Preliminary Design of Regional Attenuation Pond 2a, Cherrywood

Invasive Species Management Plan | March 2021

dlr Comhairle Contae County Council

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Preliminary Design of Regional Attenuation Pond 2a, Cherrywood

Invasive Alien Plant Species Management Plan

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1.0 INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) was appointed by Dún Laoghaire-Rathdown County Council (DRLCC) to provide environmental consultancy services in relation to the proposed Preliminary Design of Regional Attenuation Pond 2a, Cherrywood ("the proposed development"). The proposed Regional Attenuation Pond 2A forms part of the Cherrywood Strategic Development Zone (SDZ) Storm Water Infrastructure, as identified in Chapter 4 of the Cherrywood Planning Scheme (CPS) prepared by DLRCC in their role as designated Development Agency for this SDZ. The CPS requires the delivery of the Regional Attenuation Pond 2A, to be located within the proposed linear park in Lehaunstown Development Area 1. . A proposed greenway to the south of the pond, which will tie into a proposed greenway (by others) will also be provided as part of this development.

During the initial ecological survey of the site, which was carried out in March 2020, to inform the Ecological Impact Assessment (EcIA) for the proposed development, invasive alien plant species (IAPS) were identified within the footprint of the proposed development. In the absence of appropriate management, there is a significant risk that IAPS will continue to spread, either independently of or assisted by construction or operational activities associated with the proposed development.

The continued presence of IAPS within the footprint of the proposed development or the spread of such species to, from or within the site poses a significant threat to local biodiversity. Furthermore, the introduction or spread of invasive species, particularly IAPS listed on the Third Schedule to the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended) ("the Habitats Regulations"), poses a risk to the proposed development itself, as, in the absence of appropriate preventative measures, any such introduction or spread would constitute an offence under Section 49 of the Habitats Regulations.

Invasive species are discussed under Objective 2 of the DLRCC Biodiversity Plan, and specifically under Action 4.7: *"Identify those species posing a threat to biodiversity as a result of their invasive nature, and agree policies and actions to control their spread." Appendix V provides a list of alien species of conservation concern "which adversely impact on native flora and fauna, or have the potential to do so in the future".* The list includes Giant Hogweed In the 'Threats to Biodiversity Section (p15), The Giant Hogweed infestation along the Loughlinstown Stream is specifically mentioned. It is noted that Dún Laoghaire- Rathdown County Council is currently working to control this species.

In order to address and manage the risks associated with IAPS, DLRCC appointed ROD to prepare an IAPS Management Plan for the proposed development. This document comprises the IAPS Management Plan for the proposed development and was prepared by ROD on behalf of DRLCC. The intention is that this will form the basis for the plan which will be adopted if consent for the proposed development is granted.

1.2 Location

Pond 2A and the greenway will be located within Lehaunstown Development Area 6, Cherrywood, Dún Laoghaire, Co. Dublin. This land is included within the Cherrywood development area which was designated as an SDZ in 2010, consisting of

approximately 360 ha. Cherrywood is situated approximately 8km south of Dún Laoghaire town centre near Loughlinstown, between the N11 and the M50. Figure 1 shows the location and boundary of the site of the proposed development.

