



Invasive Species Management Plan for Project West, Knockharley Landfill, Co. Meath

prepared for AWN Consulting Ltd

on behalf of Beauparc Utilities Limited

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1 Introduction

- 1 This Invasive Species Management Plan (ISMP) for Project West, contains management recommendations aimed at preventing the spread and management of non-native invasive species within Knockharley Landfill, Co. Meath. Terms such as *Invasive Species (IS)*, *Invasive Alien Species (IAS)*, and *Invasive Alien Plant Species (IAPS)* are sometimes referenced in legislation or guidance. In this ISMP, these terms are referred to collectively as *non-native invasive species* and are used interchangeably.
- 2 The ISMP outlines the management strategies to address non-native invasive plant species listed on the Third Schedule of S.I. No. 477 of 2011 – European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) (hereafter referred to as the *Birds and Natural Habitats Regulations*). It specifically focuses on controlling the spread of these species identified in the vicinity of the Proposed Development.
- 3 The ISMP will be updated by a suitably qualified, licenced and DAFM¹-registered specialist (henceforth ISM contractor) (See Section 3, 6.1 and 6.2) prior to the commencement of any on-site works to ensure compliance and reflect any potential changes that may be noted by the preconstruction survey. Construction activities can disturb existing stands of invasive plants or soils contaminated with their propagules, potentially causing new infestations. Therefore, management measures included in the ISMP will aim to prevent any direct or indirect impacts on local habitats and species or prevent their introduction into new areas.

2 Legislative Context

- 4 The Birds and Natural Habitats Regulations (as amended) contain specific provisions that govern control of listed invasive species. It is an offence to release or allow to disperse or escape, to breed, propagate, import, transport, sell or advertise species listed on the Third Schedule of the Birds and Natural Habitats Regulations without a licence. The two regulations that deal specifically with this scheduled list of species are:
 - Regulation 49: Prohibition of introduction and dispersal of certain species; and
 - Regulation 50: Prohibition on dealing in and keeping certain species.

Following on from that, the following are strictly prohibited:

- Dumping invasive species cuttings anywhere other than in facilities licensed to accept them;
- Planting or otherwise causing to grow in the wild, hence the landowner (in respect of the Proposed Development this being the appointed contractor) should be careful not to cause further spread);
- Disposing of invasive species at a landfill site without first informing the landfill site (that is licensed under Number 10 of 1996 - Waste Management Act, 1996 (as amended) (hereafter referred to as the Waste Management Act, as amended) to take such Third Schedule material (plant or soil) that the waste contains invasive species material (this action requires an appropriate licence);
- Moving soil which contains Third Schedule-specific non-native invasive species in the Republic of Ireland, unless under licence from the National Parks and Wildlife Service (NPWS) (this licence is separate from and does not discharge any person being in receipt of other necessary waste permits / licences etc.); and
- Regulation (EU) No. 1143 of 2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species (hereafter referred to as the IAS Regulation) lists specific Species of Union Concern, some of which overlap with the Third Schedule species.

¹ Department of Agriculture, Fisheries and Marine (DAFM).

- Statutory Instrument No. 374 of 2024: European Union (Invasive Alien Species) Regulations 2024 which gives National effect to EU regulation No 1143/2014 and specified additional provisions to address the problem of Invasive species In Ireland
- 5 The IAS Regulation conveys the rules to prevent, minimise and mitigate the adverse impacts of the introduction and spread (both with and without intention) of IAS on biodiversity and the related ecosystem services, as well as other adverse impacts on human health or the economy. Outcome 2H (and its four supporting actions 2H1-2H4) of Ireland's Forth National Biodiversity Action Plan 2023-2030 (Department of Housing, Local Government and Heritage (DHLGH, 2023) requires that *"Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment"*.

3 Limitations

- 6 It should be noted that any decision on efficacy of chemical treatments, where mentioned in this document, can only be provided by a registered pesticides advisor. A suitably qualified specialist will be appointed by the appointed contractor to monitor the treatment of non-native invasive species. This ISMP shall be updated as necessary by the specialist following a preconstruction confirmatory survey (noted in Section 6.1 of this ISMP) in line with standard practice and guidance.

