



APPENDIX 6-5

Invasive Species Management Plan

Invasive Species Management Plan

Carrow Wind Farm





DOCUMENT DETAILS

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1. INTRODUCTION

1.1 General Introduction

MKO were commissioned by Carrow Renewables Energy Ltd. to prepare an Invasive Species Management Plan (ISMP) to submit with a planning application for the construction of a proposed 14-Turbine Wind Farm Development in Carrow and adjacent townlands, near the villages of Dundrum and Hollyford, Co. Tipperary.

The Proposed Wind Farm is located within a rural area of commercial forestry, agricultural pastoral land, mixed forest, and transitional woodland-shrub in the townland of Carrow and adjacent townlands. The associated Proposed Grid Connection Route includes for underground 110kV grid connection cabling from the proposed onsite 110kV substation, in the townland of Moheragh, Co. Tipperary to the existing Killonan 110kV substation in the townland of Milltown, Co. Limerick. The Proposed Grid Connection underground cabling route to Milltown, Co. Limerick, measuring approximately 37 km in length, is primarily located within the public road corridor. A summary of references to the Proposed Project is provided below:

- › Where the 'Proposed Project' is referred to this encompasses the entirety of the project.
- › Where the 'Site' is referred to, this relates to the primary study area outlined in Figure 2-1 in the accompanying EIAR.
- › Where the 'Proposed Wind Farm' is referred to, this refers to turbines and associated infrastructure.
- › Where the 'Proposed Grid Connection Route' is referred to, this refers to the 110kV onsite substation, all ancillary works and underground 110kV grid connection cabling connecting to the existing Killonan 110kV substation Co. Limerick, and all ancillary works and apparatus.

Four Invasive Species (ISs) listed on the 'Third Schedule' of Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and the 'First Schedule' of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) were identified either within or directly adjacent to the Site during the multidisciplinary walkover surveys and dedicated aquatic surveys carried out by MKO throughout 2024 and 2025. Those species were:

- › Giant Hogweed (*Heracleum mantegazzianum*)
- › Japanese Knotweed (*Reynoutria japonica*)
- › Giant Knotweed (*Reynoutria sachalinensis*)
- › Rhododendron (*Rhododendron ponticum*)

This ISMP has been prepared with reference to current legislation and best practice guidelines in the identification, treatment and management of invasive alien species listed on the 'Third Schedule' and the 'First Schedule' of the above-mentioned European Union/Communities Regulations. The document does not provide advice or guidance with reference to waste legislation.

The objectives of this report are summarised below:

- › Provide site specific best practice guideline measures for the control and management of invasive species.
- › Provide detailed recommendations for the management of invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and the 'First Schedule' of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024).

The recorded ISs within the Proposed Wind Farm site are mapped in Figure 3-1, while Figure 3-2 presents the ISs within or adjacent to the Proposed Grid Connection underground cabling route.

Legislative Framework

Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and Regulation 17(a)/(b) of the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024), include legislative measures to deal with the dispersal and introduction of invasive alien species. These regulations are highlighted below.

Regulation 49 of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011)

“Any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to such plant in the third column of Part 1 of the Third Schedule, any plant which is included in Part 1 of the Third Schedule, shall be guilty of an offence.”

Regulation 50 of the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011)

“a person shall be guilty of an offence if he or she has in his or her possession for sale, or for the purposes of breeding, reproduction or propagation, or offers or exposes for sale, transportation, distribution, introduction or release.

- (a) an animal or plant listed in Part 1 or Part 2 of the Third Schedule, (b) anything from which an animal or plant referred to in subparagraph
- (b), can be reproduced or propagated, or
- (c), a vector material listed in Part 3 of the Third Schedule,”

Regulation 17 of the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024)

- (1) A person shall not
 - (a) introduce into the State,
 - (b) keep, including in contained holding,
 - (c) breed, including in contained holding,
 - (d) import into, export from or transport within the State, except for the transportation of species to facilities in the context of eradication,
 - (e) place on the market,
 - (f) use, exchange or offer for exchange,
 - (g) permit to reproduce, grow or cultivate, including in contained holding, or
 - (h) release into the environment,

an invasive alien species of national concern.

- (2) A person shall not
 - (a) import or otherwise introduce into the State,
 - (b) place on the market,
 - (c) use, exchange or offer for exchange, or
 - (d) release into the environment, a vector material.’

