and quite swiftly became established along waterways and in other damp places by means of its prolific seed production. It is an annual plant forming dense upright stands approximately 1m tall where it effectively out-competes surrounding herbs and grasses. It is tolerant of shade and does very well in the canopy of riparian woodland. In the autumn it dies back leaving the ground bare and vulnerable to erosion.

7.3.2. Identification

- Himalayan balsam is an erect and glabrous (hairless) plant with a brittle, reddish stem, which can grow up to 2m in length. The broadly lanceolate and toothed leaves are 10–20cm in length and arranged oppositely or in whorls of three.
- The plant produces an abundance of white to pink/purple, flowers in racemes, which are followed by club-shaped seedpods.
- When ripe, the pods open explosively propelling the small black seeds up to seven meters from the mother plant, which gives it a considerable edge in colonizing new ground. In addition, the seeds can remain viable for up to 18 months and are readily dispersed in water.
- Germination commences in February and flowering commences by June extending into October.
- Within Ireland, Himalayan balsam is widespread throughout the country though has not yet colonized extensively in the central plain.

7.3.3. Control

Control measures for Himalayan balsam should aim to prevent flowering and are therefore essentially undertaken before the commencement of flowering in June. Where flower production can be prevented, eradication may still take over 5 years. Table 7 presents a summary of control measures for Himalayan balsam.

Physical Control

Mechanical control is only likely to be effective where good access is available and the ground smooth enough to permit either mowing or cutting back. Where accessible,

7 Non-Native Invasive Species Identification, Ecology and Control

plants can be cut, mown or strimmed back to ground level before flowering in June. Do not cut earlier as this promotes greater seed production in any re-growth. Unless the plant is cut to below the lowest node, it will re-sprout. Regular mowing will control the plant provided the frequency of mowing is regular enough to prevent sprouting and flower formation. Repeat annually until complete control is attained. As plants are very shallow-rooted, they can also be easily pulled by hand. Hand pulling will require a follow up pull in August due to new seeds sprouting. Vegetative material can be disposed of by composting unless seeds are present, in which case the material should be disposed of to licensed landfill or burnt.

Chemical Control

Chemical control of Himalayan balsam is readily achieved with the use of glyphosate or 2,4-D amine, which should be applied during active growth in late spring but late enough to ensure that germinating seedlings have grown sufficiently to be covered by the spray. Glyphosate is systemic and can be applied as a foliar spray where extensive infestations occur. However, it is a broad-spectrum herbicide and care should be taken where sensitive species are also present. In such cases, application can be made by weed-wiper. 2,4-D amine is effective against many broad-leaved weeds but does not affect grasses which may be important in stabilizing soils. It may therefore be a preferable choice to glyphosate in certain situations.

Repeat treatments or other means of controlling seedling germination will be required for a period of five or more years. Monitoring of the site will be required in mid-spring and mid-summer to assess the occurrence of seedlings and determine appropriate control.

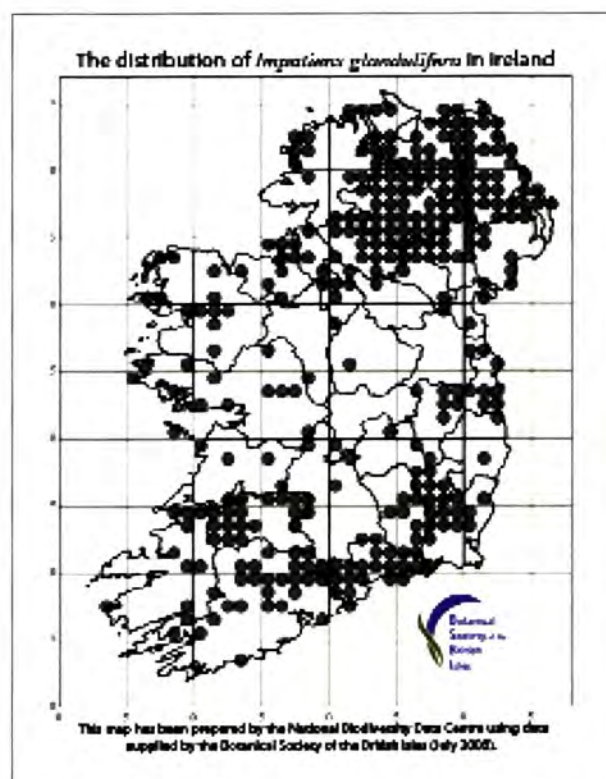


Figure 29: Distribution of Himalayan Balsam
(National Biodiversity Data Centre, July 2008)



Figure 30: Himalayan Balsam – Flowers and Foliage

7 Non-Native Invasive Species Identification, Ecology and Control

Table 7: Summary of Physical and Chemical Control Measures for **Himalayan Balsam**



Physical Control

Method	Season	Follow-up
Hand pulling	Pre-flowering following recent rain.	Regular follow-up to deal with seedlings.
Mowing or cutting	Before flowering in June . Mowing required regularly for control.	Regular follow-up to deal with seedlings.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	During active growth in late spring (Late April to May).	Foliar spray, wiper applicator or spot treatment.
2,4-D amine	During active growth in late spring (Late April to May).	Foliar spray, wiper applicator or spot treatment.

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7.4. Giant Rhubarb (*Gunnera tinctoria*)

7.4.1. Ecology and Distribution

Giant rhubarb (*Gunnera tinctoria*), a member of the *Gunneraceae* family (not related to the familiar garden rhubarb), is a native of Chile that was probably first introduced to Ireland as a garden plant. It has naturalized particularly well along the milder and wetter western seaboard where conditions are comparable to its former range (see **Figure 32**) growing on coastal cliffs, wet and damp meadows, boggy ground, roadsides and along waterways.

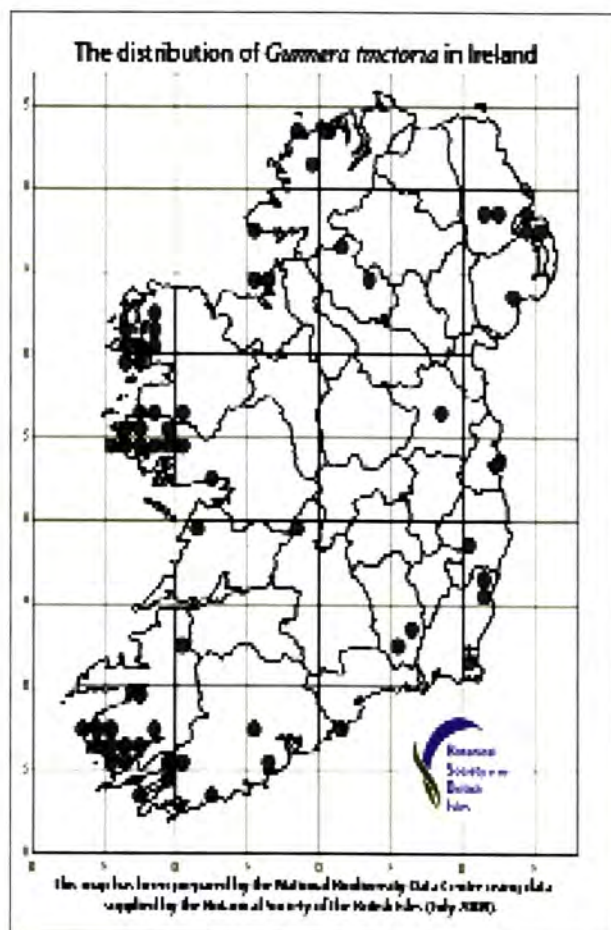


Figure 31: Distribution of Giant Rhubarb
(National Biodiversity Data Centre, July 2008)

7.4.2. Identification

- Giant rhubarb has unmistakable massive rhubarb-like leaves (up to 100cm in diameter and 200cm in height) which emerge from a perennial rhizomatous rootstock on stout stalks.
- The entire plant is covered with coarse prickles.
- Tiny green flowers are borne in large spikes during the summer which produce abundant tiny seeds.
- The leaves wither back in winter and expose the large dormant buds that are covered in pinkish scales.
- Giant rhubarb is able to thrive in low nutrient and immature soils such as on sedimentary cliffs, exposed moraines, and disturbed soil sites.
- It has huge tolerance to salt spray and is found growing right to the shore on Achill Island and in parts of Connemara, and appears to thrive in water-logged situations growing in stream beds and wet meadows. It does not appear to do well in well-drained or drought-prone soils.
- Giant rhubarbs massive leaves enable it to out-shade other herbaceous plants and grasses.
- It spreads rapidly by rhizome and seed to form extensive mono-typic stands and can block drainage ditches, streams and obstruct access.

7.4.3. Control

Physical Control

Control of established stands of giant rhubarb is only really feasible using chemical means. Small or recently

7 Non-Native Invasive Species Identification, Ecology and Control

established infestations may be dealt with by grubbing out plants physically. Regular follow-ups will however be required to deal with seedlings or re-growth from rhizomes. As the plant is capable of regeneration from bits of rhizome, all material must be handled and disposed of in a way which does not result in the potential for further spread. Disposal of material can be by deep burial (more than 2m deep), incineration or to licensed landfill. Removal of flower spikes will aid in limiting dispersal by seed.

Chemical Control

Experimental control of giant rhubarb on Achill Island is being carried out using glyphosate and triclopyr (Irish Strategy for Plant Conservation 2007). Trials suggest that application of herbicide is most effective late in the growing season (late August to early September) by direct application to cuts made on the stems or on leaf stalks following cutting back of leaves (C. Armstrong, National Botanic Gardens 2008). Glyphosate has been used extensively in New Zealand for its control and has been found to be effective using 1.5–2% foliar spray. On steep ground where access with knapsack sprayers was not possible, abseilers cut off the leaves and treat the exposed cut surface with a 25% glyphosate (Law 2003). After spraying, some rhizomes can take up to 18 months to decay. Sub-lethal doses of herbicide have resulted in multi-headed re-growth. Follow-up control will be required to deal with re-growth and subsequent seedling germination.



