APPENDIX 7

Invasive Species Management Plan (ISMP)

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1. INTRODUCTION

1.1 General Introduction

MKO were commissioned by Cahermurphy Renewables DAC to prepare an Invasive Species Management Plan (ISMP) to submit with of a proposed wind energy development of 8 no. turbines at Cahermurphy, Co. Clare, and a proposed grid connection to Moneypoint substation.

The Proposed Project is located within a rural, agricultural setting in southwest Clare, approximately 4km north of Kilmihill Village.

Two 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), hereafter referred to as the Birds and Habitats Regulations, and/or the 'First Schedule' of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024), hereafter referred to as the Invasive Alien Species Regulations, were identified either within or directly adjacent to the Site, or along the proposed turbine delivery route (TDR), during the Multidisciplinary walkover surveys carried out by MKO throughout 2024 and 2025. Those species consist of the following:

- Rhododendron (*Rhododendron ponticum*)
- Japanese Knotweed (*Reynoutria japonica*)

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 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 Birds and Natural Habitats Regulations and/or the 'First Schedule' of the Invasive Alien Species Regulations.

The recorded ISs are mapped in Figure 3-1 and Figure 3-2, showing their distribution within and adjacent to the Proposed Project.

1.2 Legislative Framework

Regulations 49 and 50 of the Birds and Natural Habitats Regulations and Regulation 17(a)/(b) of the First Schedule of the Invasive Alien Species Regulations, 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.
- Crushell, P., Foss, P., Hurley, C. & O'Loughlin, B. (2011). *County Kerry Invasive Species Survey 2011 - Pilot Mapping Study of the River Lee Catchment, Tralee*. Report prepared for Kerry County Council and The Heritage Council.
- Stokes et al. (2004). Stokes, K., O'Neill, K. & McDonald, R.A. (2004) *Invasive species in Ireland.* Unpublished report.
- Actions for Biodiversity 2017-2021, Ireland's 3rd National Biodiversity Action Plan.
- Inland Fisheries Ireland (2016) Best Practice for Control of Japanese Knotweed (*Fallopia japonica*)
- Property Care Association (2015) Guidance Note – Management of Himalayan Balsam

1.4 Statement of Authority

This report has been prepared by Andrew McCarthy and reviewed by Pádraig Desmond and Caroline Kelly.

Andrew is a Graduate Ecologist with MKO, having previously gained experience with the company as an Ecology Intern during the summer of 2024. He holds a BA (Hons) in Ecology and Environmental Biology from University College Cork. Since joining MKO, Andrew has contributed to the preparation of a range of ecological reports, including Natura Impact Statements, Ecological Impact Assessments, and Invasive Species Management Plans, across diverse project types. He has developed strong generalist field ecology skills and has undertaken a wide range of ecological surveys, including habitat, bird, invasive species, and protected fauna surveys. Andrew is also proficient in GIS.

Pádraig is a Project Ecologist with MKO with 6 years post graduate ecological experience, five years of which have been in ecological consultancy. Pádraig holds a BSc (Hons) in Ecology and Environmental Biology from University College Cork. Pádraig took up his position with MKO in December 2021, prior to which he worked as an Ecologist with Envirico. Through these consultancy roles Pádraig has gained excellent experience in producing ecological reports such as Natura Impact Statements, Ecological Impact Assessments, Biodiversity chapters, Invasive Species Management Plans, and Constraints Reports for a wide range of projects including small private developments to housing developments and renewable energy projects such as solar and wind farms. Prior to the above roles, Pádraig worked as a field ecologist for the Department of Conservation in New Zealand, where he developed a strong field-based skill set. Pádraig's key strengths and areas of expertise are in terrestrial ecology, including vegetation surveys, habitat identification, invasive species surveys, mammal surveys, Appropriate Assessment and Ecological Impact Assessment. Pádraig is also skilled in GIS.

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 multidisciplinary surveys were conducted by MKO ecologists; Pádraig Desmond (BSc.), Stephanie Corkery (BSc., MSc.), Deepali Mooloo (BSc., MSc.), Katie Leahy (BSc), Bridín Foster (BSc.), Caití Farren (BSc.), Clare Mifsud (BSc., MSc., PhD.) Marie Greaney (BSc., MSc.) and Noel Fahy (BSc.). All surveyors have relevant academic qualifications and are competent in undertaking the habitat and ecological assessments. All surveys were carried out as per NRA (2009) Guidelines 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes'.

