
Irish Water



PROJECT:

Ringsend Wastewater Treatment Plant Upgrade Project

DOCUMENT:

Outline Invasive Species Management Plan

Document Control Sheet

Client:	Irish Water
Project Title:	Ringsend Wastewater Treatment Plant Upgrade Project
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SECTION 1: INTRODUCTION

Japanese Knotweed Japanese Knotweed is an invasive alien plant species that is listed in Regulations 49 and 50 and the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No 477 of 2011).

Section 49 (2) of the regulations states:

“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”.

Japanese Knotweed is a widespread and well-established garden escape or relic of cultivation in Ireland, which spreads vegetatively and forms dense stands which are difficult to eradicate successfully. It is widely distributed in Dublin City and surrounding counties (Doogue *et al.* 1998).

SECTION 2: JAPANESE KNOTWEED LOCATIONS.

The development of the Ringsend Upgrade project requires the removal of an earthen bund on the eastern boundary of the site. This historical bund was created using construction and demolition and other wastes mixed with soil and for the most part this will be classified as “non-hazardous” or “stable non-reactive hazardous waste”. The bund is covered with immature woodland, planted approximately 10 years ago as part of the landscaping for the treatment works.

Japanese Knotweed was recorded on the area to the east of Ringsend WwTP by Atkins (2009) during surveys for a biodiversity management plan for Irishtown Nature Park.

Invasive species surveys of the eastern area of the WwTW were undertaken in March and September 2013 and Japanese Knotweed was found to be present. All areas of the WwTW and the construction compounds were resurveyed on 23rd June 2016 (Natura 2016) and standing stems of Japanese Knotweed were searched for. GPS co-ordinates were recorded for all stands of the plant. New growth typically begins in April and the distinctive leaves are present in June. The plant normally flowers in August to October. Japanese Knotweed is present only at the eastern and south-eastern boundaries of the site (see Figure 1). Japanese Knotweed is confirmed as growing extensively on land outside the eastern perimeter of the boundary fence of the Ringsend Waste Water Treatment Works. Several stands of the plant are present on the pathway immediately inside the eastern boundary fence of the WwTP having spread through the fence from the vegetation outside the boundary. Several stands are also present on the berm at the south-east corner of the WwTP. This area is proposed for an access road to the construction site. No specimens of Japanese knotweed were found in any of the other areas surveyed.

The earthworks that are required will be undertaken with consideration of the fact that;

- The excavated soil contains waste and must be disposed of through the correct channels.
- Portions of the bund are infested with Japanese Knotweed and precautions will be taken to prevent spreading.
- Excavated soil may contain Japanese Knotweed rhizomes and must be disposed of through the correct channels
- Measures will be installed that are designed to prevent the spread of Japanese Knotweed from outside the site.
- Irish Water chemically treat the plants on the property with herbicide in advance of the excavations.