Figure 32: Giant Rhubarb



Figure 33: Giant Rhubarb – Young Growth

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Table 8: Summary of Physical and Chemical Control Measures for **Giant Rhubarb**



Physical Control

Method	Season	Follow-up
Grubbing	Pre-flowering following recent rain. Only suitable for recently established infestations.	Regular follow-up to deal with seedlings or re-sprouting.
Removal of flower heads	Before flowering in June.	Only effective in preventing seed dispersal.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	During active growth late in the growing season – late August / early September.	Foliar spray, wiper applicator or spot treatment.
2,4-D amine	During active growth late in the growing season – late August / early September.	Foliar spray, wiper applicator or spot treatment.
Triclopyr	Late in the growing season – late August / early September. Not when hot or during drought.	Foliar spray or spot treatment.

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7.5. Montbretia (*Crocasmia X crocosmiflora*)

7.5.1. Ecology and Distribution

Crocasmia's are members of the iris family (*Iridaceae*) native to the grasslands of the Cape Region in South Africa.

Montbretia (*Crocasmia X crocosmiflora*) is an artificially produced hybrid that has become invasive in parts of Europe and New Zealand.

7.5.2. Identification

- Montbretia is a perennial herb that grows from underground corms. The corms form linear chains with the youngest at the top and the oldest buried deepest in the soil. The chains are fragile and corms readily break off giving the plant a ready means of spread.
- The linear leaves are up to about 500mm in length and may not dieback completely in winter in milder areas.
- The bright reddish-orange flowers are produced in a loose terminal panicle on slender stems up to 600–1000mm in height.
- The flowers are capable of producing viable seed which further aids the spread of the plant.
- Montbretia has naturalised itself in many parts of Ireland, especially in the south-west where it is very common along road banks and hedgerows. It is also frequent along watercourses and lakeshores. Its current distribution within Ireland is shown in Figure 35.

7.5.3. Control

Physical Control

Physical control of montbretia is difficult as the corms break

up from their chains very readily and can result in ready re-infestation or further spread. Where infestations are limited in extent, the entire stand can be excavated and buried at a depth of at least 2m, incinerated or disposed of to licensed landfill. The corms are very hardy and are not suitable for composting. Due to the potential for re-infestation from corms, regular follow-up will be required over a period of at least 2 years to deal with any re-growth.

Chemical Control

Control can be achieved using glyphosate. **All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003).** It is an offence to use Plant Protection Products in a manner other than that specified on the label.



Figure 34: Monbretia – Flowers and Foliage

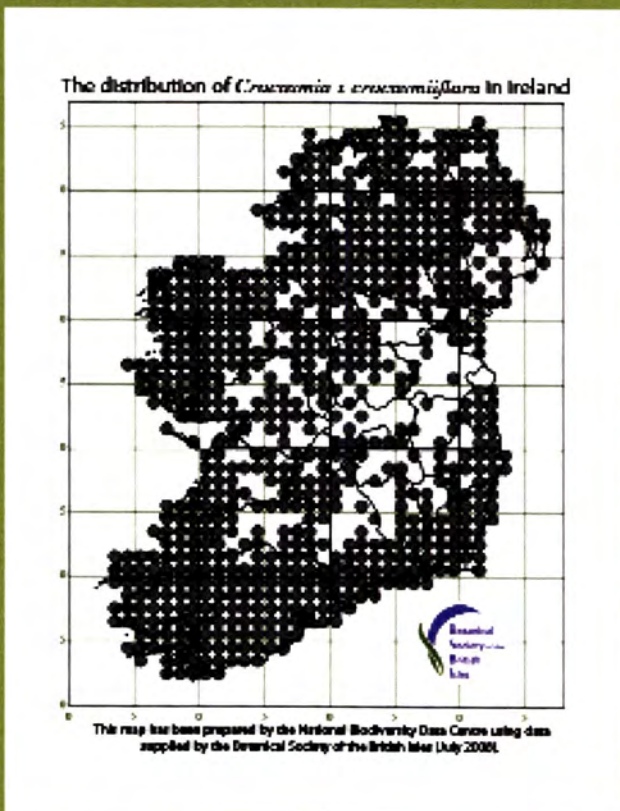


Figure 35: Distribution of Monbretia
(National Biodiversity Data Centre, July 2008)



Figure 36: Monbretia – Foliage

7 Non-Native Invasive Species Identification, Ecology and Control

Table 9: Summary of Physical and Chemical Control Measures for **Montbretia**



Physical Control

Method	Season	Follow-up
Excavation	Any time of year when the soil is suitably dry.	Regular follow-up to deal with missed corms re-sprouting.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	During active growth in late spring or summer .	Foliar spray, wiper applicator or spot treatment.
Metsulfuron	During active growth in late spring or summer .	Foliar spray, wiper applicator or spot treatment.

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7 Non-Native Invasive Species Identification, Ecology and Control

7.6. Winter Heliotrope (*Petasites fragrans*)

7.6.1. Ecology and Distribution

Winter heliotrope (*Petasites fragrans*), a member of the Asteraceae family, is a low-growing herbaceous plant originating in North Africa. It is established widely in Ireland being frequent along roadsides, hedgerows, woodland edges and waste ground. As apparently only the male plant that is present in Ireland, its spread is confined to vegetative means.

7.6.2. Identification

- Winter heliotrope produces large roundish leaves up to 30cm in diameter, which are downy underneath.
- Its pale pink flowers, which are amongst the earliest flowers of the year appearing in December and January, have a distinctive sweet smell
- The foliage appears later in spring (though last years foliage may not dieback completely) and forms a dense carpet at about 30cm in height.
- Winter heliotrope has a rhizomatous root system which enables it to spread vegetatively.

7.6.3. Control

Physical Control

Due to the extensive rhizome network, physical removal of winter heliotrope is really only practical on a limited scale. Where mechanical means can be employed, it should be possible to deal with larger infestations but due to the potential for regeneration from fragments of roots, it may be best to tackle its control using a combination of



Figure 37. Winter Heliotrope – Foliage and Flowers
(Photo: Mike Dodd)



Figure 38. Winter Heliotrope – Foliage

excavation with follow-up treatment by herbicides. As with other plants with the potential to spread from small root fragments, disposal of material should be undertaken with due caution to prevent accidental spread of the plant. Other means of disposal include burial of material at a depth of at least 2m, incineration or disposal to licensed landfill. There is no evidence that the material would withstand composting though this approach would probably only be suitable for limited infestations.

7 Non-Native Invasive Species Identification, Ecology and Control

Chemical Control

An application of a glyphosate-based herbicide after flowering in February to March is recommended by Cornwall Nature Reserves (2008), though the Royal Horticultural Society (2008b) recommends spraying in mid-summer or later but before the foliage begins to die back.

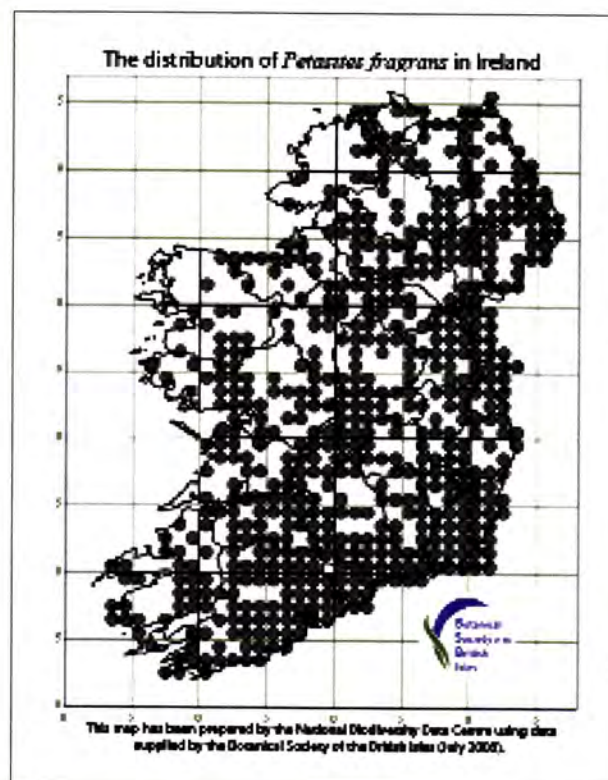


Figure 39: Distribution of Winter Heliotrope
(National Biodiversity Data Centre, July 2008)

Table 10: Summary of Physical and Chemical Control Measures for Winter Heliotrope



Physical Control

Method	Season	Follow-up
Excavation	Any time of year when the soil is suitably dry.	Regular follow-up to deal with re-sprouting.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	After flowering in February to March, or in mid to late summer.	Foliar spray, wiper applicator or spot treatment

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7

Non-Native Invasive Species Identification, Ecology and Control

7.7. Old Man's Beard (*Clematis vitalba*)

7.7.1. Ecology and Distribution

Old man's beard (*Clematis vitalba*), also known as travellers joy, is a member of the Ranunculaceae family. It is a vigorous, deciduous climber with characteristic feathery seed heads in the late summer from which it derives its common name. It is a native of central and southern Europe, but has established itself throughout much of Europe, North America and New Zealand where it has become a major weed of woodland. In Ireland, its distribution is mainly in the southern half of the country (see **Figure 41**) where it is found in hedgerows, roadsides, riverbanks and along forest edges. The vine can form dense thickets blanketing trees and shrubs, ultimately depriving them of light. It can break limbs or cause their collapse from its sheer weight and mass. It also prevents regeneration of native vegetation by blocking light and physically oppressing young plants. Outside of its native central and southern Europe, the ecological behaviour of old man's beard changes and it exhibits invasive characteristics that include: rapid growth rate; early reproductive maturity; easy vegetative spread from fragmentation; quick recovery from physical damage with the ability to re-sprout; and prolific seed production with wind dispersal (Cronk and Fuller 1995, p. 69–72).

7.7.2. Identification

- Old man's beard has pinnate leaves with three to five leaflets on mature plants.
- The vines have strong longitudinal ribs and furrows and are pale brown and stringy on old stems.
- The flowers are produced in late summer to early autumn and are green-white and lightly fragrant



Figure 40: Old Man's Beard – Flowers and Foliage

- The wispy seed heads, which are produced in large amounts, remain on the plant through the winter dispersing primarily by wind
- The trailing stem can also root at nodes to produce new plants.

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7.7.3 Control

Old man's beard can be controlled by both mechanical control and herbicides, though typically its control relies on a combination of both i.e. cut-stump application. In New Zealand, biological control has also been used with good effect. An agromyzid fly (*Phytomyza vitalbae*) and a sawfly (*Monophadnus spinolae*) were shown to be highly specific to the target weed and released in New Zealand between 1994 and 1998 (Gourlay et al 1999). Table 11 presents a summary of control measures for old man's beard.