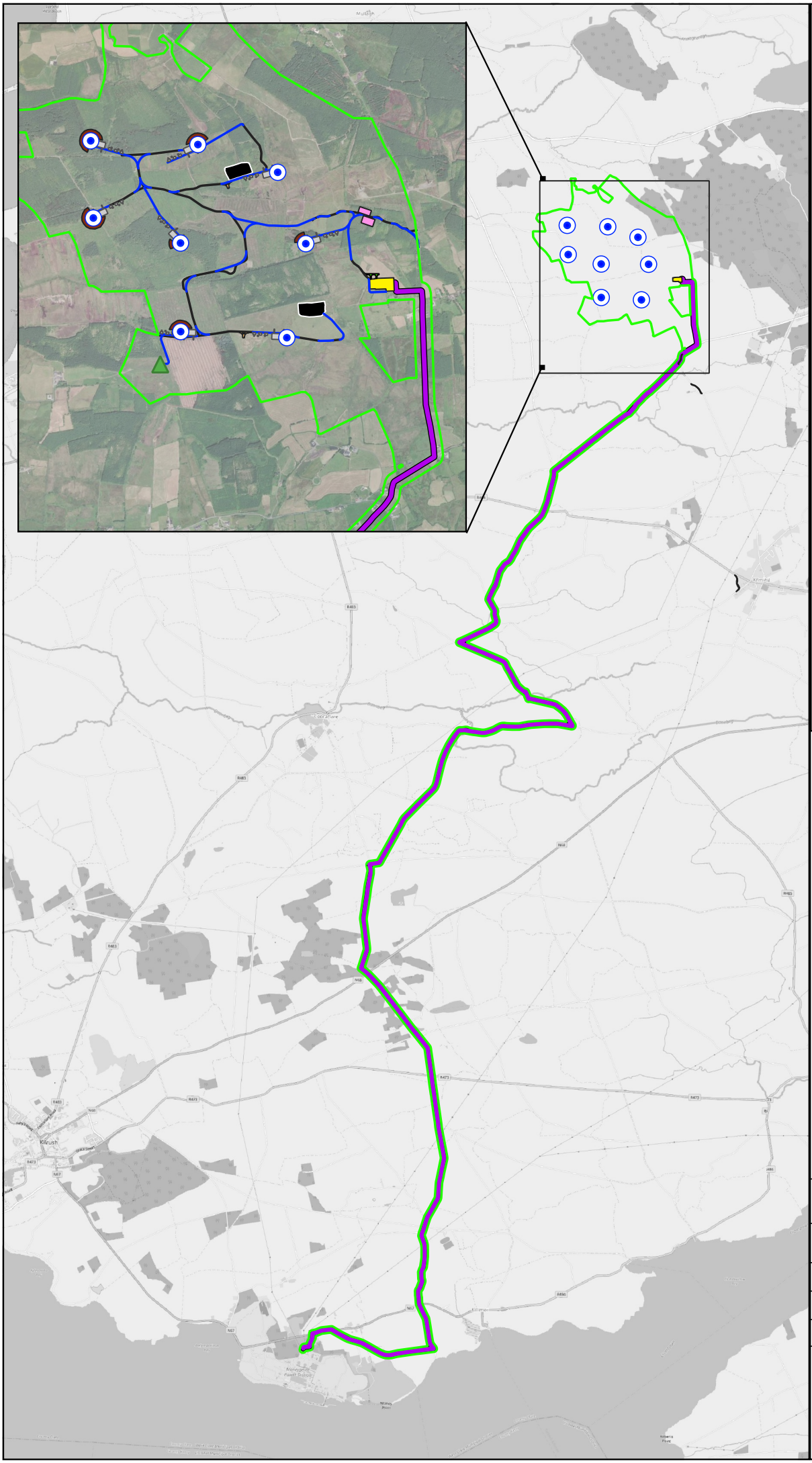
2. CHARACTERISTICS OF THE PROPOSED PROJECT

Full details of the Proposed Project are provided in Chapter 4: Description of the submitted EIAR. In summary, the Proposed Project comprises the construction of 8 no. wind turbines and all associated works. The proposed turbines will have a maximum turbine tip height of 185m, above the top of the foundation.

The proposed turbines installed on the site will have the following dimensions:

- Turbine Tip Height – Maximum height 185 metres, Minimum height 180 metres
- Hub Height – Maximum height 110.5 metres, Minimum height 98.5 metres
- Blade Length: - Maximum length 81.5 metres, Minimum length 74.5 metres.

The Proposed Project layout is shown below in Figure 2-1. This drawing shows the locations of the proposed turbines, proposed onsite 110kV substation, grid connection route, turbine location and delivery accommodation road, existing roads to be upgraded, peat storage areas, borrow pits, hardstands, temporary construction compound, met mast, new roads, turning heads and the temporary transformer delivery road.