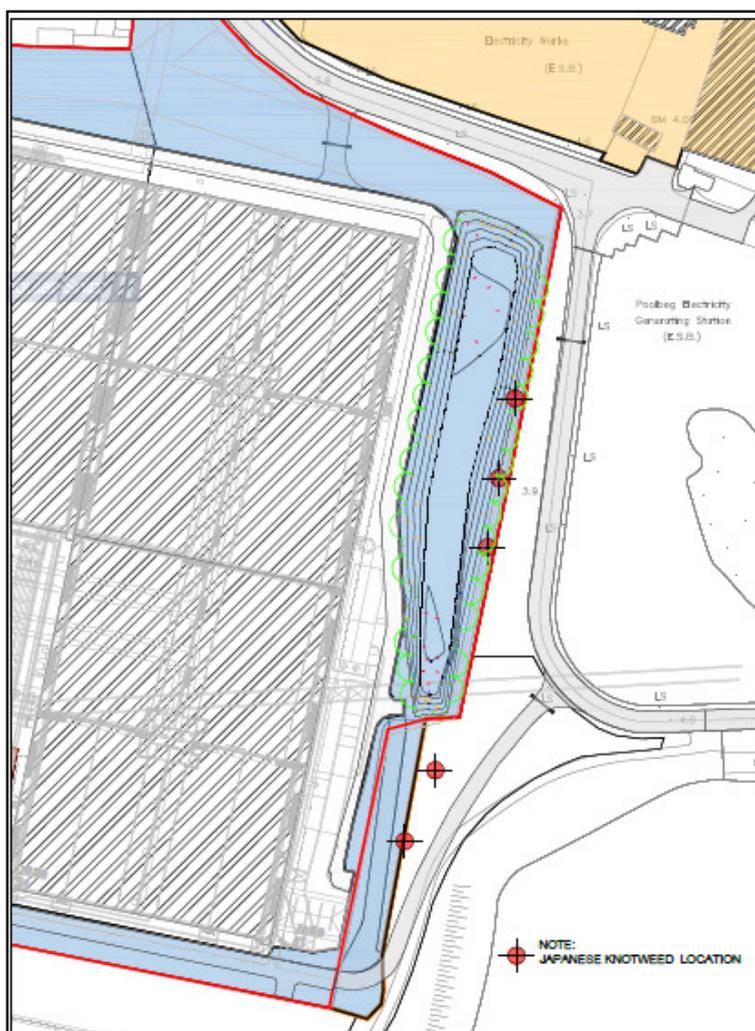


Figure 1 - Location of stands of Japanese Knotweed recorded on the site of Ringsend WwTP (June 2016 Survey)

SECTION 3: MANAGEMENT OPTIONS

Irish Water have produced a guidance document regarding the management and Control of Japanese Knotweed. Japanese Knotweed Management on the project shall follow these guidelines.

Within the Irish Water Biodiversity Policy are specific policies which relate to the management of invasive alien species such as Japanese knotweed, and include:

- Where Invasive Alien Species are present on sites owned or managed by Irish Water, invasive species management plans will be developed and implemented in accordance with the relevant environmental legislation; and
- All Contractors carrying out works on behalf of Irish Water will ensure that Invasive Alien Species are not transferred through contaminated materials and equipment.

The IW guidance document states *“Before starting any Japanese knotweed control programme, one must consider all areas which are infested with Japanese knotweed that are close to or adjacent to the boundary of the Irish Water site, and the potential for re-infestation by Japanese knotweed from those adjacent lands. Ideally, some sort of arrangement should be negotiated with the relevant landowner in*

advance of any Japanese knotweed control programme to reduce the likelihood of re-infestation by Japanese knotweed from those adjacent lands.”

Irish Water will inform the neighbouring landowners (Dublin City Council and ESB) that Japanese Knotweed is present on their land and inform of the control measures proposed.

The preferred Irish Water method of treatment is *in situ*. “It should be noted that the removal of plant material and contaminated soil off-site should be avoided where at all possible”.

Section A and B of the bund will be removed as part of the advance works as shown in Figure 2. Section C at the proposed entrance at the north-eastern side of the site does not contain Knotweed therefore no special measures will be required for this area. The excavated soils in Areas A and B will contain Rhizomes and will require disposal off site.