1.3

Guidance Documents

The following guidance documents and literature sources were consulted during the preparation of this report:

- › TII (2020). *The management of Invasive Alien Plant Species on National Roads*. TII Publications, Transport Infrastructure Ireland.
- › Stokes, K., O'Neill, K. & McDonald, R.A. (2004) *Invasive species in Ireland*. Unpublished report.
- › Higgins, G.T. (2008) *Rhododendron ponticum*: A guide to management on nature conservation sites. Irish Wildlife Manuals, No. 33. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- › Good Practice Management Guide for Giant Hogweed (*Heracleum mantegazzianum*) (Invasives.ie)
- › Ireland's 4th National Biodiversity Action Plan 2023-2030.
- › Inland Fisheries Ireland (2016) Best Practice for Control of Japanese Knotweed (*Fallopia japonica*)

1.4

Statement of Authority

This Invasive Species Management Plan has been prepared by Stephanie Corkery and reviewed by Caroline Kelly.

Stephanie is an Ecologist with MKO with 3.5 years of experience in professional ecological consultancy. Stephanie holds a BSc. in Ecology and Environmental Biology, an MSc. in Marine Biology, and a HDip in Sustainability in Enterprise, all from University College Cork. Since joining MKO as a graduate in March 2022, Stephanie has worked on a wide variety of projects including wind farms, large scale residential developments, and County Council projects. Stephanie's key strengths include organising and carrying out both terrestrial and marine mammal surveys, as well as general ecological walkover surveys and bat surveys. She is also experienced in GIS, acoustic data analysis for bat species, and in preparing Appropriate Assessment Screening Reports (AASR), Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), Biodiversity Chapters, and Bat Reports. Stephanie is also a JNCC Certified Marine Mammal Observer and has completed the ACCOBAMS Course for Highly Qualified Marine Mammal Observers (MMO) and Passive Acoustic Monitoring operators (PAM).

Caroline is a Senior Ecologist with MKO with over nine years' experience in ecological consultancy and is a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Caroline holds a BSc in Environmental Biology from University College Dublin and an MSc in Applied Ecological Assessment from University College Cork. In addition, Caroline has completed an Advanced Diploma in Planning and Environmental Law from Kings Inns Dublin. Prior to taking up her position with MKO in June 2025, Caroline worked as a Principal Ecologist with Scott Cawley Ltd. Caroline has strong generalist field ecology skills and has undertaken a range of ecological surveys including habitat, bird (both breeding and wintering), invasive species and protected fauna surveys. She has strong technical reporting skills and has extensive experience in a range of ecological assessments including Appropriate Assessment and Ecological Impact Assessment. She has undertaken ecological assessments and surveys on a variety of project types (e.g. linear infrastructure projects, industrial, commercial, residential, recreational, tourism and renewable energy developments). The baseline ecological surveys were conducted by MKO ecologists; Pádraig Desmond, Stephanie Corkery, Deepali Mooloo (B.Sc., M.Sc.), Nora Szijarto (B.Sc., M.Sc.), David Culleton (B.Sc., M.Sc.), Ciara Hackett (B.Sc.), Mairead Kavannagh (B.Sc., M.Sc.), Sara Fissolo (B.Sc.), and Molly O' Hare (B.Sc., M.Sc.). Aquatic Baseline Surveys were undertaken by Aran von der Geest Moroney (B.Sc.), Niamh Rowan (B.Sc.), Kieran Sugrue (B.Sc.), and Matthew Kieran (B.Sc.). All surveyors have relevant academic qualifications and are competent in undertaking the habitat and ecological assessments.

1.4.1 Methodology

Multidisciplinary walkover surveys were undertaken within the Site. The majority of surveys were undertaken within the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith *et al.*, 2011). A comprehensive walkover of the entire Site was completed with incidental records also incorporated from other dedicated species/habitat specific surveys.

During the multidisciplinary walkover surveys, a search for non-native invasive species was undertaken. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) and the First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. No 374 of 2024). Where recorded, the extent and location of infestations was recorded along with photographs.

2.