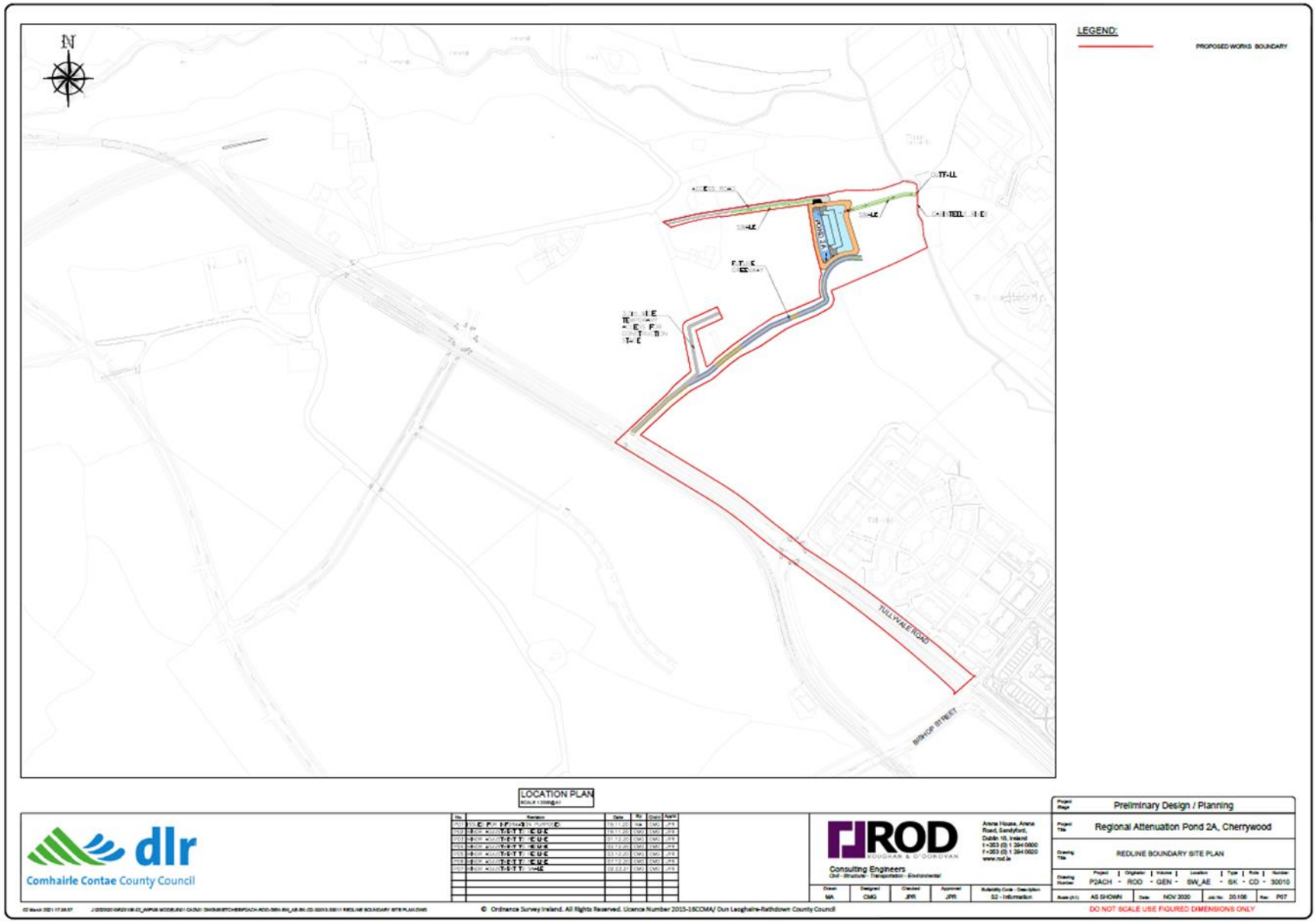

Figure 1. Location and boundary of the site of the proposed development

1.3 Evaluation of Risk

Prior to preparing this IAPS Management Plan, the risk of IAPS both within and in the surrounding area, defined as 5 km from the development boundary, was assessed. This involved the following:

- A desk study to collect existing records of IAPS within 1 km of the development boundary.
- An IAPS survey of the site of the proposed development.
- The mapping of the extent and distribution of IAPS within the site.
- An evaluation of the risk of IAPS to biodiversity.

1.4 Purpose of this Plan

The purpose of the IAPS Management Plan is:

- To prevent the spread of IAPS within and outside the project boundary during the construction phase.
- To provide clear instruction and a timeline for the monitoring and eradication of IAPS within the site.
- To evaluate the risk of re-infestation from surrounding properties.

2.0 METHODOLOGY

2.1 Consultation & Desk Study

The purpose of the desk study was to review publicly available information and recent and historical records regarding IAPS within the footprint of the proposed development and the surrounding area. Records of IAPS within 1 km of the proposed development were obtained from the National Biodiversity Data Centre (NBDC).

As with all desk studies, the data considered was only as good as the data supplied by the recorders and recording schemes. The recording schemes provide disclaimers in relation to the quality and quantity of the data they provide, and these were considered when examining the outputs of the desk study.

2.2 Invasive Species Survey

An invasive species survey of the site was carried out the 18th May 2020 to inform this plan. This survey identified Giant Hogweed within the site. The entire site, and a 50m buffer, was walked to determine the distribution and abundance of all invasive species. Notes on site conditions were recorded and the stands were mapped in the field. The locations and extents of invasive species were mapped using ArcGIS.