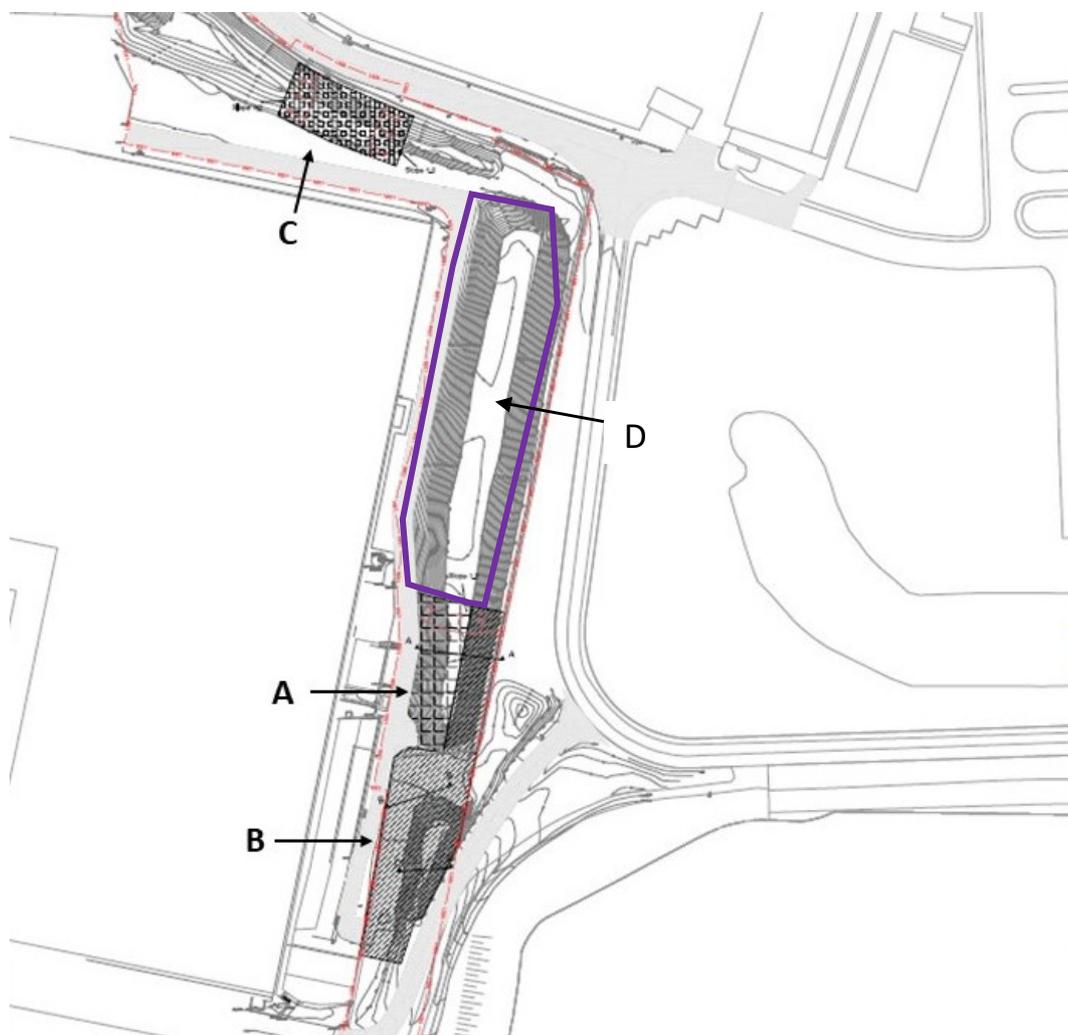


Figure 2 - Treatment of soil and vegetation at the eastern end of the WwTP site

While the Irish Water Knotweed guidelines recommend that the Japanese Knotweed should be managed on site, this is not possible in the case of part of the Ringsend infestation (Areas A and B).

- It is not possible to manage the Japanese Knotweed by chemical means alone as excavation is required and the material needs to be removed within 18 months.
- Deep burial on site will not be possible as there is no land available.

- Creation of Bunds is not feasible as there is insufficient land available.

Therefore, the only option available is excavation and disposal off site to a licenced facility. Some of the knotweed soil will also be contaminated with waste material that was used to construct the original bunds.

In order to prevent the spread of Japanese knotweed from outside the site it is proposed to install a root barrier membrane system at the boundary where excavation will have taken place. The area within 7 metres of known Japanese Knotweed plants on the property and within 9 metres of the eastern boundary fence will be excavated to a depth of 300 mm below the proposed ground level. A horizontal root barrier membrane will be installed to contain any rhizomes and prevent the spread of Knotweed infestation.

The removal of the remaining portion of this bund (Section D) to the northeast will not be undertaken until 2023. This area will be treated *in situ* using chemicals to kill the vegetative and root parts of the plants.

SECTION 4: LICENCE REQUIREMENTS (NPWS)

As it is proposed to remove Japanese Knotweed contaminated material off site a licence will be required from the National Parks and Wildlife Service in advance of any removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).