Physical Control

Small seedlings can be readily pulled by hand. Larger stems have to be cut, the roots grubbed out and the material placed off the ground so it cannot take root again.

Chemical Control

A number of chemicals have been used effectively against old man's beard in New Zealand, including glyphosate, though control invariably takes more than one year (New Zealand Department of Conservation 2005). Control should be undertaken during active growth. For mature plants, the vines should be cut back to ground level or waist height in winter or spring and the subsequent re-growth can be then foliar sprayed. This method will avoid impacting on the host plant the vine may be covering. For larger specimens, the plant can be cut at the base with a straight horizontal cut. Herbicide is then applied immediately to the wound with a paint brush, eye dropper or small squeeze bottle. On larger stems it is only necessary to wipe herbicide around the outer rim of the cut. The plants should be left in situ until they are dead. Where plants are not killed in a single application, wait until re growth before re spraying.

At this point it must be restressed that all Plant Protection

Products must be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). Again, it should be noted that it is an offence to use Plant Protection Products in a manner other than that specified on the label. The methods just outlined are not in accordance with the product label and so it will be necessary to discuss the use of such methods with the Pesticides Control Service with a view to seeking approval under the derogation procedures provided under the Plant Protection Regulations.

Triclopyr can also be used as a foliar spray or as a spot treatment. This should be applied in summer during active growth before senescence, when it is not very hot or during drought. Following control, regular monitoring will be required with appropriate follow-up to deal with re-growth or new seedling germination over a period of 2–3 years.

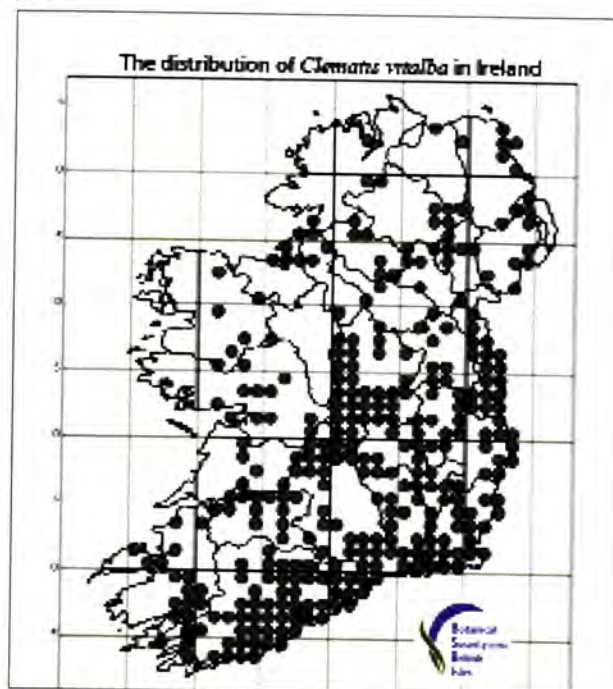


Figure 41: Distribution of Old Man's Beard

(National Biodiversity Data Centre, July 2008)

7 Non-Native Invasive Species Identification, Ecology and Control

Table 11: Summary of Physical and Chemical Control Measures for Old Man's Beard



Physical Control

Method	Season	Follow-up
Cutting	Any time of year when the soil is suitably dry. Small plants can be pulled by hand. Large stems cut and roots grubbed out.	Regular follow-up to deal with re-growth or seedlings.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	During active growth in late spring or summer . May require follow-up for 2–3 years.	Foliar spray, wiper applicator or spot treatment. For large vines cut at base and apply to cut surface.
Triclopyr	During active growth in summer .	Foliar spray or spot treatment. Do not apply if very hot or during drought.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.



Figure 42: Old Man's Beard – Winter

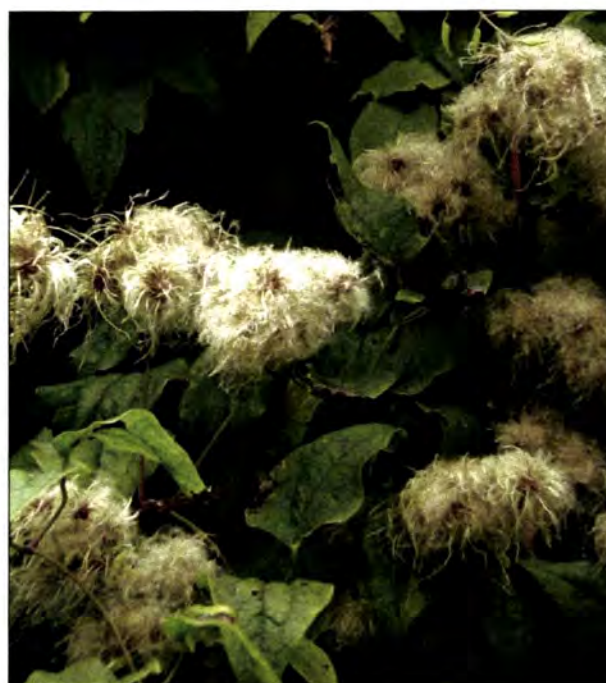


Figure 43: Old Man's Beard – Seed

7 Non-Native Invasive Species Identification, Ecology and Control

7.8. Rhododendron (*Rhododendron ponticum*)

7.8.1. Ecology and Distribution

Rhododendron (*Rhododendron ponticum*) is an evergreen, acid loving shrub introduced to Ireland in the 18th Century. There are more than 900 species of Rhododendron, but only one, Rhododendron ponticum is invasive in Ireland. Since then, it has established itself as a major weed of acid woodlands in Wicklow, Kerry and Cork (see [Figure 44](#)) where its control has been an ongoing battle for many decades. It is only likely to be a problematic species on road schemes in areas of acid or peaty soils.

It produces masses of showy lilac flowers in May which help endear it to ill-informed members of the public. Ironically, rhododendron occurred as a native in Ireland during the (geologically) recent interglacial period. It is considered native to east and southern Europe and the current stock found in Ireland has been linked genetically with that found in the Iberian peninsula (Tyrie: 2008).

It can withstand considerable shade and thrives as an understorey species in woodland, though it also tolerates open conditions in suitable acid soils. Its dense tangle of stems can block pathways, smother watercourses and encroach on roadways thereby impinging on sight-lines and reducing the capacity of the road to drying out. The foliage of rhododendron contains various compounds that appear to have an allelopathic action on other species (inhibiting their growth) which may further inhibit plants from growing within close proximity.

Rhododendron hosts a serious pathogen *Phytophthora ramorum* which is a fungus that attacks a variety of woody plants and tree species and is the causative agent of 'sudden oak death'. If suspicious symptoms are observed

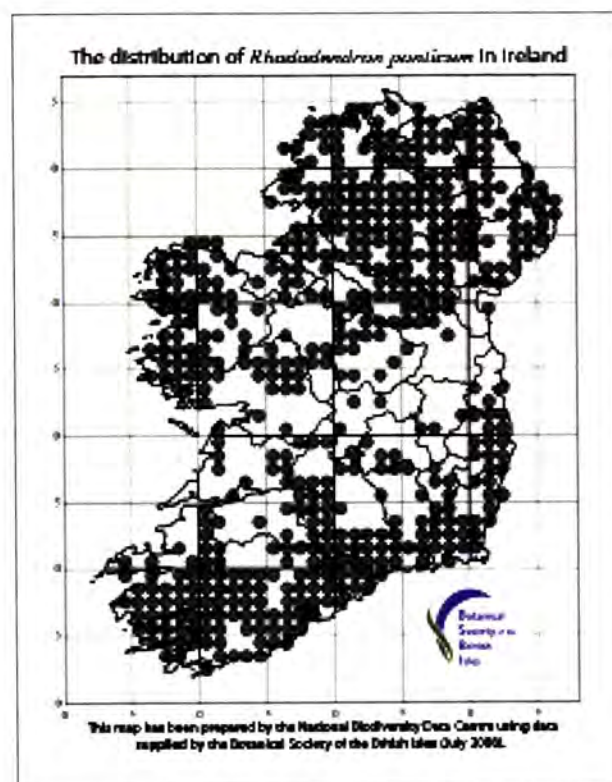


Figure 44: Distribution of Rhododendron
(National Biodiversity Data Centre, July 2008)

on Rhododendron such as wilting of shoots, brown/black colour on twigs that can spread onto leaves where the leaf bases and tips blacken this must be reported to the Forest Service for testing. Under the EU Plant Health Directive, emergency legislation was introduced in 2002 to prevent further spread of *Phytophthora ramorum* within the EU. If present, Forest Service will offer advice on control measures in accordance with EU technical guidelines.

7 Non-Native Invasive Species Identification, Ecology and Control

7.8.2. Identification

- Rhododendron is a shrub or small tree growing up to 8m in height.
- As a member of the Ericaceae (heather family), it is confined to soils with a low pH
- It has oval, waxy leaves up to 20cm in length, which are darker above than below.
- The bell-shaped flowers are produced in a cluster at the tips of branches.
- The small seeds are produced in capsules and have a high germination rate.
- Spread can also occur by vegetative means where plants sucker or throw up new sprouts from roots as well as from branches (layering).
- Rhododendron forms dense thickets that excluded all light from the understorey thereby eliminating herbaceous plants and preventing the natural regeneration of trees and shrubs.

7.8.3. Control

Considerable effort has been put into the control of rhododendron, particularly in woodland habitats, in Ireland and elsewhere in the northern hemisphere. The choice of control method can influence the recovery of the site and should be considered prior to undertaking any control operation. Control options that include the partial or complete removal of rhododendron prior to the application of herbicides will allow re-invasion of plants, especially if coupled with ground disturbance (Tyrie 2008).

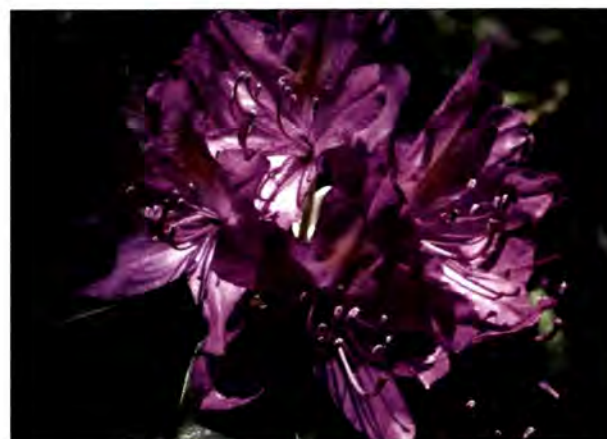


Figure 45: Rhododendron – Flower Head
(Photo: Mike Dodd)

Table 12 provides a summary of control measures for rhododendron.