CHARACTERISTICS OF THE PROPOSED PROJECT

A detailed project description is provided in Chapter 4 (Description of the Proposed Project) of the accompanying EIAR and is summarised below. The Proposed Project comprises the following:

- i. The construction of 14 no. wind turbines with an overall turbine tip height of 185 metres; a rotor blade diameter of 163 metres; and hub height of 103.5 metres, and associated foundations and hard standing areas;*
- ii. A permanent 110kV substation compound (2 no. control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, entrance on to existing track, all associated underground cabling, wastewater holding tank, site drainage and all ancillary works;*
- iii. Underground internal wind farm electrical cabling and communications cabling connecting the wind turbines to the proposed on-site 110kV electrical substation and associated ancillary works;*
- iv. A meteorological mast of 103.5m in height, and associated foundation and hard-standing area;*
- v. All works associated with the upgrade of the existing agricultural access off the L1154 local road (including the installation of fencing and steel gates) to serve as the main site entrance for the wind farm;*
- vi. The provision of 4 no. new access points along the L1154;*
- vii. The provision of 4 no. new access points along the L-5117;*
- viii. The provision of 5 no. new access/egress point L-5206;*
- ix. The provision of 2 no. new access points along the L-52061;*
- x. Upgrade of existing tracks/ roads and junctions and provision of new site access roads and junctions;*
- xi. 3 no. temporary construction compounds with temporary offices and staff welfare facilities;*
- xii. Accommodation works along the public road network in the townlands of Camus, Ballynahinch, Kilshenane, Dundrum, Gortarush Lower, Carrow, Scarrough, and Moheragh, Co. Tipperary to facilitate the delivery of turbine components and other abnormal loads;*
- xiii. 2 no. Borrow Pits;*
- xiv. Spoil Management;*
- xv. Site Drainage;*
- xvi. Tree Felling and hedgerow removal;*
- xvii. Biodiversity Management and Enhancement Measures;*
- xviii. Operational stage site signage;*
- xix. Battery Energy Storage System and all associated electrical plant and equipment, security fencing, 2 no. static water storage tanks and a firewater retention tank, and all associated infrastructure and apparatus;*
- xx. The provision of underground electrical (110kV) and communications cabling from the proposed on-site 110kV electrical substation to the existing Killonan 110kV electrical substation to facilitate the connection to the national grid (RPS S018);*
- xxi. Provision of 58 no. joint bays, communication chambers and earth sheath links along the proposed underground electrical cabling route;*
- xxii. Reinstatement of land, road and track surface above the proposed cabling trench; and*
- xxiii. All related site works and ancillary development considered necessary to facilitate the proposed development, including landscaping and the reinstatement of land.*

The application is seeking a ten-year planning permission for development and a 35-year operational life from the date of commissioning of the entire wind farm.

Detailed site layout drawings of the Proposed Project are included in Appendix 4-1 of the accompanying EIAR.

3. LOCATION/EXTENT OF INVASIVE SPECIES WITHIN THE SITE

3.1 Japanese Knotweed (*Reynoutria japonica*) and Giant Knotweed (*Reynoutria sachalinensis*)

Japanese Knotweed (*Reynoutria japonica*) is a tall, vigorous, ornamental plant that escaped cultivation in the late nineteenth century and has since become an aggressive invader in both rural and urban environments. The plant can grow up to 2-3m high, and its root system can extend up to 3m into the ground and 7m laterally from the parent plant. The reason this plant is such a threat is due to the nature of its regeneration. Cut fresh stems can produce fresh shoots and roots (rhizome) from nodes when immersed in soil or water. Very small fragments (0.7g) of fresh Knotweed shoot and root material have the potential to start a whole new plant (Environment Agency, 2013).

Giant Knotweed (*Reynoutria sachalinensis*) is native to Japan and parts of Eastern Asia and is closely related to Japanese Knotweed. Like Japanese Knotweed, it is highly invasive and resistant and possesses an extensive rhizome system making it difficult to eradicate. The plant can grow up to 2-4m tall during the summer months.

During field surveys undertaken, Japanese Knotweed and Giant Knotweed were recorded at three locations and one location respectfully, within the Proposed Wind Farm site. These species were not recorded along the Proposed Grid Connection underground cabling route or along the Proposed TDR. The identified stands of Japanese Knotweed and Giant Knotweed within the Proposed Wind Farm site are indicated in Figure 3-1. Infestations varied in size, but all were recorded directly adjacent to the existing road infrastructure and bordering agricultural and woodland habitat.

The coordinates of all Japanese knotweed and Giant Knotweed recorded, as well as location in relation to proposed infrastructure, are provided in Table 3-1 below.

Table 3-1 Locations of Japanese knotweed and giant knotweed recorded during the surveys undertaken.