2.3 Survey Limitations

Standard survey methods (TII/NRA, 2010) were followed. However, any biases or limitations associated with these methods could potentially affect the results collected. Whilst every effort was made to provide a full assessment and comprehensive description of the site, it is unlikely that one survey can achieve full characterisation due to temporal variation. It is recognised that whenever a survey is carried out (within the defined season), it is a compromise, suitable for the vast majority of species, but possibly too early or too late for some species. The survey was carried out in May 2020, which is considered to fall within the optimal time of year for botanical surveys (April to September).

3.0 RESULTS

3.1 Proximity to Designated Sites

At the EU level, there are two main types of designated site: Special Protection Areas (SPAs) designated under the Birds Directive (2009/147/EC) and Special Areas of Conservation (SACs) designated under the Habitats Directive (92/43/EEC). The term "European site" applies to all EU designated sites, including SPAs and SACs. All European sites together make up the Natura 2000 network. The primary objective of each European site is to restore and maintain the favourable conservation condition of the habitats and species for which it has been selected ("qualifying interests") and, thereby, contribute to the restoration and maintenance of the favourable conservation status of those habitats and species at the national and EU level.

At the national level, Natural Heritage Areas (NHAs) are areas designated under the Wildlife Act, 1976 (as amended) ("the Wildlife Act") and considered important for the habitats and species of plants and animals whose habitat needs protection. NHAs are legally protected from the date that they are formally proposed for designation and must be a material consideration in the planning process. While proposed NHAs (pNHAs) are subject to limited protection are not individually protected under statute, they are considered to be of national conservation and heritage importance and are recognised by planning and licensing authorities for their ecological value.

Designated sites are often very sensitive to invasive species. In addition, run-off of herbicide could adversely affect the listed habitats and/or species of protected sites and would constitute an offence.

There are no European sites in proximity to the proposed development. The closest nationally designated sites are the Loughlinstown Woods pNHA (1 km east) and the Dalkey Coastal Zone and Killiney Hill pNHA (2.7 km east) These sites are situated downstream of the proposed developed, connected to the site by the Cabinteely and Shanganagh Rivers.

3.2 Desk Study

The desk study confirmed that four IAPS have been recorded within 1 km of the proposed development (see Table 3.1).

Table 3.1 Notable invasive species records within 1 km of the proposed development (NBDC, 2020).

Common Name	Scientific Name
Species listed on the Third Schedule	
American Skunk-Cabbage	*Lysichiton americanus*
Giant Hogweed	*Heracleum mantegazzianum*
Japanese Knotweed	*Fallopia japonica*
Other Invasive Species	
Butterfly Bush	*Buddleja davidii*

3.3 Invasive Species Survey

The 2020 field survey confirmed the presence of Giant Hogweed within the site. Giant Hogweed is listed on the Third Schedule of the Habitats Regulations and, as such, Section 49 of those regulations apply to this species.

The main infestations are along the Cabinteely River on the eastern the boundary of the site (See Plate 1). Plants growing on the river banks have formed mature stands measuring up to 3m tall. There were also a number of individual immature plants identified within the site boundary adjacent to the hedgerow on the southern boundary (See Plate 2). These plants have been subject to grazing by cattle therefore limiting their growth within the field. Larger infestations of the Giant Hogweed were recorded outside the footprint of the proposed development within the grassland and woodland directly south of the site.

Given the extent of Giant Hogweed infestations within and adjacent to the site, the entire site is considered to be potentially contaminated by the plant.

Plate 1 Mature stems on river bank

Plate 2 Immature plants in field

Figure 2 below illustrates the extent and distribution of Giant Hogweed within the footprint of the proposed development.

Figure 2. Extent and distribution of Giant Hogweed on the site of the proposed development.

4.0 OVERVIEW OF GIANT HOGWEED

4.1 Ecology and Distribution

Giant Hogweed is a member of the carrot family (Apiaceae) and bears a close resemblance to the native and widespread Common hogweed (*Heracleum sphondylium*) or Wild angelica (*Angelica sylvestris)*, although these species are rarely more than 1.5m tall. Giant hogweed is native to the Caucasus Mountains in south-west Asia. It is highly invasive due to its vigorous early-season growth, tolerance of shade and flooding, and its efficient production and dispersal of seeds. Individual plants live for 3–5 years, after which they set seed and die. They spread solely by seed, producing several thousand seeds per flower head. These seeds can be dispersed over short distances by wind, but they can be spread over considerably longer distances by rivers, streams, machinery and any movement of contaminated soil. The plant is highly tolerant of disturbed sites and can out-compete other vigorous weed species due to its height. As the plant frequently colonises river banks, it can increase the risk of soil erosion as it dies back in winter, leaving bare soil, which its shallow and branched taproot system cannot bind efficiently.