Physical Control

A range of physical control measures have been developed for rhododendron in response to the general sensitivity of acid woodland sites where it frequently becomes established. Collateral damage by spray drift on non-target species is a prime concern in such sites. Physical control options include uprooting by hand, uprooting by winching (hand-operated or tractor mounted), chainsaw cutting of root-ball, mulch-matting and bud rubbing.

Cutting of stems by manual means has been used as a control in Ireland, the UK and Turkey, but on its own it has been proven not to be particularly effective (Esen et al 2005). The plants capacity for regeneration by suckers from remaining bits of root or stem render the cutting ineffective on its own unless applied in areas of limited infection where adequate follow-up can be made. The approach is labour-intensive and expensive.

7 Non-Native Invasive Species Identification, Ecology and Control



Figure 46: Rhododendron – Foliage

Uprooting of plants provides a better result than simply cutting and is more cost effective in the long term. The roots of rhododendron are relatively shallow, being confined to the upper horizons (seldom deeper than 45cm) and typically extend uphill from the plant. This allows plants to be easily toppled using a hand operated turfer or mechanical winch. Younger plants in newly-established infestations can be readily hand-pulled. Winching is labour intensive and requires suitable anchor points or tractor access to the site. Leaving stumps sufficiently high to provide anchor points can impede access during initial clearance operations. Resultant soil disturbance may be unacceptable on sensitive sites.

Chainsaw cutting of the root-ball is effective on larger plants but is generally restricted to soft soil areas. This approach can be used in conjunction with winching methods to reduce the level of soil disturbance. It requires skilled operators to implement and results in considerable wear and tear on equipment.

The use of mechanical means (machinery to uproot or excavate plants) is generally only appropriate for sites of low

ecological interest where damage to existing vegetation is not a concern. Heavy trafficking of woodland soils can result in puddling of soils; give rise to sediment run-off and nutrient leaching which can impact on watercourses.

In all the above instances, the accumulated material is typically windrowed or mounded and let break down naturally, or in some instances burnt. As vast amounts of material can be generated from quite small areas of infestation, the former option is preferable.

Follow-up is required to deal with re-growth and seedling germination irrespective of the control method employed. Mulch matting has been devised as an experimental means to prevent re-growth following initial clearance. Heavy-duty geotextile is laid either directly over the cleared ground or over removed stumps and other material to prevent re-sprouting and germination. While this system reduces soil disturbance it is labour intensive and material costs can be high.

Another experimental method currently being investigated is bud-rubbing on cut stumps (ibid). Following cutting back of the plant to a low stump, re-growth on the plant is removed by hand or using a thin metal rod (more practical for crevices) on a periodic basis. The timing of repeat visits is important in order to prevent the re-growth from establishing itself.

Chemical Control

Rhododendron is hard to kill even with herbicides and repeated application at low rates may be required to control it (Esen et al 2005). Due to the scale of infestation typical of rhododendron, foliar spraying with herbicides is not recommended, as considerable quantities of spray will be required which can have effects beyond the target species. However, foliar spray may be an option in areas where there are either young

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Non-Native Invasive Species Identification Ecology and Control

populations or in tall dense, monotypic stands. A variety of herbicides have proven effective for control including 2,4-D, glyphosate, dicamba and triclopyr.

The cut-stump method involves cutting back of the aerial growth and application of herbicide directly to the cut stem or stump ideally within minutes but not later than 48 hours of cutting. A vegetable dye should be added to the herbicide to enable treated stumps to be clearly identified. Re-growth may occur following treatment which should be dealt with by a follow-up foliar spray (using glyphosate, triclopyr, etc.) when the growth reaches about 1m in height.

Stem injection control involves herbicide application directly into the stems of large plants. This method enables precise application of the herbicide and uses less product thereby proving more cost effective than foliar spraying. Holes of 11–16mm diameter are drilled every 7.5cm around the trunk just above ground level as vertically as possible in order to hold the herbicide. 2ml of herbicide should be applied per stem immediately after drilling with a spot-gun. A 25% solution of glyphosate (ie. 1:3 mixture with water) has been used successfully for complete control of target bushes (ibid). Triclopyr has also been used as a stem injection in an undiluted or 1:1 mixture. Application during March, April or October been found to be most effective.

At this point it must be restressed that all Plant Protection Products must be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). Again, it should be noted that it is an offence to use Plant Protection Products in a manner other than that specified on the label. The methods just outlined are not in accordance with the product label and so it will be

necessary to discuss the use of such methods with the Pesticides Control Service with a view to seeking approval under the derogation procedures provided under the Plant Protection Regulations.

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Table 12: Summary of Physical and Chemical Control Measures for *Rhododendron*



Physical Control

Method	Season	Follow-up
Cutting	Anytime of the year.	Very labour intensive and does not kill plant. Regular follow-up to deal with re-growth required.
Uprooting	Anytime of the year.	Small plants can be pulled by hand. Large stems cut and roots grubbed out by winch or machine.
Mulch matting	Anytime of the year.	Labour intensive. Requires maintenance and follow up treatment.
Bud-rubbing	Spring to autumn.	Labour intensive. Requires regular follow-up.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	During active growth in late spring or summer (June to September) . May require follow-up for 2–3 years.	Foliar spray, wiper applicator or spot treatment. Also as stem injection or cut-stump.
Triclopyr	During active growth in late spring or summer (June to September) . May require follow-up for 2–3 years.	As for glyphosate. Do not apply if very hot or during drought.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

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7.9. Buddleia (*Buddleja davidii*)

7.9.1. Ecology and Distribution

Buddleia (also known as the butterfly bush) is a member of the *Buddlejaceae* family. It is very fast growing and can reach 2m in its first year, producing flowers and setting seed.

Buddleia is a native of China but is common as a garden plant owing to its profusion of flowers which tend to attract a considerable diversity of butterflies (hence its other common name). It is frequently found in waste ground in urban environments (common in Dublin and Cork), though has a widespread distribution throughout the country (See [Figure 49](#)). It colonises bare ground very rapidly and can quickly form mono-typic stands.

As buddleia tolerates very poor soils, it is capable of growing on walls, rock outcrops or sub-soils, conditions which are frequent on new road schemes. In particular it poses a threat where such features are being left to re-colonize naturally as in rock cuttings, eskers, etc. In other countries it has established itself as a problem plant along watercourses where due to its shallow root system, it is frequently washed away resulting in erosion of the river banks and downstream blockages.

7.9.2. Identification

- A multi-stemmed shrub reaching up to 4m in height with arching branches, topped with showy, conical panicles of lilac flowers during the period June to September. Flowers may also be pink, red, purple or white.
- The leaves are 10–20cm in length, lanceolate with a slightly serrated edge and a felted whitish under surface.

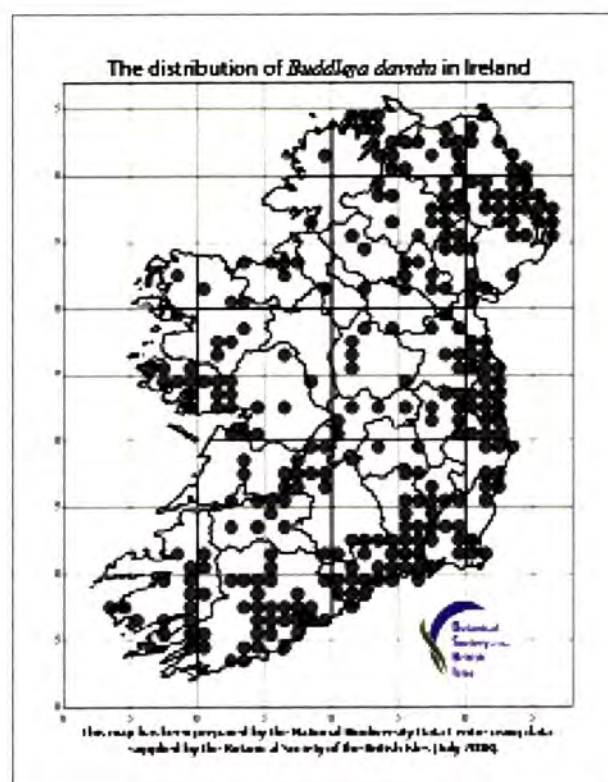


Figure 49. Distribution of Buddleia
(National Biodiversity Data Centre, July 2008)

- The plant is deciduous though in winter the desiccated flower heads and seed capsules remain on the bush.
- The seeds produced are very small and numerous with up to 3 million produced per plant. They can remain viable in the soil for many years.

7 Non-Native Invasive Species Identification, Ecology and Control

7.9.3. Control

As buddleia is a plant that favours disturbed sites, physical grubbing of plants can provide ideal conditions for the germination of seeds. Care needs to be taken to ensure re-vegetation of controlled areas is undertaken swiftly. The branches of buddleia are capable of rooting as cuttings, so care should also be taken to ensure material is disposed of in a manner to avoid this risk.

Physical Control

Management methods such as digging it out are applicable only to minor infestations at the initial stage of invasion. Hand-picking of young plants is feasible but should be undertaken with care to avoid soil disturbance which can give rise to a flush of new seedling. Grubbing of mature stands as a sole attempt at control is not recommended for the same reason. After uprooting, it is essential to plant the ground in order to prevent a flush of new seedling growth.

When it is cut, Buddleia grows back from the stump very vigorously. Mowing of young plants does not provide control as they re-sprout with vigour. Where removal of mature plants is not feasible in the short term, the flower heads should be cut off in June before seed set.

Chemical Control

Recommended practice for the application of herbicides requires cutting back of plants to a basal stump during active growth (late spring to early summer) which is then treated (brushed on) immediately with a systemic weed killer mix (Starr et al, 2003). Foliar application of triclopyr or glyphosate may be adequate for limited infestations of younger plants, but should be followed up at 6 monthly intervals. At this point it must be restressed that all Plant Protection Products must be used in accordance with the product label and with Good Plant Protection Practice as

prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). Again, it should be noted that it is an offence to use Plant Protection Products in a manner other than that specified on the label. The methods just outlined are not in accordance with the product label and so it will be necessary to discuss the use of such methods with the Pesticides Control Service with a view to seeking approval under the derogation procedures provided under the Plant Protection Regulations.