4 Methodology

4.1 Guidance

- 7 This ISMP and the mitigation strategies that are discussed relating to invasive plant species has been prepared with regard to the following guidance documents, where relevant:
- The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020a);
 - The Management of Invasive Alien Plant Species on National Roads – Standard (TII, 2020b);
 - Best Practice Management Guidelines: Rhododendron (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*). Available at <https://invasivespeciesireland.com/wp-content/uploads/2012/01/Rhododendron-BPM.pdf>
 - Biosecurity Protocol for Field Survey Work (Inland Fisheries Ireland, 2010);
 - Managing Invasive Non-Native Plants in or near Freshwater (Environment Agency (EA), 2010);
 - Aquatic and Riparian Plant Management: Controls for Vegetation in Watercourses, Technical Guide (EA), 2014);
 - The EA Managing Japanese knotweed on development sites - the Knotweed Code of Practice (Version 3, amended in 2013, withdrawn from online publication in 2016) (EA, 2013). (This document, although no longer supported by the EA, is nonetheless a practical document in determining the approach and control mechanisms for Japanese knotweed);
 - Invasive Species Ireland (ISI) Best Practice Management Guidelines for Japanese knotweed (ISI, 2008a);
 - Best Practice Management Guidelines for Himalayan balsam (ISI, 2008b);
 - Best Practice Management Guidelines for Giant hogweed (ISI, 2008c);
 - Non-Native Species Secretariat (NNSS) *Allium triquetrum* (Three-cornered garlic) Great Britain Non-Native Organism (NNSS, 2011);
 - Countryside Management Publications, Giant hogweed (Department of Agriculture and Rural Development (Northern Ireland), 2016);

- Circular Letter NPWS 2/08 Use of Herbicide Spray on Vegetated Road Verges (National Parks and Wildlife Service 2008)

4.2 Surveys

- 8 Following on from the desk study review of National Biodiversity Data Centre (NBDC) records, non-native invasive species surveys, were undertaken in 2024 and 2025 at the Proposed Development site in Knockharley, Co. Meath.
- 9 Non-native invasive species, including those listed on the Third Schedule of the Birds and Natural Habitats Regulations, were searched for within and adjacent to the Proposed Development. Surveys were carried out by Scott Cawley Ltd., and any non-native invasive species recorded.

5 Results

- 10 A desktop review of the NBDC online database records for Indian balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica*, Spanish bluebell *Hyacinthoides hispanica*, and three-cornered garlic *Allium triquetrum*, were also returned from the desktop study as being within approximately 10km of the Proposed Development.
- 11 The field surveys undertaken did not record any Third Schedule species within or adjacent to the operational landfill or the Proposed Development site.
- 12 However, one non-native invasive species, although not subject to the prohibitions listed under Regs 49 and 50, was observed (illustrated in **Figure 1**):
 - Butterfly Bush *Buddleja davidii*
- 13 Butterfly Bush can, under suitable conditions, spread quickly in disturbed areas, outcompeting native plants and disrupting local ecosystems. General measures will be effective to control butterfly bush, specific measures are not required for a small population of this species.



Figure 1 Location of all invasive species recorded during onsite survey

6 General Measures to Control and Prevent the Spread on Non-Native Invasive Species

The selected management control measures to be defined for each non-native invasive species (including Third Schedule species) within the Proposed Development will depend on:

- Results of the preconstruction survey
- Construction requirements and plan – timing of works at specific locations, level of infestation and practical considerations such as reducing disturbance to road users / homeowners

This ISMP will be updated by the ISM contractor for the Proposed Development and may require the utilisation of a number of controls that are described in this ISMP or guidelines presented in Section 4.1 of this ISMP.

6.1 Pre-construction Survey

- 14 During the interim, between the original non-native invasive species survey and the commencement of development, following receipt of planning permission (if granted), it is possible that existing stands of non-native invasive species may have expanded (if unmanaged) or decreased (if there is active management regime in place), or that newly established (including Third Schedule) non-native invasive species may have become established within the footprint of the Proposed Development. A confirmatory pre-construction invasive species survey shall be undertaken by a suitably qualified specialist, to confirm the absence, presence and/ or extent of all Third Schedule non-native invasive species within the footprint of the Proposed Development. Where an infestation is confirmed / identified within the footprint of the Proposed Development, this will require the implementation of the ISMP.
- 15 Data collected as part of the pre-construction invasive species survey will include a detailed description of the infestation including the approximate area of the respective colonies (m²) (metres squared), where feasible, the approximate total number of stems, pattern of growth and information on other vegetation present. This information will enable calculations of volumes of infested soils to be excavated where necessary, as part of the measures outlined below.
- 16 Following on from the pre-construction survey, the specialist will update this Proposed Development ISMP, and will detail the strategy that will be adopted during the construction (and operation) in order to manage and prevent the spread of invasive plant species, and where Third Schedule non-native invasive species are encountered directly in the works area, the method of treatment / eradication.