Plate 3 Giant Hogweed - Plant

The stem and undersides of the leaves of Giant hogweed are coated with fine hairs that contain a phototoxic sap that renders skin sensitive to ultraviolet (UV) light. The slightest contact with the plant can result in the release of sap, which then gives rise to severe and painful blistering of the skin. The reaction may take up to 24 hours to occur and may result in permanent recurrent phytophotodermatitis – a type of dermatitis that flares up in sunlight. As the plant hairs are extremely fine and brittle, they can pierce light clothing. In the event of contact with the sap, the skin should be covered to prevent exposure to sunlight and washed immediately with soap and water.

In Ireland, Giant hogweed is locally widespread, although still absent from much of the midlands. It is frequently encountered on waste ground, along rivers and streams, and in woodland fringes.

4.2 Identification

The following provides a brief summary of the defining characteristics of Giant hogweed (for more information see (Caffrey, 1999)):

- It is characterized by its size and can grow to 5m in height, producing large umbels (flower heads) of small white flowers up to 0.8m across (Plate 1)
- It is a perennial plant, forming a rosette of leaves in the first year before sending up a flower spike in the second. The plant typically dies after flowering and setting seed
- It has a ribbed, purple-spotted, hollow stem to 10cm in diameter and covered with hairs and bristles
- It has dark green, deeply lobed leaves up to 2m in diameter and with coarse and serrated edges

It is distinguishable from the native Common hogweed, which does not have hairs or red blotching on its stem, has less dissected leaves and is smaller in all its parts.

5.0 TECHNIQUES FOR ERADICATION OF GIANT HOGWEED

5.1 Management of Giant Hogweed

This management measures described below are been based on the following guidance documents:

- Nielsen, C., H.P. Ravn, W. Nentwig and M. Wade (eds.), 2005. *The Giant Hogweed Best Practice Manual. Guidelines for the management and control of an invasive weed in Europe.* Forest & Landscape Denmark, Hoersholm, 44 pp.
- TII/NRA (2010). *The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads, Ireland*: National Roads Authority.

The control of Giant Hogweed should aim to eradicate the plant entirely or at minimum, prevent the plant from producing seed. As some seeds may remain viable for up to 15 years, control will require continued input over several years to be complete. Soil within 4m of established plants is likely to contain large numbers of seed from previous years' flowering and should not be transferred to other parts of a site unless as part of a targeted control measure (refer to Section 6.2 Biosecurity Measures). The majority of seeds, however, are contained within the top 5cm of soil and most will only persist for 1–2 years (Booy, *et al*., 2015). Such soil and all vegetative material should not be stock-piled within 10m of any watercourse due to the risk of material being transferred by water.

Giant Hogweed may be controlled by either chemical or physical methods. These are detailed below:

5.1.1 Chemical Control

The use of herbicides for Giant hogweed control is effective but will require follow-up treatment to deal with seedling growth, even where the initial infestation of parental plants has been controlled. Where a site contains sensitive native vegetation, Giant Hogweed is best controlled by injecting herbicide into the stem. Foliar spray application should be undertaken before the flowering stem has fully elongated in March or early April. A further herbicide treatment in September will kill any regrowth or late developing plants or seedlings. Any plants that have flowered, or are likely to flower, should be dead headed or chopped down before seeds are produced.

5.1.2 Physical Control

Young plants can be readily pulled or teased out of the soil using hand tools. This is best undertaken when the soil is moist following recent rain and care should be taken to extract the plants intact.

Where plants are larger than approximately 1.5m, the upper part can be cut back and the lower part of the stem used to lever the roots out. The central crown of the taproot must be removed to prevent the plant regenerating; small fibrous side roots that may remain in the ground cannot regenerate. Where plants are well-established, continuous germination of seedlings will occur following the removal of mature plants and periodic removal of these will be required to ensure ongoing control.