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Table 13: Summary of Physical and Chemical Control Measures for **Buddleia**

Physical Control

Method	Season	Follow-up
Grubbing	Any time of year when the soil is suitably dry. Small plants can be pulled by hand. Large stems cut and roots grubbed out.	Regular follow-up to deal with re-growth or seedlings which can result from exposure of soil.

Chemical Control

Chemical	Season	Follow-up
Systemic weed-killer mix (Starr et al 2003)	During active growth in late spring or summer.	Brushed on to cut back stumps.
Triclopyr or Glyphosate	During active growth in summer of limited infestations of young plants	Foliar spray. Requires follow-up at 6 monthly intervals.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.



Figure 47: Buddleia – Flower & Foliage



Figure 48: Buddleia – Flower

8

References

ACOT, 1997. Noxious Weeds and their control.

Dublin: An Chomhairle Oiliúna Talmhaíochta

Armstrong C., National Botanic Gardens, 2008. [Discussion on the treatment of Giant rhubarb]

(Personal communication, 2008)

Australian Department of Primary Industries and Water, 2008.

Weeds Index [Online].

➤ Available at:

<http://www.dpiw.tas.gov.au/inter.nsf/WebPages/SSKA-73U3QA>

[accessed 30 October 2008]

Booy, O. and Wade, M., 2007. Giant Hogweed Management in the United Kingdom.

UK. RPS Group Plc

Centre for Ecology and Hydrology, 2004.

Information sheet 3: Himalayan Balsam.

Cornwall Nature Reserves, 2008.

Invasive Species. [Online].

➤ Available at:

<http://www.cornwallnr.org.uk/inspec.htm>

[accessed 30 October 2008]

Cronk, Q.C.B. & Fuller, J.L., 1995. Plant Invaders. The threat to natural ecosystems.

London: Chapman and Hall.

Database of Alien Plants in Ireland.

➤ Available at:

www.biochange.ie/alienplants/

DEFRA, 2005. Helping to prevent the spread of invasive non-native species: Horticultural code of practice.

UK: Department of Environment, Food and Rural Affairs.

DEFRA, 2008. Ragwort and Injurious Weed Control.

➤ Available at:

<http://www.defra.gov.uk/farm/wildlife/weeds/index.htm>

[accessed 30 October 2008]

8

References

Department of Agriculture and Rural Development Northern Ireland, n.d. Giant Hogweed.

Online.

➤ Available at:

http://www.ruralni.gov.uk/giant_hogweed_cmb.pdf

Dolan, L.M.J., 2003. Roads as Ecosystems: a more sustainable approach to the design of Irish rural roadside verges. *In Proceedings of the National Committee for Biology Annual Seminar 1 (of 2) "Boats and Planes, Cars and Trains: The Effects of Human Transport on Ecosystems" 2nd April 2003.*

Dublin, Royal Irish Academy.

Dolan, L.M.J., 2004. (In Prep.) *An "Ecological Landscape Design" approach to Landscape Treatments on National Road Schemes: a pilot project on the N21 Ballycarthy to Tralee, Road Improvement Scheme, Co. Kerry.*

Dolan, L.M.J. et al, 2006. Chapter 13: Towards the Sustainable Development of Modern Road Ecosystems. In John and Julia Davenport, eds. *Transport and the Environment*.

The Netherlands: Environmental Series, Springer.

DoT, 2008. Chapter 8 – Temporary Traffic Measures and Signs for Roadworks. In DoT, 1996. *Traffic Signs Manual*.

Dublin: Department of Transport.

➤ Available at:

<http://www.transport.ie/viewitem.asp?id=9095&lang=ENG&loc=1225>

English Nature, 2003. *The Herbicide Handbook: Guidance on the use of herbicides in Nature Conservation sites*.

Wetherby, West Yorkshire: English Nature/FACT.

Environmental Agency, n.d. Managing Japanese knotweed on development sites – the knotweed code of practice.

Online.

➤ Available at:

<http://www.environment-agency.gov.uk/business/sectors/31364.aspx>

Environment Agency, 2003. *Guidance for the control of invasive weeds in or near freshwater*.

UK. Environment Agency.

Esen, D. & Zedaer, S., 2004. Control of rhododendron (*Rhododendron ponticum* and *R. flavum*) in the eastern beech (*Fagus orientalis*) forests of Turkey. *New Forests*, 2004 (Vol. 27) (No. 1) 69–79.

Kluwer Academic Publishers.

8

References

Esen, D., Nilsen, E.T., and Yildiz, O., 2006. Ecology, competitive advantages and integrated control of *Rhododendron*: An old ornamental yet emerging invasive weed around the globe. P407–421 in *Floriculture, Ornamental and Plant Biotechnology Vol. III*. Global Science Books.

Fleming, J., 2008. [Discussion on the definition of noxious species]
(Personal communication, 2008)

Gourlay et al, 1999. The Biological Control Programme against *Clematis vitalba* in New Zealand. In N.R. Spencer, ed. *Proceedings of the X International Symposium on Biological Control of Weeds*. Bozeman, Montana, USA. Montana State University, 2000, p. 709–718

➤ Available at:

<http://www.invasive.org/publications/xsymposium/proceed/09pg709.pdf>

Invasive Species Ireland, n.d. Best Practice Management Guidelines – Giant Hogweed *Heracleum mantegassianum*
Online

➤ Available at:

<http://www.invasivespeciesireland.com/files/public/BPM%20Guidance/Giant%20Hogweed%20BPM.pdf>

Invasive Species Ireland, n.d. Giant Rhubarb (*Gunnera tinctoria*) Invasive Species Action Plan.

Online

➤ Available at:

<http://www.invasivespeciesireland.com/files/public/Management%20contingency/Gunnera%20tinctoria%20Invasive%20Species%20Action%20Plan.pdf>

Invasive Species Ireland, n.d. Best Practice Management Guidelines – Himalayan balsam (*Impatiens glandulifera*).

Online

➤ Available at:

<http://www.invasivespeciesireland.com/files/public/BPM%20Guidance/Himalayan%20Balsam%20BPM.pdf>

Invasive Species Ireland, n.d. Best Practice Management Guidelines *Rhododendron* (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*).

Online

➤ Available at:

<http://www.invasivespeciesireland.com/files/public/BPM%20Guidance/Rhododendron%20BPM.pdf>

8

References

Invasive Species Ireland, 2008. Best Practice Management Guidelines for Japanese knotweed.

Online

➤ Available at:

<http://www.invasivespeciesireland.com/files/public/BPM%20Guidance/Japanese%20knotweed%20BPM.pdf>

[accessed 30 October 2008]

Invasive Species Ireland, 2008. *Horticulture Code of Practice.*

Online

➤ Available at:

<http://www.invasivespeciesireland.com/files/public/Codes/Horticulture%20COP.pdf>

[accessed 30 October 2008]

Irish Strategy for Plant Conservation, 2007 Target 10 – Managing Invasive Alien Species.

***Gunnera tinctoria* (Giant rhubarb).**

Online

➤ Available at:

<http://www.botanicgardens.ie/gspc/targets/news/gunnera.htm>

[accessed 30 October 2008]

Kabat, T.J., Stewart, G.B. & Pullin, A.S., 2003. A systematic review of the effectiveness of Japanese knotweed (*Fallopia japonica*) control and eradication methods.

University of Oxford, Oxford, UK. BES annual meeting.

King County Noxious Weed Control Program 2007.

Online

➤ Available at:

<http://www.kingcounty.gov/weeds>

Law, C., 2003. Giant problems for Taranaki.

New Zealand: Taranaki Regional Council.

LGMSB, 2007. Guidance for the Control and Management of Traffic at Road Works.

Dublin. Local Government Management Services Board.

➤ Available at:

<http://www.nra.ie/Publications/DownloadableDocumentation/LGMSBDocument-GuidancefortheControlandManagementofTrafficatRoadWorks/file,10784,en.pdf>

8

References

Miller, J. Organic methods of Rhododendron control.

UK: Kehoe Countryside Ltd

➤ Available at:

[http://www.forestry.gov.uk/pdf/rhod_jm_techniques.pdf/\\$FILE/rhod_jm_techniques.pdf](http://www.forestry.gov.uk/pdf/rhod_jm_techniques.pdf/$FILE/rhod_jm_techniques.pdf)

[accessed 30 October 2008]

Montgomery, M., n.d. Invasive alien plants: A review of Japanese Knotweed (*Fallopia japonica*).

UK: LK Pollution Response Ltd

NetRegs, 2008. Environmental Guidance for small businesses in the UK.

Online

➤ Available at:

<http://www.netregs.gov.uk/>

[accessed 30 October 2008]

New Zealand Department of Conservation, 2005. Old Man's Beard Factsheet.

Online

➤ Available at:

<http://www.doc.govt.nz/templates/MultiPageDocumentTOC.aspx?id=40082>

[accessed 30 October 2008]

Northern Ireland Environment Agency, n.d. Japanese Knotweed – *Fallopia japonica* – Commonly Asked Questions.

Online

➤ Available at:

http://www.ni-environment.gov.uk/japanese_knotweed-commonly_asked_questions__2_.pdf

Noxious Weeds (Common Barberry) Order, 1958 (S.I. No. 120 of 1958).

Noxious Weeds (Male Wild Hop Plant) Order, 1965 (S.I. No. 189 of 1965).

Noxious Weeds (Thistle, Ragwort, and Dock) Order, 1937 (S.I. No. 103 of 1937).

Noxious Weeds (Wild Oat) Order, 1973 (S.I. No. 194 of 1973).

Noxious Weeds Act, 1936.

8

References

NRA, 2004. *Guidelines for the Treatment of Noise and Vibration in National Road Schemes*. 1st ed.
Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2005a. *Guidelines for the Treatment of Bats During the Construction of National Road Schemes*.
Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2005b. *Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes*.
Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2005c. *Guidelines for the Treatment of Watercourses During the Construction of National Road Schemes*.
Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2005d. *Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes*.
Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2005e. *Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes*.
Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2005f. *Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes*.