Map ID*	Description	Coordinates (ITM)
JK-1	Stand adjacent to existing road (not to be upgraded) approx. 45m East of Turbine 8.	X 593499, Y 650456
JK-2	Stand adjacent to existing road (not to be upgraded) approx. 260m south of Turbine 8.	X 593580, Y 650266
JK-3	Stand bordering woodland and agricultural habitat approx. 275m southwest of Turbine 5.	X 594015, Y 650771
GK-1	Stand adjacent to existing road (not to be upgraded) approx. 220m south of Turbine 8.	X 593567, Y 650261

*Japanese Knotweed (JK) and Giant Knotweed (GK).



Plate 3-1 Example of Japanese Knotweed infestation approx. 300m southwest of Turbine 5 (JK-3).



Plate 3-2 Example Japanese Knotweed infestation recorded bordering existing road infrastructure approx. 260m south of Turbine 8 (JK-2).

3.1.1 Proposed Management Strategy

All recordings of Japanese Knotweed and Giant Knotweed were recorded in habitats adjacent to the Proposed Wind Farm site. This species was not recorded along the Proposed Grid Connection underground cabling route or Proposed Turbine Delivery Route (TDR). Therefore, the proposed management strategy below has been designed to ensure that there is no inadvertent spread of this species only, as a result of the Proposed Project.

3.1.1.1 Site Set-up

Prior to the commencement of any works, the following steps will be undertaken:

- › A pre-commencement survey for Japanese Knotweed and Giant Knotweed will be undertaken by a suitably qualified ecologist to determine the locations and extent of the species within the Proposed Project site and record any changes in the extent of the infestation since the 2024 and 2025 surveys. It will also serve to identify if this species has established elsewhere within the Site.
- › The locations and extent of Japanese Knotweed and Giant Knotweed within the Proposed Wind Farm site, and along the Proposed Grid Connection underground cabling route and TDR, should it establish, will be clearly marked out using hazard tape to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and an appointed ecological clerk of works (ECoW) will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will extend to 7m around the identified stands.
- › The ECoW will be appointed to supervise all works carried out within the exclusion zones, when required.
- › All site and turbine transport staff will receive a toolbox talk from the ECoW regarding the identification and protocols surrounding Japanese Knotweed and Giant Knotweed within the Proposed Wind Farm site.

3.1.1.2 Vegetation clearance

To accommodate the Proposed Project, the requirement for the removal of vegetation will arise. As stands of Japanese Knotweed and Giant Knotweed are located in proximity to the Proposed Wind Farm infrastructure, the following will be undertaken to ensure these accommodation works do not exacerbate the spread of these species into the wider environment:

- › All vegetation clearance in proximity to recorded stands of Japanese Knotweed and /or Giant Knotweed will be undertaken under the supervision of the appointed ECoW. No vegetation cleared from within the 7m exclusion zone will be removed from the infested area.
- › All personnel and machinery which enter the exclusion zones must be thoroughly washed down, as per the following:
 - All plant, machinery, tools and personnel will be cleaned down prior to leaving the contaminated areas.
 - Clean down will be undertaken on an impermeable membrane such as a radon barrier and following completion of the clean down operation, this will be brushed clean with sweepings left within the contaminated area to ensure that there is no potential to spread any contaminated material.
 - Power washing will be avoided to prevent potentially contaminated run-off spreading outside the site.
 - No plant, machinery, tools, or personnel will leave the exclusion zone, until authorised by the ECoW. All washed down material will remain within the 7m exclusion zone.

3.2

Giant Hogweed (*Heracleum mantegazzianum*)

Giant Hogweed is a highly invasive plant from the Caucasus region, and it now found in many parts of Ireland. It spreads rapidly, outcompeting native plants, and is widely known for its immense size which can reach 2-5m in height. Giant Hogweed is commonly found along watercourses in moist, nutrient-rich soils, in addition to disturbed areas including roadsides (Japanese Knotweed Control Ltd., 2024).

During the field surveys undertaken, Giant Hogweed was recorded at three locations along the Proposed Grid Connection underground cabling route, two in close proximity to mapped watercourses. Giant Hogweed was not recorded within the Proposed Wind Farm site or along the Proposed TDR. All recordings of this species within the Proposed Project site were recorded along the Proposed Grid Connection underground cabling route. The locations of this species are shown on Figure 3-2.