6.2 Invasive Species Management Plan

- 17 Following on from the pre-construction invasive species survey, this ISMP will be updated by the appointed contractor's specialist to detail the exact measures for any non-native invasive species population present within the footprint of the Proposed Development. Depending on the extent and nature of the works, a number of approaches / treatments may be approved, all following on from the measures outlined in this ISMP.
- 18 The appointed Invasive contractor, will, as necessary, ensure that all control measures specified in the ISMP be implemented by a suitably qualified and licenced specialist prior to the construction phase of the Proposed Development to control the spread of newly established non-native invasive species within the footprint of the Proposed Development. Furthermore, the appointed contractor will adhere to control measures specified within the ISMP throughout the construction phase of the Proposed Development. The site will be monitored by the appointed contractor after control measures have been implemented. Any re-growth will be subsequently treated.
- 19 All measures that are prescribed in this Proposed Development ISMP shall be equally applicable to advance works as to construction works and any management protocol that may extend into the operational phase of the solar farm until such time that the appointed ISMP specialist document its eradication.
- 20 Following the construction phase and the post construction monitoring (within the operational phase) as noted in the ISMP, the longer term operational management of the infrastructure will be the responsibility

of the client/operator of the solar farm and the control of invasive species will be as per their operational plans and procedures (to be developed), and being cognisant of their responsibilities under The Birds and Natural Habitats Regulations.

6.3 General Measures to Avoid the Spread of Non-native Invasive Species

- 21 The unintentional spread of non-native invasive species during construction works (within a construction site or unwittingly from outside of a site, such as through the importation of materials or poor biosecurity practices regarding plant and machinery) can be a significant issue. Additionally, due to the nature of the site, there is the potential for invasive species to be bought in as part of waste being delivered to the landfill. If not managed properly, can result in the spread of non-native invasive species to uninfested areas (within or adjacent to works areas), which would increase the future cost and effort required to control the species. This could pose further public health and safety risks (e.g. Japanese knotweed can cause damage to weaknesses in the built environment, whilst Giant hogweed is an environmental public health hazard).

The most common ways that invasive species can be spread is:

- Site and vegetation clearance, mowing, hedge-cutting or other landscaping activities;
- Spread of seeds or plant fragments during the movement or transport of soil;
- Spread of seeds or plant fragments through the local surface water and drainage network;
- Contamination of vehicles or equipment with seeds or plant fragments which are then transported to other areas;
- Importation of soil from off-site sources contaminated with invasive species plant material; and
- Leaving riparian corridors bare of vegetation thus allowing establishment of seed material from outside the site.

6.4 Site Establishment

- 22 During advance works and prior to commencement of construction, any areas where Third Schedule non-native invasive species have been recorded by the pre-construction surveys must be clearly fenced off prior to and during construction (in order to avoid spreading seeds or plant fragments around or off the construction site) until such time that the recommended mitigation measures are implemented and treatment has been completed, or that works in these areas are monitored in accordance with the requirements of the ISMP.
- 23 This includes Construction Compounds and the entirety of the Proposed Development footprint. Earthworks or machinery movement must be avoided in any areas where non-native species have been identified during the pre-construction surveys, until the relevant stands have been eradicated, to the documented approval of the Specialist non-native invasive species contractor.

6.5 Biosecurity and Site Hygiene

- 24 It is important to ensure that the spread of non-native invasive species, where present, is curtailed. It is also necessary to ensure that in areas where non-native invasive species are not present, that they are not unintentionally spread e.g. through the importation of contaminated material being brought onto the site.
- 25 Although there are no documented records of Third Schedule invasive aquatic species in the project area, either from the National Biodiversity Data Centre (NBDC) or surveys, caution is essential. This is particularly important for instream works (installation of piped culvert) and activities that disturb waterbodies at the culvert over the Flemingstown Stream. Unwashed construction equipment, machinery and vehicles, and footwear can provide a vector for the spread of non-native invasive species within a Proposed Development and from areas outside the Proposed Development site where infestation is present or where vector material potentially containing seed/root material is attached to machinery or equipment.
- 26 The following hygiene measures shall be undertaken for the Proposed Development.