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

8

References

NRA, 2005g. *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes.*

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2005h. *Environmental Impact Assessment of National Road Schemes – A Practical Guide.*

Dublin: National Roads Authority

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2006a. *A Guide to Landscape Treatments for National Road Schemes in Ireland.*

Dublin. National Roads Authority

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2006b. *Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub, Post, Prior and During the Construction of National Road Schemes.*

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2006c. *Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes.*

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2006d. *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes.*

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

8

References

NRA, 2007a. *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan.*
Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2008a. *Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.*

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2008b. *Guidelines for the Assessment of Ecological Impacts of National Road Schemes.* 2nd ed.

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2008c. *Environmental Impact Assessment of National Road Schemes – A Practical Guide.* 1st ed.

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

NRA, 2008d. *Guidelines for the Management of Waste from National Road Construction Projects.*

Dublin: National Roads Authority.

➤ Available at:

<http://www.nra.ie/Environment/>

Reynolds, S., 1999. Recent higher plant introductions into Ireland. In D. Murray, ed. *Royal Irish Academy in the Proceedings of a seminar on Biological invaders: the impact of exotic species.*

Dublin: RIA.

Reynolds, S., 2002. *Catalogue of Alien Plants in Ireland.*

Dublin: National Botanic Gardens.

Royal Horticultural Society, 2008a. Himalayan balsam control.

Online

➤ Available at:

<http://www.rhs.org.uk/advice/profiles0705/himalayanbalsam.asp>

[accessed 30 October 2008]

8

References

Royal Horticultural Society, 2008b. Winter Heliotrope.

Online

➤ Available at:

http://www.rhs.org.uk/advice/profiles0904/winter_heliotrope.asp

[accessed 30 October 2008]

Scott R. & Mars R.H., 1984. Impact of Japanese knotweed and methods of control.

In Aspects of Applied Biology 5: Weed Control and Vegetation Management in Forestry and Amenity Areas p.291–296.

Scottish Agricultural College weed control methods.

➤ Available at:

<http://www.sac.ac.uk>

[accessed 30 October 2008]

Starr, F., Starr, K. & Loope, L., 2003. Buddleia davidii.

Mau, Hawaii US Geological Survey – Biological Resources Division.

➤ Available at:

http://www.hear.org/Pier/pdf/pohreports/buddleia_davidii.pdf

[accessed 30 October 2008]

Stokes, O'Neill & McDonald, 2004. (Unpublished) Invasive species in Ireland.

Belfast: Quercus, Queens University Belfast.

Teagasc, 2008. Fact Sheet Ragwort.

Wexford: Teagasc.

➤ Available at:

<http://www.teagasc.ie/advisory/factsheets/ragwort.asp>

[accessed 30 October 2008]

The Applied Vegetation Dynamics Laboratory, 2008.

Online

➤ Available at:

<http://www.appliedvegetationdynamics.co.uk/>

[accessed 30 October 2008]

8

References

The Centre for Aquatic Plant Management.

Online

➤ Available at:

<http://www.ceh.ac.uk/sections/wq/CAPM1.htm>

[accessed 30 October 2008]

The Cornwall Knotweed Forum (for Japanese Knotweed).

Online

➤ Available at:

<http://www.cornwall.gov.uk/index.cfm?articleid=6568>

[accessed 30 October 2008]

The Global Invasive Species Programme.

Online

➤ Available at:

<http://www.issg.org/IUCNISGuidelines.html#GISP>

[accessed 30 October 2008]

The Royal Botanic Gardens – Kew.

Online

➤ Available at:

<http://www.kew.org/>

[accessed 30 October 2008]

Tu, M., Hurd, C. & Randall, J.M. (2001). *Weed Control Methods Handbook*.

UK: The Nature Conservancy Council.

Tyrie, C., 2008. *Invasive Aliens in Northern Ireland – Rhododendron*.

Online

➤ Available at:

Available at: <http://www.habitas.org.uk/invasive/species.asp?item=3888>

[accessed 30 October 2008]

University of Exeter, 2007. *Control of Japanese knotweed by application of herbicide into cut cane stumps*.

Online

➤ Available at:

<http://www.projects.ex.ac.uk/knotweed/standardmethodology.pdf>

8

References

Weeds of Blue Mountains Bushland, 2008.

Online

➤ Available at:

www.weedsbluemountains.org.au

[accessed 30 October 2008]

Wildlife (Amendment) Act, 2000.

Wildlife Act, 1976.

Appendix 1

Noxious Weed and Non Native Invasive Site Assessment and Outline Management Plan

NOXIOUS WEEDS / NON-NATIVE INVASIVE SPECIES SITE ASSESSMENT AND OUTLINE MANAGEMENT PLAN			
Site Name		Chainage	Recorder
Noxious Weed or Invasive Species present		Land Owner / Occupier	
Grid Ref	Area (ha)	Date	Current Activity on Site
Sketch map of site showing location of species, scale of infestation & access points (indicate north & scale)			Description of site, substrate & vegetation
Size of population (flowering / fruiting / vegetative)			Current management
Associated Species			Proposed works on site
Proposed control measures			Other data / information

Where possible, attach a locality map (1:5,000 or less) showing location, photographs to show the general site area and plant population.

Appendix 2

Submitting Invasive Species Records to the National Invasive Species Database

The national invasive species database is held by the National Biodiversity Data Centre and is intended to provide centralised up-to-date information on the distribution of invasive species in Ireland.

Maps of the distribution of invasive species in Ireland will be publicly available through the Data Centre's web GIS system. As a tool for the recording of new and spread of established species in Ireland, it is important that the database accurately reflects the current distribution of invasive species in Ireland. For that reason, it is important that **all** observations of invasive species within Ireland be submitted to the database, regardless of how widespread the species may be.

To submit a record of an invasive species to the national database you need to record the name of the species, the date on which you observed it, the location of the species and a grid reference. This should be submitted along with your name and the name of the person who identified the species (if different) to either the Invasive Species Ireland project (www.invasivespeciesireland.com/sighting) or directly to the National Biodiversity Data Centre (info@biodiversityireland.ie). An excel template explaining in further detail how to submit records to the national database is available at:

www.invasivespeciesireland.com/sighting/dataset.asp

Appendix 3

Recommendations for Using Herbicides

(After Weeds of Blue Mountain Bushland
www.weedsbluemountains.org.au)

A3.1. Using Herbicides

- Many of the weed control techniques suggested in these guidelines involve the use of herbicides
- Herbicides are poisons, and should be handled with the greatest respect. They can be absorbed very easily through the skin, by breathing the vapour, and by ingestion
- By law, herbicides must be used strictly in accordance with the manufacturer's label. They should be kept well out of the reach of children, preferably secured in a locked cabinet
- They should always be stored in the original labelled container
- Keep children and pets away
- Wash skin and equipment afterwards. Wash contaminated clothing separately
- Clean up any spills, including on your skin, with large amounts of water, or by shovelling up contaminated soil and disposing of it at the tip

A3.3. Types of Herbicide

The two most widely used herbicides for use in the control of noxious weeds and invasive species are

- Glyphosate
- Triclopyr

A3.2. Safety Precautions

- Read the label before opening the container and follow the instructions exactly
- Wear protective clothing: long sleeves, long pants, sturdy shoes, gloves, eye protection
- Always wear waterproof gloves
- A respirator is advised when mixing or pouring the liquid
- Do not eat, drink or smoke while using herbicide

A3.4. How Herbicides Work

- Glyphosate is a systemic, non-selective herbicide. It inhibits the action of an enzyme, preventing the production of an amino acid essential to plant life and growth. It must be applied to green leaves, or directly to the plant's sapwood, which lies just under the bark
- Triclopyr is a selective systemic herbicide for woody and broadleaf plants. It is a growth inhibitor which moves to the plant's roots, stops growth, and eventually leads to the death of the plant. Triclopyr can be applied to green leaves and to bark

Appendix 3

Recommendations for Using Herbicides

A3.5. Herbicides, Waterways and Steep Land

- Some chemicals and herbicides are not safe to use near waterways and have the potential to seriously affect the quality of aquatic ecosystems.
- If you need to remove weeds within 20 metres of any kind of watercourse, you should consult with the relevant Regional Fisheries Board
- Try to stage weed removal to avoid exposing large areas of bare soil which will lead to weed invasion or erosion. Mulch bare soil and stabilise it by planting appropriate plants as soon as possible

A3.6. When to Treat with Herbicide

- Apply herbicide when the plant is actively growing
- Do not apply herbicide when the plant is under stress (extreme heat or cold, drought, waterlogged or diseased)
- Choose early morning or late afternoon in summer, midday in winter
- Do not apply when wet or windy weather is anticipated
- For many plants, especially bulbous plants and those which sucker, the best time is between flowering and fruit set
- Treat deciduous plants in late spring or in summer, when in full leaf

A3.7. Herbicide Application Techniques

A3.7.1. The Cut and Paint Technique (Woody Weeds)

- Suitable for small to medium sized woody weeds up to 10cm in diameter (or larger shrubs if using a chain saw)
- Clear the ground around the base of the stem
- Cut the stem horizontally as close to the ground as possible using secateurs, loppers or a bush saw
- Make cuts horizontal to prevent the herbicide running off the stump. Sharp angled cuts are also very hazardous
- Apply undiluted herbicide to the cut stem immediately. Squeeze, not squirt, if using an applicator. Apply herbicide immediately after cutting – within 20–30 seconds – before the plant cells close and the translocation of the herbicide ceases. Ensure there is no runoff of poison. Use as little herbicide as possible
- If cutting at the base is impractical, cut higher to get rid of the bulk of the plant, then cut again at the base and apply herbicide
- If plants re-sprout, cut and paint the shoots after sufficient re-growth has occurred

Appendix 3

Recommendations for Using Herbicides

A3.7.2. Stem and Leaf Swiping

This method is suitable for herbaceous plants with bulbs, tubers or corms, e.g. Montbretia.

- First read about using herbicides, safety precautions, the conditions of use, when to treat with herbicide, and the cut and paint technique
- Remove and bag any seed or fruit
- Using a herbicide applicator, swipe the stems and/or the leaves with undiluted herbicide

A3.7.3. Tree Injection

Tree injection and Frilling or Chipping are methods for treating shrubs or trees greater than 10cm in diameter at the base.

Method 1: Injection

- Using a cordless drill or brace and bit, drill a hole into the base of the plant. Drill at an angle of 45°, through the bark, and into the sapwood
- Within 20–30 seconds fill this hole with undiluted herbicide
- Repeat this process at 5cm intervals around the trunk

Method 2: Frilling or Chipping

- If a drill is not available, use a sharp chisel or axe and make a deep cut at 45° into the sapwood
- Fill with undiluted herbicide immediately
- Repeat these cuts around the base of the tree
- Do not ring-bark the plant

A3.7.4. Spraying

These guidelines do not set out to give a thorough treatment of the subject of spraying. Consider all other options for weed control first.