The flowering stem should then be cut to prevent any further regrowth. Seedlings are best left for a few weeks to establish as they are easier to remove at this stage. Giant

Hogweed plants should be disposed of at a facility licence to take this type of waste, or buried on site at least 1m deep

Follow-up removal and/or monitoring will be required for a minimum of five years to ensure complete control. Subsequent soil disturbance in the area however, may give rise to a new flush of seedlings. Mowers and strimmers must not be used as they tend only to stimulate additional budding on the root crown, do not reduce the plants rigour, and can flail sap onto operators.

5.2 Limitations to Giant Hogweed Removal

The limitations that may be encountered include:

- The main areas of infestation are outside the site boundary in the woodland and fields to the south and along the Cabinteely River. The Cabinteely Stream acts as a corridor for Giant Hogweed to spread and therefore, future infestation from seed produced upstream is a certainty.
- Construction is due to begin in October 2020, at which time the Giant Hogweed plants will have produced seed.
- The volume of Giant Hogweed which requires treatment could lead to impacts on the Cabinteely River due to sedimentation.
- Other projects in the area, including the linear park along the Cabinteely River will require their own measures to prevent the spread of this species.

6.0 RECOMMENDED MANAGEMENT MEASURES

6.1 Giant Hogweed Control Measures

The entire site is considered to be potentially contaminated with Giant Hogweed. To prevent the spread of Giant Hogweed within and outside the site, a combination of physical removal of plants and burial on site, and strict biosecurity measures should be employed:

- A site-specific biosecurity plan should be produced by the contractor in advance of the works.

At a minimum, this should include:

- Signage should be erected at the entrance to the site and along the southern and eastern boundaries to alert people that the site is contaminated with Giant Hogweed.

- All personnel on the site should attend a 'toolbox talk' as part of the site induction. The toolbox talk should include the identification of Giant Hogweed, a summary of the biosecurity measures in place and the safety risks associated with the plant.

- All Giant Hogweed plants within the works area i.e. in the field and along a small section of the western bank of the Cabinteely River at the location of the outfall, should be dug out and buried on site.

- A designated "clean car park" should be set out for vehicles traveling to and from the site, outside the contaminated areas.

- Disinfection station(s) should be set up where all staff should clean and disinfect their boots and any tools used during the operations. All heavy machinery used during the works will be power-washed before leaving the site.

The recommend measures set out in this plan are valid for the construction phase of the proposed development.

It is recommended that Dún Laoghaire-Rathdown County Council prepare a coordinated plan for the eradication of Giant Hogweed along the entire Carrickmines Stream catchment. Any actions short of a catchment wide management plan will be temporary and re-infestation from plants upstream inevitable.

7.0 TRAINING AND OPERATIVE COMPETENCY

7.1 Legislative Context

It is recommended that a suitably qualified person with sufficient training, experience, and knowledge in the control of Giant Hogweed should be employed to assist in the planning and execution of control measures in relation to Giant hogweed. While treating invasive species, particularly the use of herbicides, operators must comply with all legislation regulating the treatment and management of invasive species. The relevant standards and legislation that will dictate how eradication is undertaken include:

- Waste Management Acts, 1996 to 2013, and related legislation;
- Safety, Health and Welfare at Work Act, 2005;
- Safety, Health and Welfare at Work (Construction) Regulations, 2013;
- Safety, Health and Welfare at Work (General Application) Regulations, 2007;
- European Communities (Birds and Natural Habitats) Regulations, 2011 to 2015; and,
- Wildlife Act, 1976 (as amended) ("the Wildlife Act").

7.2 Health & Safety

All operatives engaged in Giant Hogweed control and personnel working on site must be made aware of the serious environmental, health and safety risks associated with the plant including the phototoxic nature of the plants sap and its potential to result in permanent recurrent phytophotodermatitis.

An appropriate risk assessment, which includes Health & Safety considerations, should be carried out before any control or survey work is undertaken. Personnel engaged in controlling Giant Hogweed must wear complete PPE which includes gloves, goggles and head protection. Haulage contractors involved in transporting infected material to landfill and the landfill operators must similarly be made aware of the risks. Infected material being transferred from the site must be covered to avoid accidental spillage and spread during transport.

All works to be compliant with the Safety, Health and Welfare at Work Act, 2005 as well as the Safety, Health and Welfare at Work (General Application) Regulations, 2007. Supervision of operatives is required on site to answer any questions and visit treated areas on a regular basis to ensure that work continues to be carried out to a high standard.

8.0 REFERENCES

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