Drawing Title: Proposed Project Layout

Project Title: Cahermurphy West Wind Farm

Drawn By	Checked By
MC	EMC
Project No.	Drawing No.
230843	Figure 2-1
Scale	Date
1:80,000	08.01.2026

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3. LOCATION/EXTENT OF INVASIVE SPECIES WITHIN THE DEVELOPMENT SITE

3.1 Rhododendron (*Rhododendron ponticum*)

Rhododendron (*Rhododendron ponticum*) is an evergreen, acid loving shrub introduced to Ireland in the 18th Century. Since its introduction it has established itself as a major weed of acid woodlands in Wicklow, Kerry and Cork. 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 creating a shading effect, which restricts light from penetrating to the woodland floor, the foliage of rhododendron contains various compounds that have an allelopathic action on other species (inhibiting their growth), which may further reduce the ability of other plants from growing within close proximity (Higgins, 2008).

During field surveys undertaken, Rhododendron was recorded at six locations within the Proposed Project: one within the footprint of Turbine 5, one adjacent to the Proposed Grid Connection route and four within the proposed hen harrier enhancement lands (HHELs).

The locations of recorded stands of Rhododendron are shown on Figure 3-1 and Figure 3-2. Examples of Rhododendron identified within the Proposed Project are shown in Plates 1-1, 1-2 and 1-3.

The coordinates of all Rhododendron recorded, as well as the approximate size of infestation, are provided in Table 3-1.

Table 3-1 Locations of Rhododendron recorded during the surveys undertaken

Map ID	Description	Coordinates
R1	One small sapling recorded in isolation, approximately 75m from proposed Turbine 5 and the northernmost borrow pit.	52.7694475°, -9.3513171°
R2	One bush recorded in isolation in a private garden in the townland of Killimer, along the Proposed Grid Connection route.	52.6429692°, -9.3928003°
R3	Large linear row of 3m tall bushes contained within the hen harrier enhancement lands.	52.7810486°, -9.3171633°
R4	One 1m tall bush with additional saplings in proximity recorded in a conifer plantation within the hen harrier enhancement lands.	52.7775000°, -9.3095178°
R5	One 2m tall bush recorded in isolation along the edge of a conifer plantation within the hen harrier enhancement lands.	52.7779939°, -9.3054775°
R6	One 2m high stand with numerous small saplings around it found within the hen harrier enhancement lands.	52.7848994° -9.2645527°,

The proposed TDR will require accommodation works at seven locations. No invasive species were recorded within these areas.

Plate 3-1 Third Schedule species Rhododendron found to the fore of the conifer plantation, within the hen harrier enhancement lands.

Plate 3-2 Second example of Rhododendron found along the edge of the conifer plantation *within hen harrier enhancement lands.*

Plate 3-3 Third example of Rhododendron seen in the centre of this photo. R*ecorded in the hen harrier enhancement lands.*
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3.1.1 Proposed Management Strategy

Rhododendron was recorded within the construction footprint 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. There is no potential for disturbing or spreading this species along the TDR, and therefore, the below applies to Rhododendron within the proposed Site and Proposed Grid Connection route only.

3.1.1.1 Site Set Up

Prior to the commencement of any works, the following site setup procedures will be carried out:

- A pre-commencement survey for Rhododendron will be undertaken by a suitably qualified ecologist to determine the locations and extent of the species within the Site and record any changes in the extent of the infestation since the 2025 surveys.
- The locations and extent of Rhododendron within the Site will be clearly marked out using hazard tape to ensure they are not disturbed. A 10m buffer zone (Higgins, 2008) surrounding each stand will also be applied using temporary fencing, to avoid disturbance of potentially contaminated soils.

Due to the relatively small extent of Rhododendron within the Site, it is proposed to treat the plant *in-situ*. The recommended option for *in-situ* treatment is to manually remove the upper parts of the plant and apply the Ecoplug method (www.landscapedepot.ie) as to avoid spray drift and to minimise the potential for spraying of non-target species. The Ecoplug method is outlined below:

- Cut the tree/plant as close to the ground as possible. This should be carried out from October to early March, outside the bird nesting season.
- The cut material can be stacked and stored on site, used as firewood or mulched as this plant material is deemed inert and can be used for landscaping as natural weed barriers or for other horticultural purposes.
- A 30 mm hole will be drilled into the remaining stump and the Ecoplug will be inserted into the hole until it is flush with the top of the stump.
- Where immature plants occur, hand pulling can be undertaken at any time of the year and left to dry out on an impermeable surface.