The coordinates of all Giant Hogweed recorded are provided in Table 3-2 below.

Table 3-2 Locations of Giant Hogweed recorded during the surveys undertaken.

Map ID	Description	Coordinates (ITM)
GH-1	Bordering mapped Druminda Order 1 [EPA Code: 25Y16] watercourse on roadside habitat.	X 589288, Y 646884
GH-2	Bordering woodland and road habitat in proximity to mapped Moher Order 2 watercourse [EPA Code: 25M59].	X 586668, Y 647541
GH-3	Bordering Cahermahallia Order 3 watercourse [EPA Code: 25C01] on roadside habitat.	X 585237, Y 649130



Plate 3-3 Giant Hogweed bordering a watercourse along the Proposed Grid Connection underground cabling route (GH-1).



Plate 3-4 Giant Hogweed bordering roadside woodland habitat and watercourse along the Proposed Grid Connection underground cabling route (GH-3).

3.2.1 Proposed Management Strategy

Recordings of Giant Hogweed occur in proximity to the Proposed Grid Connection underground cabling route and therefore, the following steps will be taken to ensure that this species does not spread into the wider environment, as a result of the Proposed Project.

3.2.1.1 Site Set Up

- › Additional pre-commencement surveys will be undertaken by a suitably qualified ecologist to determine the location and extent of the species and record any changes in the extent and/or location of this species which may have occurred since the 2024 and 2025 surveys.
- › The locations and extent of Giant Hogweed along the Proposed Grid Connection underground cabling route will be clearly marked out using temporary fencing/markers to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will extend to 4m around the identified stands (TII, 2020).
- › An ecological clerk of works (ECoW) will be appointed to supervise all works carried out within the exclusion zones.
- › All staff will receive a toolbox talk from the ECoW regarding the identification and protocols surrounding Giant Hogweed along the Proposed Grid Connection underground cabling route.
- › Given that short sections of the Proposed Grid Connection underground cabling route will be laid within the above 4m exclusion zones, the measures in Sections 3.2.1.2 and 3.2.1.3 below will be in place to ensure there is no spread of this species.
- › The treatment and control of invasive alien species will follow guidelines issued by Transport Infrastructure Ireland (TII) - The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020).

3.2.1.2 Excavation within Contaminated Areas and Retention on-site

- › The Proposed Grid Connection underground cabling route will be laid a 4m from the identified stands where possible to minimise the likelihood of encountering roots.
- › Once machinery and personnel enter the contaminated area, they will not leave until they have been cleaned down following the procedure that is set out in Section 3.2.1.3 below.
- › Excavated material will be kept within the contaminated area and will either be backfilled into the trench following the pipelaying operation or will remain within the contaminated zone adjacent to the trench and be graded and reseeded. No excavated material will leave the contaminated zone.
- › Following works, all personnel, equipment and machinery will be cleaned down as per the methodology in Section 3.2.1.3 below, prior to exiting the contaminated area.

3.2.1.3 Clean Down Procedure

- › All plant, machinery, tools and personnel will be cleaned down prior to leaving the contaminated areas.
- › Clean down will be undertaken on an impermeable membrane such as a radon barrier and following completion of the clean down operation, this will be brushed clean with sweepings left within the contaminated area to ensure that there is no potential to spread any contaminated material.
- › Power washing will be avoided to prevent potentially contaminated run-off spreading outside the contaminated zone.

3.3 Rhododendron (*Rhododendron ponticum*)

Rhododendron (*Rhododendron ponticum*) is an evergreen, acid loving shrub introduced to Ireland in the 18th Century. It can withstand considerable shade and thrives as an understorey species in woodland, though it also tolerates open conditions in suitable acid soils. In addition to shading, the foliage of rhododendron contains various compounds that have an allelopathic action on other species (inhibiting their growth) which may further inhibit plants from growing within close proximity (Higgins, 2008).

During field surveys undertaken, a small infestation of Rhododendron was recorded at one location along the Proposed Grid Connection underground cabling route, in addition to one location along the Proposed TDR within a private garden, although not within the proposed accommodation works. Rhododendron was not recorded within the Proposed Wind Farm site. The location of this species is shown on Figure 3-2, with the coordinates presented in Table 3-3 below.

Table 3-3 Locations of Rhododendron recorded during the surveys undertaken.