- Known or potentially infested areas within the working area of the Proposed Development shall be clearly fenced off in advance of works and access restricted until such time that the appointed specialist has commenced treatment and / or supervises construction works in the area. In relation to Japanese knotweed (which was not recorded on site), the guidance recommends an exclusion buffer of 7m (metres) in all directions (within the works area and 3m vertically underground). Different invasive species may have different exclusion zones, and the non-native specialist shall advise of practical exclusion limits following the pre-construction survey;
- Erection of clear signage at construction compounds etc., and inclusion of detailed tool-box talks or similar (environmental induction) for construction staff in respect of the management of Third Schedule non-native invasive species. The signage and notification should be easily understood so that users are aware of the measures to be taken for known non-native invasive species, or what they should do in the case of suspected non-native invasive species identified. In particular the potential health risks posed by Giant hogweed (which was not recorded on site), where it might be recorded from within or adjacent to a Proposed Development should be clearly notified to staff;
- In consultation with the Specialist non-native invasive species contractor, identify dedicated access points into and out of fenced off areas. These shall not be breached until such time that the Specialist contractor has 1) confirmed eradication / removal of non-native Invasive Species or 2) is present to supervise works to commence treatment/eradication process;
- Where possible, the locations of dedicated footwear and wheel-wash facilities should be identified in the ISMP. Where a dedicated / bespoke wheel-wash cannot be installed owing to space limitations, the specialist contractor shall in conjunction with the appointed contractor ensure that no excavated loose material is allowed offsite from within an exclusion zone. Similarly, where plant is used to excavate soils, it shall be visually checked for loose soil before movement to another part of site (where possible, the movements of tracked machinery should be restricted within the non-native invasive species exclusion zone). Loose soil shall be scraped off and disposed of, and a solution of Virkon® (or similar approved disinfectant) applied to machinery to ensure that no obscured seed/root material remains viable;
- Vehicular movements within any exclusion area shall be minimised as far as is practical, and will only be undertaken under the supervision of the Specialist non-native invasive species contractor with strict checks and cleaning of wheels and undercarriage on exit from exclusion zone.
- Machinery which has been used for the transport and/or excavation of infected/suspected infected vector material shall be thoroughly washed down, and the washings captured for disposal. All such machinery/plant shall not be permitted to commence work elsewhere on or off-site until written confirmation of same has been undertaken;
- Dedicated wash down and solution capture should be set up in construction compounds. All washings should be stored in a quarantined bunded container that is rated for such storage until such time that they are removed offsite for disposal at a facility that is authorised to accept such waste;
- Except in very particular circumstances, and with the approval of the Specialist non-native Invasive Species contractor, there shall be no temporary storage of infected / suspected infected soils on-site.
- Where small volumes e.g., volume capable of being double bagged in quarantine bags such as cut plants, bulbs or loose soil occur, it may be practical to bag the material and bring it to a clearly demarcated and dedicated quarantine area within the Construction Compound until such time that the material is disposed of to an authorised facility, similar to the process of disposing of bulk excavated infected soil (See Section 6.6).

6.6 Soil Excavation

- 27 No excavations within a clearly demarcated and fenced off buffer zone shall be permitted. For Japanese knotweed, guidance recommends a horizontal distance of up to 7m from the outside of the stand. This could include under built ground, should suitable areas of weakness or uncompacted ground be encountered by the plants' rhizomes. For other species there will be different buffer zones as guided by the specialist.
- 28 Where the excavation of soil containing Third Schedule non-native invasive species (vector material) is the preferred option, the specialist non-native Invasive Species contractor shall supervise the operation for its entirety until the risk of spread of Third Schedule non-native invasive species is negated.
- 29 There should be no temporary storage on-site of bulk excavated infected material. Furthermore, the temporary storage of small amounts of infected material shall not occur within 50m of any watercourse and any land within an identified flood zone. Material will be disposed of as stipulated in Section 6.7 of this ISMP.
- 30 Where the movement of any Third Schedule non-native invasive species required off-site, a licence will be required from NPWS in advance of any movement to a site/facility licenced to accept such waste. This licence is separate to; and would not negate the need for licences/permits/authorisations required under waste legislation.

6.7 Disposal of Material

- 31 Where any non-native invasive plant material is collected (e.g., by hand-pulling or mowing), it is important that its disposal does not result in a risk of further spread. The movement of invasive plant material, offsite, requires a licence from the NPWS under Section 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended). Invasive species (particularly roots, flower heads or seeds) must be disposed of at licensed waste facilities or composting sites, appropriately buried, or incinerated having regard to relevant legislation, e.g., Section 32 of the Waste Management Act, 1996 to 2008; Section 4 of the Air Pollution Act, 1987; relevant local authority bylaws and any other relevant legislation. All disposals must be carried out in accordance with the relevant Waste Management legislation (as per guidance from NRA, 2008).
- 32 It should be noted that some invasive species plant material or soil (vector material) containing residual herbicides may be classified as either 'hazardous waste' or 'non-hazardous waste' under the terms of the Waste Management Act, as amended, and both categories may require special disposal procedures or permissions. Advice should be sought from a suitably qualified waste expert regarding the classification of waste and the suitability of different disposal measures.