Where the Ecoplug method is unsatisfactory, manual extraction of the root/stump from the ground is recommended. The following methods for root extraction are outlined below:

- Cut the tree/plant as close to the ground as possible. This should be carried out from October to early March, outside the bird nesting season.
- The root/stump will be removed from the ground using hand tool or an excavator.
- The cut material can be stacked and stored on the Site, used as firewood or mulched as this plant material is deemed inert and can be used for landscaping as natural weed barriers or for other horticultural purposes.
- The root/stump will be placed on an impermeable surface such as palettes or a radon barrier membrane and left to dry out.

In areas where it is proposed to restore peatlands from conifer plantations, the following guidelines should be followed:

- There is a high potential for spread of rhododendron when the trees are cleared and the ground disturbed via tree felling, stump flipping / re-profiling etc. This risk is higher where there is mature flowering bushes where potential seed production / dispersal is high. Therefore high risk areas should be identified in advance.
- Areas identified in advance to be at high risk of further spread should be controlled / treated in advance of the felling / restoration works where possible, or immediately after the forestry works.
- Cutting and stump treatment / removal, with any herbicide treatment should be done immediately after cutting.
- An ongoing plan should be in place to deal with any young shoots to ensure they are controlled before they mature and set seed.

Following treatment or eradication of the plant, the soil at the Site of the infestation should still be considered to be contaminated, on a precautionary basis. In order to avoid the potential spread of the species, the top layer of soil/peat from the 10m buffer zone will be removed and stored outside of the construction footprint, and within the Site and will then be clearly fenced off. This fenced off area will then be monitored and if necessary, re-treated. Treatment should continue until no growth is recorded for a period of at least two consecutive years. Alternatively, the excavated buffer zone can be moved to an offsite waste facility, under licence from NPWS.

Alternatively, the excavated spoil from within the buffer zone can be transported to a licenced waste facility, under licence.

3.1.2 Post Treatment Monitoring

Ongoing monitoring will be required, with suitable follow-up management, to control new growth and prevent the re-establishment of this species within the infested areas. If invasive plants are found to be re-establishing, they shall be treated as per the measures outlined in this report.

3.2 Japanese Knotweed (*Reynoutria japonica*)

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 Japanese Knotweed shoot and root material have the potential to start a whole new plant (Environment Agency, 2013).

During field surveys undertaken Japanese Knotweed was recorded at two locations on road verges along the Proposed Grid Connection route. The identified stands are indicated in Plate 3-4 and 3-5.

The coordinates of all Japanese knotweed recorded, as well as approximate size of infestation, are provided in Table 3-2.

Table 3-2 Locations of Japanese knotweed recorded during the surveys undertaken

Map ID	Description	Coordinates
JK1	Stand of approximately 3x3m in area, alongside the Proposed Grid Connection route	52.6405154°, -9.3918174°
JK2	Stand of approximately 2x7m in area, alongside the Proposed Grid Connection route	52.6279432°, -9.4009281°

Plate 3-4 Example of an infestation of Japanese knotweed (JK1) recorded on a road verge along the Proposed Grid Connection route.

Plate 3-5: Example of an infestation of Japanese knotweed (JK2) recorded on a road verge along the Proposed Grid Connection route.

3.2.1 Proposed Management Strategy

All recordings of Japanese knotweed occur in habitats adjacent to the Proposed Grid Connection route. This species was not recorded within the Proposed Wind Farm site. 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.