Map ID	Description	Coordinates (ITM)
R-1	One bush recorded in isolation, adjacent to existing road and mapped Bottle Hill Order 1 stream (EPA Code: 25B56).	X 582676, Y 650514
R-2	One bush recorded within a private garden along the Proposed TDR.	X 594527 Y 648316



Plate 3-5 Rhododendron recorded within a private garden adjacent to the Proposed TDR (R-2).

3.3.1 Proposed Management Strategy

One stand of Rhododendron was recorded adjacent to the Proposed Grid Connection underground cabling route and therefore, the following steps will be taken to ensure that this species does not spread into the wider environment, as a result of the Proposed Project.

3.3.1.1 Site Set Up

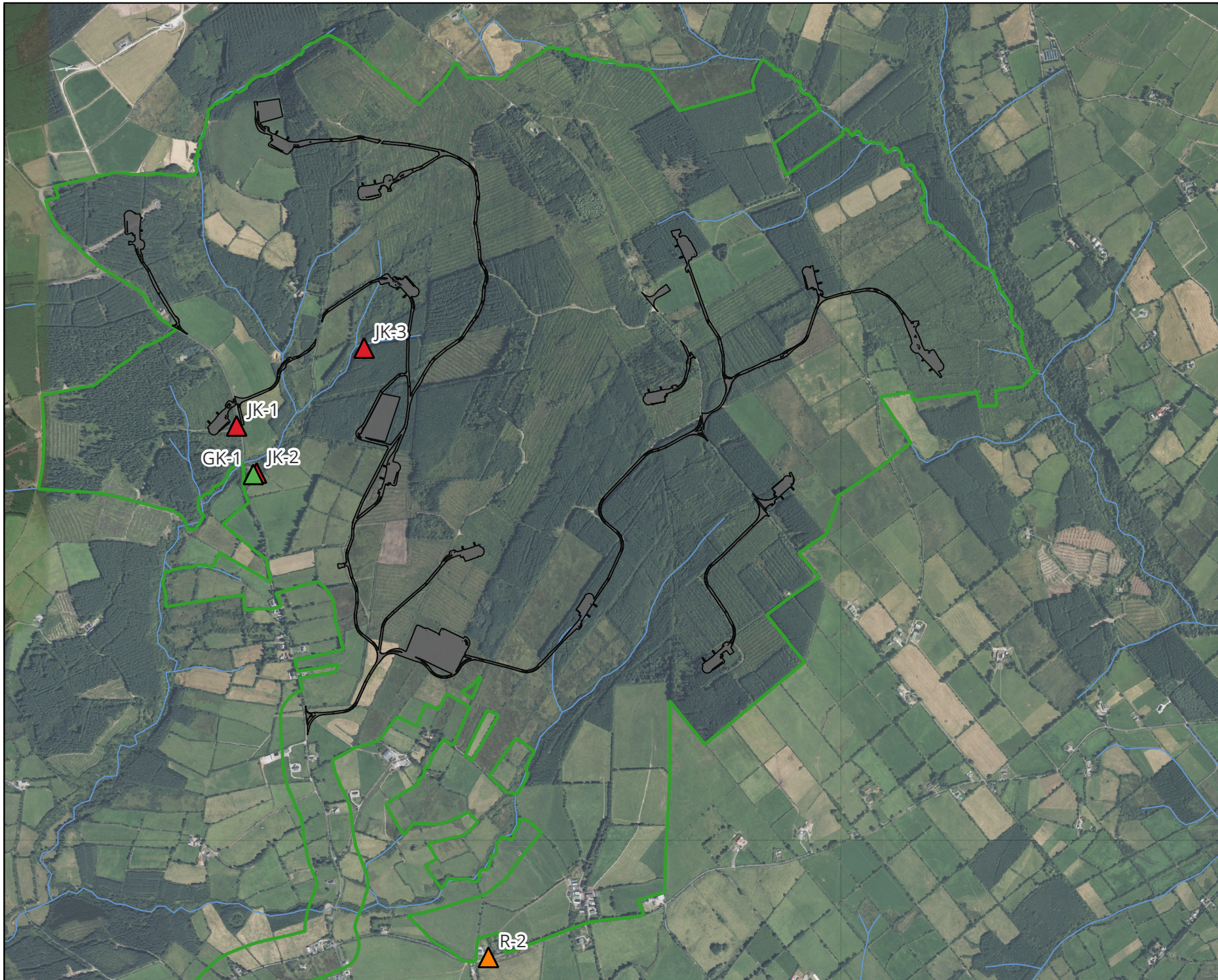
- › Additional pre-commencement surveys will be undertaken by a suitably qualified ecologist to determine the location and extent of this species and record any changes in the extent of the infestation since the 2024 and 2025 surveys.
- › The locations and extent of Rhododendron along the Proposed Grid Connection underground cabling route will be clearly marked out using temporary fencing/markers to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will extend to 10m around the identified stands (Higgins, 2008).
- › An ecological clerk of works (ECoW) will be appointed to supervise all works carried out within the exclusion zones.
- › All staff will receive a toolbox talk from the ECoW regarding the identification and protocols surrounding Rhododendron along the Proposed Grid Connection underground cabling route.
- › Given that short sections of the Proposed Grid Connection underground cabling route will be laid within the above 10m exclusion zones, the measures in Section 3.3.1.2 and 3.3.1.3 below will be in place to ensure there is no spread of this species.
- › The treatment and control of invasive alien species will follow guidelines issued by the Transport Infrastructure Ireland (TII) - The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020).