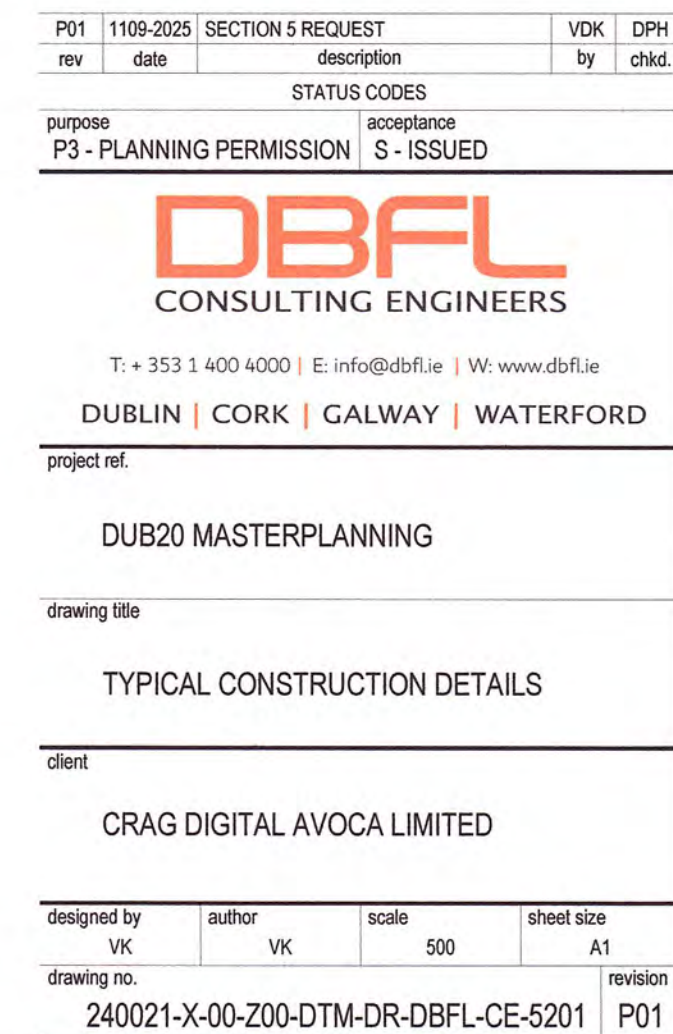
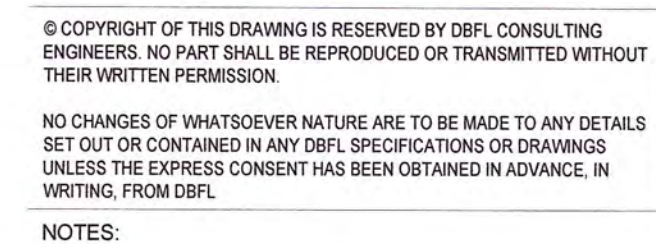
Spray at the correct stage of the plant's growth, at the right time of day, and when there is no wind. Spray at low volume, using the minimum amount of herbicide.

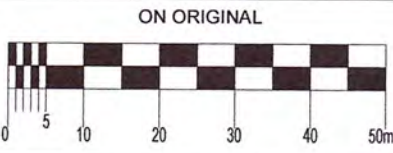
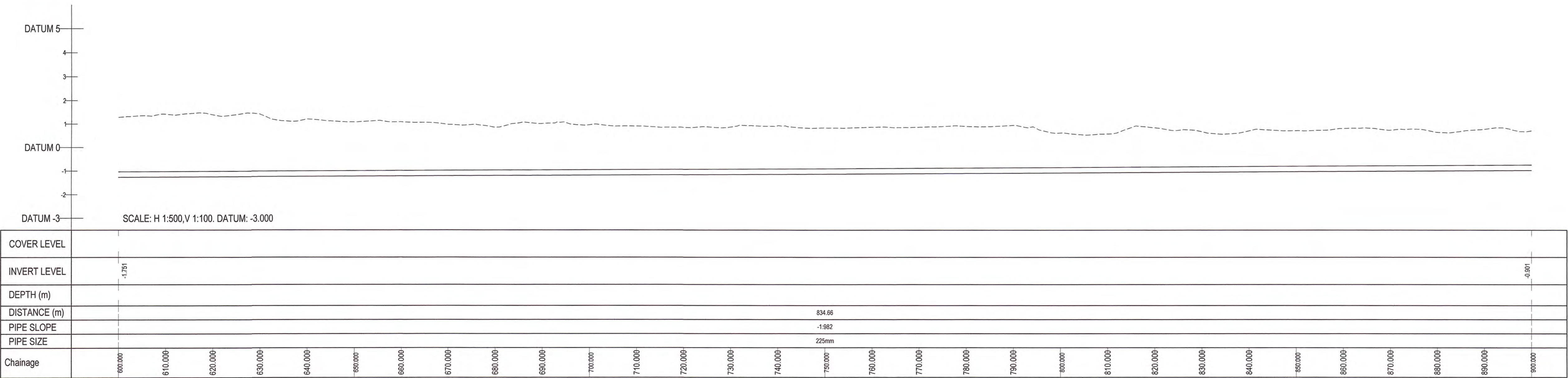
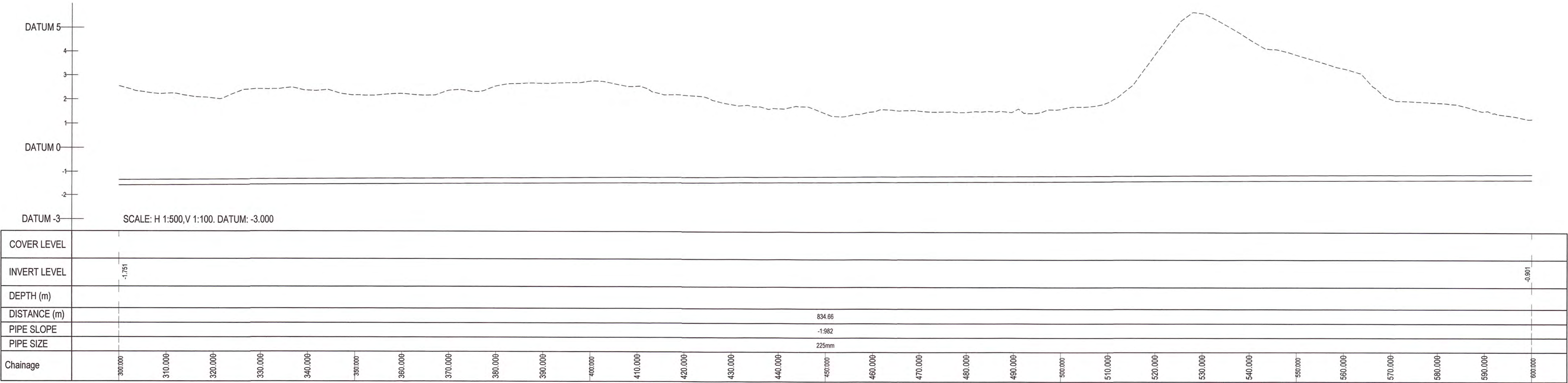
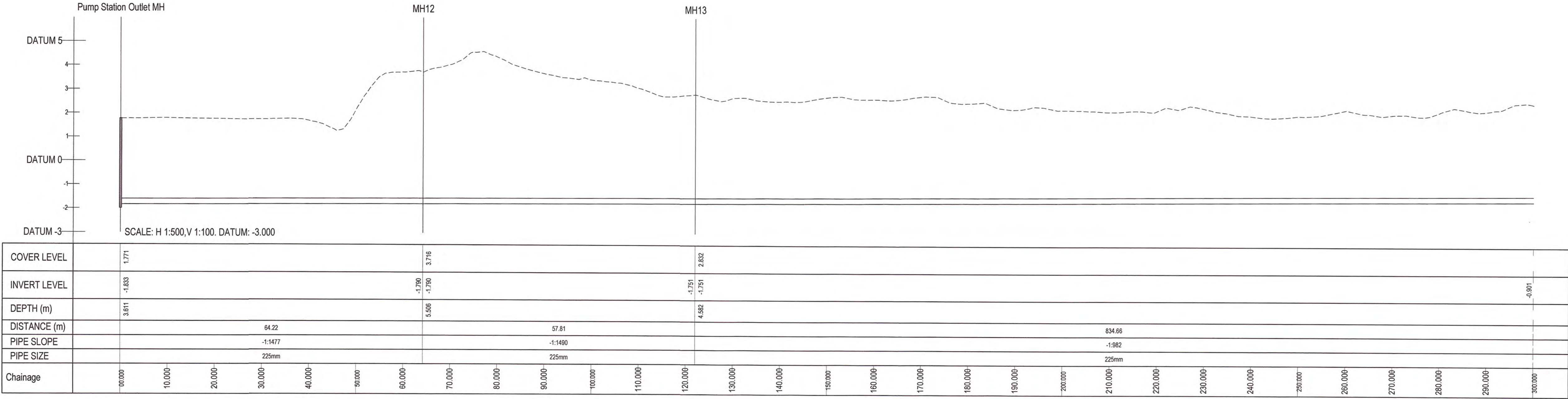
- Spray low – often it is best to cut a weed down to near ground level, then spray the re-growth
- Avoid off-target damage, i.e. spray drift on to desirable plants
- Do not spray near watercourses



- LEGEND**
- PROPOSED SITE BOUNDARY
 - PROPOSED uPVC FOUL DRAINAGE
 - PROPOSED WATER SUPPLY
 - PROPOSED 160mm 4x4 DIAMETER UTILITY DUCTS WITH PROPRIETARY PRECAST CHAMBERS
 - EXISTING WATERMAIN
 - EXISTING FOUL MAIN