3.2.1.1 Site Set-up

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

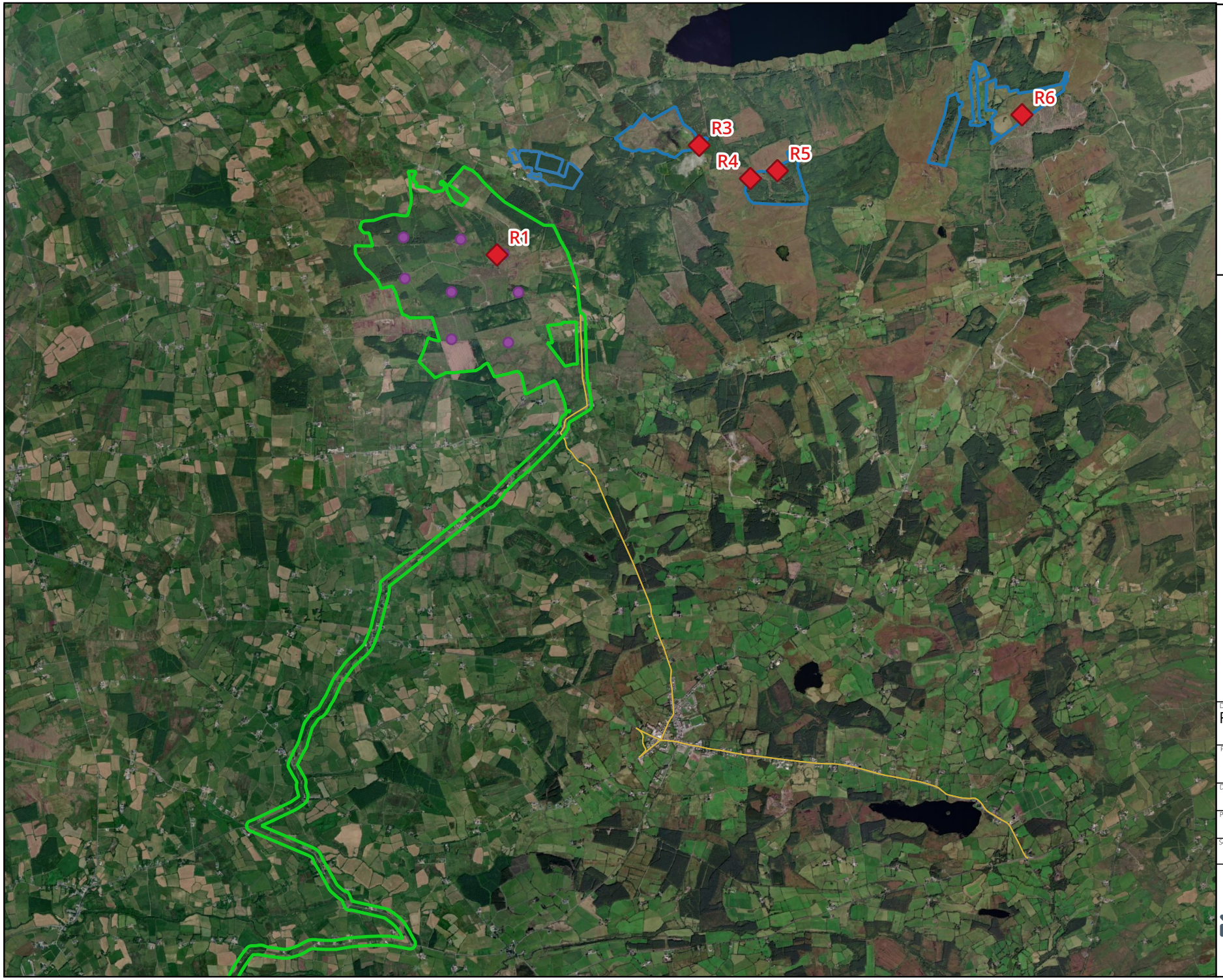
- A pre-commencement survey for Japanese knotweed will be undertaken by a suitably qualified ecologist to determine the locations and extent of the species within the Proposed Project and record any changes in the extent of the infestation which may have occurred since the 2024 and 2025 surveys.
- The locations and extent of Japanese knotweed along the Proposed Grid Connection route 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.

3.2.1.2 Vegetation clearance

To accommodate the Proposed Grid Connection route, the requirement for the removal of vegetation adjacent to existing roads is likely to arise. As stands of Japanese Knotweed are located along the Proposed Grid Connection route, the following will be undertaken to ensure these works do not result in the further spread of this species into the wider environment:

- All vegetation clearance in proximity to recorded stands of Japanese 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 machinary which enter the exlcusion zones must be thouroughly 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 Proposed Project 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.



Map Legend

- EIAR Site Boundary
- Proposed Turbine Location
- Turbine Delivery Route
- Proposed Hen Harrier enhancement lands
- Japanese Knotweed Location
- Rhododendron location

Drawing Title
Recorded Invasive Species (North Map)

Project Title
Cahermurphy WF

Drawn By	Checked by
DM	PD
Project No.	Drawing No.
230843	Figure 3-1
Scale	Date
1:55,000	26.01.2026

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Map Legend

- EIAR Site Boundary
- Proposed Turbine Location
- Turbine Delivery Route
- Proposed Hen Harrier enhancement lands
- Japanese Knotweed Location
- Rhododendron location

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Drawing Title
Recorded Invasive Species (South Map)

Project Title
Cahermurphy WF

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DM	PD
Project No.	Drawing No.
230843	Figure 3-2
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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 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 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 on site e.g. plywood will be thoroughly cleaned down under supervision of the ECoW prior to removal off site.
- Any soil, topsoil or material 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.

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, 2025, and 2026 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 and enhancement lands 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.

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