3.3.1.2 **Excavation within Contaminated Areas and retention on-site**

- › The Proposed Grid Connection underground cabling route will be laid as far as possible from the identified stands to minimise the likelihood of encountering roots.
- › Once machinery and personnel enter the contaminated area, they will not leave until they have been cleaned down following the procedure that is set out in Section 3.3.1.3 below.
- › Excavated material will be kept within the contaminated area and will either be backfilled into the trench following the pipelaying operation or will remain within the contaminated zone adjacent to the trench and be graded and reseeded. No excavated material will leave the contaminated zone.
- › Following works, all personnel, equipment and machinery will be cleaned down as per the methodology in Section 3.3.1.3 below, prior to exiting the contaminated area.

3.3.1.3 **Clean Down Procedure**

- › All plant, machinery, tools and personnel will be cleaned down prior to leaving the contaminated areas.
- › Clean down will be undertaken on an impermeable membrane such as a radon barrier and following completion of the clean down operation, this will be brushed clean with sweepings left within the contaminated area to ensure that there is no potential to spread any contaminated material.
- › Power washing avoided to prevent potentially contaminated run-off spreading outside the contaminated zone.



Map Legend

- EIA Site Boundary
- Permanent Footprint
- Giant Knotweed
- Japanese Knotweed
- Rhododendron
- WFD Watercourses



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Drawing Title
 First and Third Schedule Invasive Species
 Recorded within the Proposed Wind Farm Site
 and Proposed Turbine Delivery Route.








Project Title
Carrow Wind Farm

Drawn By	Checked By
SC	PD
Project No.	Drawing No.
231102	Figure 3-1
Scale	Date
1:20,000	20.03.2026

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Map Legend

-  EIAR Boundary
-  Permanent Footprint
-  Giant Knotweed
-  Japanese Knotweed
-  Giant Hogweed
-  Rhododendron
-  WFD Watercourses



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Drawing Title
 First and Third Schedule Invasive Species
 Recorded along the Proposed Grid Connection
 underground cabling route and Proposed TDR.

Project Title
Carrow Wind Farm

Drawn By	Checked By
SC	PD
Project No.	Drawing No.
231102	Figure 3-2
Scale	Date
1:145,000	12.02.2026


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4. **SITE HYGIENE AND BIOSECURITY MEASURES**

The following site hygiene and biosecurity measures will be adhered to for the management of invasive species within the Proposed Project site:

- › All works in relation to the invasive species will be supervised by an ECoW.
- › All staff will be given a Toolbox Talk, by a suitably qualified person or ecologist, on invasive species removal in relation to Japanese Knotweed, Giant Knotweed, Giant Hogweed, and Rhododendron and their management on site.
- › The contractor will assign a member of their team as Environmental Officer to ensure the management plan is adhered to throughout the proposed works.
- › A designated bio-secure area/exclusion zone will be set up at recorded invasive species locations to prevent disturbance in these areas. Invasive species will be marked with hazard tape in order to identify the species prior to vegetation clearance works and to keep it separate from other brash material.
- › All machinery should be thoroughly cleaned down prior to arriving on the site to avoid the potential spread of invasive species from elsewhere.
- › Machinery that is used for excavation and onsite removal of invasive material will not be used for any other works until they are fully cleaned down and then visually inspected by a specialist to ensure no fragments of invasive plant material are present.
- › Prior to leaving the invasive species exclusion zones, all boots and clothing will be thoroughly brushed down to remove any contaminated material prior to leaving the area.
- › As a precautionary measure, machinery will be thoroughly cleaned down before exiting the Site to prevent potential spread of invasive species elsewhere.
- › Clean down will be carried out using brushes and shovels and power washing will be avoided insofar as possible. This is to prevent potentially contaminated run-off spreading outside the Site.
- › Material used for tracking machinery out of the contaminated areas onsite e.g. plywood will be thoroughly cleaned down under supervision of the ECoW prior to removal off site.
- › Any soil and topsoil required on the Site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- › Any material (excluding soil and topsoil, which is covered in the above measure) imported to the Site should be screened for invasive species by a suitably qualified ecologist before transportation to the Site.