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KEY

- EXISTING GROUND PROFILE
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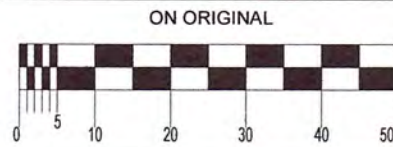
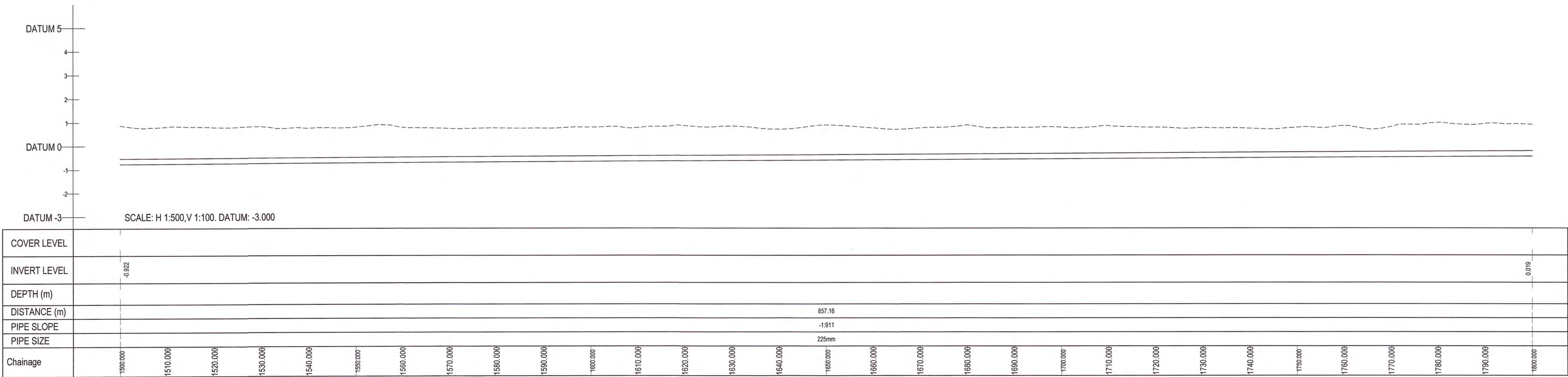
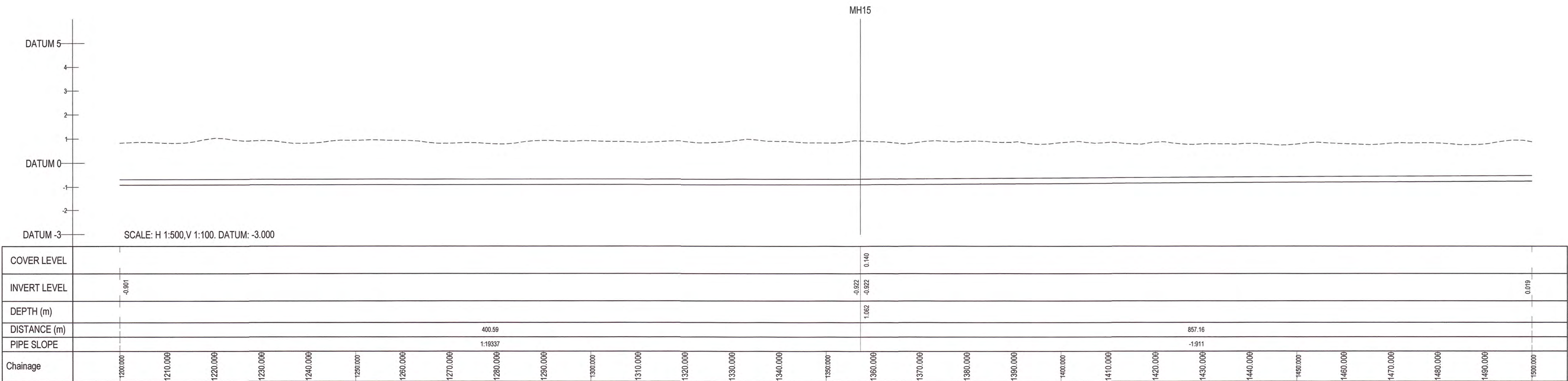
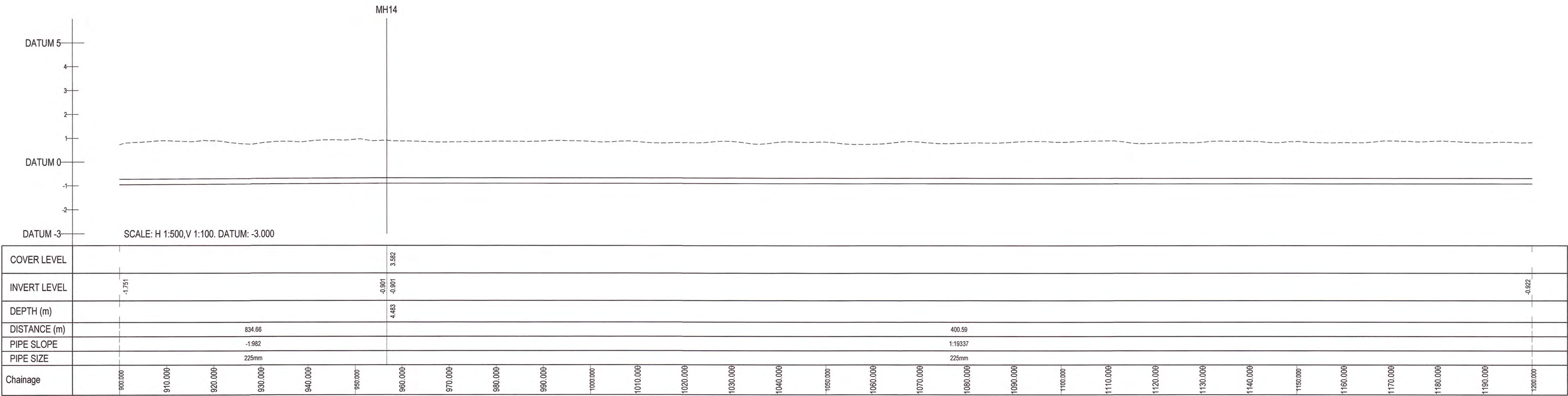
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FOUL RISING MAIN LONGSECTION -
SHEET 1

client

Crag Digital Avoca Limited

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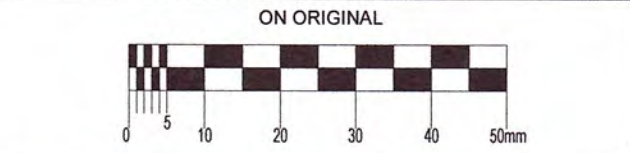
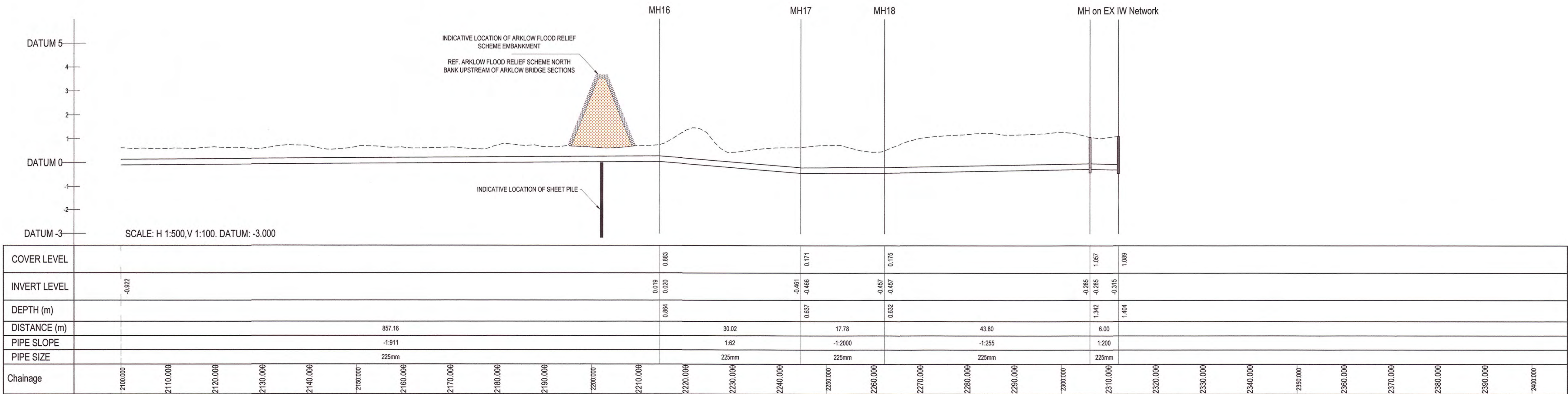
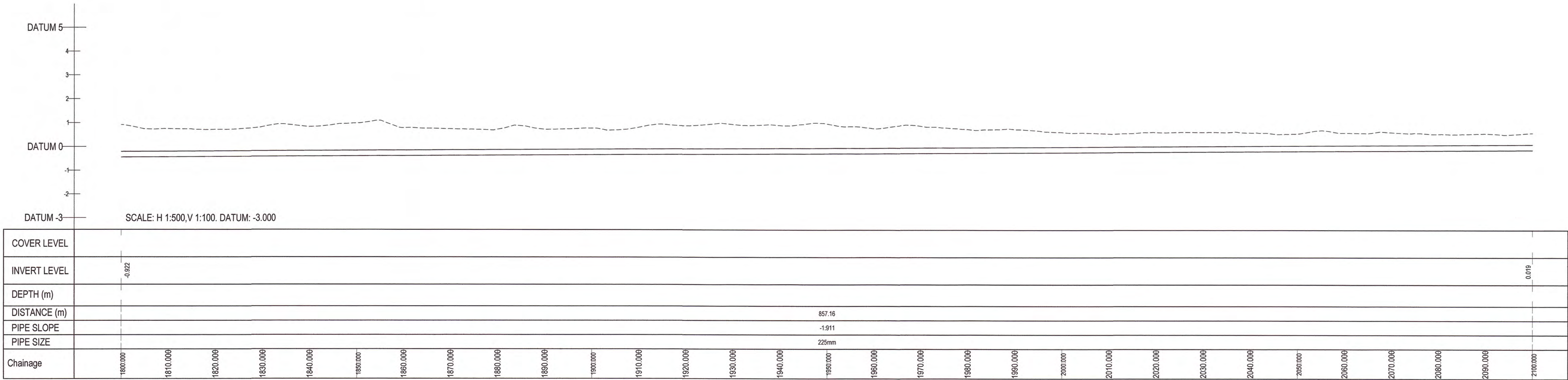
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