6.8 Measures to be implemented during the Application of Herbicides (If specified)

- 33 Some control options may require the use of herbicides, which can pose a risk to human health, to non-target plants or to wildlife. In order to ensure the safety of herbicide applicators and of other public users of the site, a qualified and experienced contractor, registered with the DAFM² must be employed.
- 34 The appointed contractor is required to refer to appropriate guidance documents, including but not limited to those listed in Section 4.1, which provide detailed recommendations for the control of invasive species and noxious weeds.
- 35 These documents include measures to aid the identification of relevant species, with details for the timing, chemicals and methodology for chemical control (if applicable), and for measures to avoid environmental damage during the use of herbicides. It is recommended that the appointed contractor or their appointed

² Department of Agriculture, Fisheries and Marine (DAFM),

specialist update the ISMP for the Proposed Development in accordance with the relevant guidelines before commencing works.

- 36 It should be noted that where a chemical treatment is to be used, there is a risk of contaminating a watercourse. The choice of herbicide is typically limited to formulations of Glyphosate or 2,4-D amine that are approved for use near water. Full details of any chemical used, where required and as advised by a registered pesticides advisor / contractor, would be included in the updated ISMP prepared in advance of construction of the Proposed Development.

6.9 Importation of Soil or Other Material

- 37 The bulk importation of material from offsite could potentially result in the accidental spread of Third Schedule non-native invasive species, as it is uncertain if these site(s) is free from non-native invasive species. This is likely less of an issue for road building material. However, in terms of landscaping material, if soil is being imported to the site for landscaping, infilling or embankments, the contractor shall seek written documentation from suppliers confirming that the material is free from invasive species.

6.10 Post Construction Monitoring

- 38 Following the construction of the Proposed Development, there may be ongoing treatment programmes which extend for a number of years into the operational phase. Notwithstanding this fact, it is important that the Proposed Development site is systematically re-surveyed during its early operational phase, particularly around areas where management / eradication measures were enacted, to determine the success of control measures and to identify areas where invasive plants may be reinvading. This post-construction surveillance should be carried out for at least two years post completion (or as advised by the non-native invasive species specialist of all mitigation measures).
- 39 The above measures are important for all Third Schedule non-native invasive species, where they occur, as maintenance works associated with landscaping, such as mowing and hedge cutting have the potential to spread this plant via the dispersal of very small amounts of shredded plant material. If invasive plants are found, then they shall be treated as per the measures outlined in the ISMP and the species-specific guidelines.

6.11 Certification of Eradication by Appointed Specialist

- 40 Upon the successful completion of all prescribed management and eradication measures for each identified non-native invasive species, the appointed specialist contractor will provide a formal written guarantee certifying that the species has been eradicated from the specified areas. This certification will detail the methods employed, the dates of treatment, and the results of post-treatment monitoring, ensuring compliance with the requirements outlined in the ISMP and updated as necessary by the Specialist non-native invasive species contractor .

7 Conclusion

- 41 This ISMP is a live document and has been prepared in respect of the Proposed Development. Although no Third Schedule invasive species were recorded within the Proposed Development site, it is essential on a precautionary basis and given the nature of the operational site and Proposed Development to implement the outlined measures to prevent the introduction or spread of invasive species both within the site and from external sources. There was only one invasive species identified during surveys and it does not require specific management strategies.
- 42 By implementing management protocols, the development project will contribute to controlling invasive species, protecting native biodiversity, and ensure the ecological enhancement of the site. Regular monitoring and adherence to biosecurity practices will further ensure that the site remains free of invasive species and supports long-term biodiversity goals.
- 43 Prior to the commencement of any works within the Proposed Development site, pre-construction surveys (during the appropriate botanical season) shall be undertaken by persons qualified in the identification of

non-native invasive species to confirm the presence of third schedule non-native invasive species records and, where relevant, note any changes in distribution / extent in respect of any previously recorded third schedule non-native invasive species. The update of this live ISMP will be informed by location-specific eradication proposals following results of the pre-construction surveys.

- 44 The ISMP shall be updated to confirm the control for each individual / population impacted by the project. Depending on the final infestation control measures prescribed, the ISMP shall be implemented in full by a suitably qualified Specialist, (licenced as necessary). Monitoring will be implemented after control measures have been undertaken and monitoring will take place again in the subsequent years following treatment. Any re-growth of any non-native invasive species at any location, will be subsequently treated as detailed in this ISMP.

8 References

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