5. CONCLUSIONS

This Invasive Species Management Plan has been designed to facilitate the eradication and/or management of First and Third Schedule Invasive Species recorded within the Proposed Project site. This management plan has provided a record of the locations of invasive species recorded to date.

Infestations of all invasive species identified within the Site during surveys undertaken in 2024 and 2025 will require additional surveys within the relevant growing season prior to commencement of any works to determine if the recorded species have spread further throughout the Site.

Any First or Third Schedule Invasive species, and their established buffers, that are located outside of the construction footprint will be left undisturbed and will not be the subject of any management as part of the current proposal. All such areas will be avoided during construction activities to avoid potential spread of any invasive plant species.

BIBLIOGRAPHY

Booy O., Wade M. and Roy H. 2015. Field Guide to Invasive Plants and Animals in Britain. Bloomsbury. London. *Symphoricarpos albus* (L.) S.F.Blake in GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset <https://doi.org/10.15468/39omei> accessed via [GBIF.org](https://www.gbif.org)

Department of Arts, Heritage and the Gaeltacht. Irelands National Biodiversity Plan 2023-2030, Ireland's National Biodiversity Plan.

Department of Environment (2013). *An Invasive Alien Species Strategy for Northern Ireland*. www.doeni.gov.uk

Environment Agency (2013). The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3, amended in 2013. Environment Agency.

European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). <http://www.irishstatutebook.ie>

Edwards, C. (2006) *Managing and Controlling Invasive Rhododendron*. Forestry Commission Practice Guide, Forestry Commission Edinburgh.

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. Dublin: The Heritage Council.

Higgins, G.T. (2008) *Rhododendron ponticum*: A guide to management on nature conservation sites. Irish Wildlife Manuals, No. 33. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.

Irish Water (2016) Information and Guidance Document on Japanese Knotweed

Japanese Knotweed Control Ltd. (2024). Invasive Alien Plant Species (IAPS) ID Guide - Giant Hogweed V8.1
https://www.japaneseknotweedkillers.com/files/ugd/d4f7d5_1918e69c13434256b8617b074f802e2e.pdf
[Accessed 06/02/2026]

Japanese Knotweed Control Ltd. (2024). Invasive Alien Plant Species (IAPS) ID Guide - Giant Knotweed V8.1
https://www.japaneseknotweedkillers.com/files/ugd/d4f7d5_31680b54ab3144569fa78b73c6180c02.pdf?index=true [Accessed 06/02/2026]

Invasive Alien Species in Ireland (2021). <https://invasives.ie/> [Accessed 06/02/2026]

Maguire, C.M., Cosgrove, P.J. and Kelly, J. (2008). Floating Pennywort (*Hydrocotyle ranunculoides*) Management Plan. Prepared for NIEA and NPWS as part of Invasive Species Ireland.

NPWS (2025). The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview. Unpublished NPWS report.

O'Flynn, C. (2010) Report on the Dirty Dozen Non-Native Invasive Species, Co. Cork. National Biodiversity Data Centre (NBDC).

Property Care Association (2018) Code of Practice for the Management of Japanese Knotweed.

Smith G.F., O'Donoghue, P., O'Hora, K. and E. Delaney (2011). Best practice guidance for habitat survey and mapping. The Heritage Council, Kilkenny.

Stokes et al. (2004). Stokes, K., O'Neill, K. & McDonald, R.A. (2004) Invasive species in Ireland. Unpublished report.

TII (2020) The Management of Invasive Alien Plant Species on National Roads – Technical Guidance.

TII (2020) The Management of Invasive Alien Plant Species on National Roads – Standard.