SECTION 5: MANAGEMENT SUPERVISION

The Contractor will appoint a botanist suitably qualified in the treatment of Japanese Knotweed to oversee and supervise any work and excavations in the vicinity of Japanese Knotweed. The Contractor's Botanist will work closely with the Environmental Manager and the Irish Water specialist to ensure that the management plan is strictly adhered to.

SECTION 6: METHODOLOGY

The Contractor shall provide a site specific method statement and Invasive Species management Plan (based on this outline management plan) for the earthworks including details of disposal route for the excavated soil. No work to be undertaken until the method statement and Plan are approved by Irish Water.

To avoid the accidental transfer of non-native invasive species, the Contractor will, at all times, follow best practice guidance, as published in the Irish Water Guidelines.

6.1 Spread Prevention

The following best practice avoidance measures are recommended to prevent further spread of Japanese knotweed infestation on the site:

1. Understand the possible extent of the rhizome system underground – up to 7 metres horizontally.
2. Fence off or clearly mark infested area including the extent of the rhizome system underground.
3. Do not use machinery with tracks within an infested area, if possible
4. The removal of soil or vegetation from the area affected by the Japanese Knotweed will be carried out separately from other site clearance.

5. Create dedicated entry and exit points for operators on foot and for small mobile equipment. A delineated access track to be maintained free of Japanese Knotweed should be established through the site to minimise the spread of Japanese Knotweed by permitted vehicles accessing the site.
6. Install a dedicated footwear and vehicular wheel wash down facility into a contained area within the site.
7. Vehicles leaving the site should be inspected for any plant material and washed down into a contained area.
8. Vehicles used in the transport of contaminated material will need to be visually checked and washed down into a contained area before being used for any other work, either on the same site or at a different site.
9. Material gathered in dedicated wash down contained areas will need to be appropriately treated along with other contaminated soil on site.
10. Ensure all site users are aware of measures to be taken and alert them to the presence of the Japanese Knotweed Site Management plan. Erect adequate site hygiene signage in relation to the management of non-native invasive material.

6.2 Advance Chemical Treatment.

Irish Water will employ an experienced Invasive Species Control Contractor to carry out herbicide treatment of the plants on the site in advance of any excavation taking place.

1. This treatment should be undertaken between July and September when plant leaves are exposed.
2. The preferred types of herbicides to be used in the treatment of Japanese Knotweed are Glyphosate and 2,4-D Amine.
3. The herbicide should contain a treatment dye to identify clearly all areas that have been treated.
4. A second treatment should be applied ten days after the initial spraying.
5. Further treatments may be required following completion of the project if regrowth becomes evident. This will become apparent during the post works monitoring programme. Which should be carried out for a period of 2 years.

6.3 Excavation of Soils.

Excavations In areas A and B in Figure 2 are know to have Japanese Knotweed present and the excavated soil will contain rhizomes

The excavations and earthworks of the bund area shall be undertaken in the following sequence.

1. Excavate the bund outside the Japanese Knotweed delineated zones to the required levels and dispose of excavated material to a suitably licenced facility.
2. Excavate the delineated knotweed areas under the supervision of Ecologist. The Japanese Knotweed infested soil will be transported to a suitably licenced facility.
3. When the bund excavations have been completed (both knotweed and contaminated soil), install horizontal root barrier membrane to prevent the spread of Japanese Knotweed from plants outside the site boundary.

The Contractor's Invasive Species Specialist must be present for all excavation in infested areas. It is assumed that a radius of 7 metres around each plant can contain rhizomes. However, if the Contrator's

Invasive Species Specialist can confirm that the excavated soil is rhizome-free, then that soil shall be segregated from infested soils.

The Contractor's Invasive Species Specialist shall liaise closely with the Contractor's Waste Manager during excavation to establish whether infested soil is contaminated.

The removal of soil or vegetation from the area affected by the Japanese Knotweed will be carried out separately from other site clearance and be conducted in such a manner that there is no risk of accidental transfer or spreading of vegetation or soil onto adjacent grassland, sand dunes or tidal area.

It should be noted that there are numerous services running under the south eastern portion of the area to be excavated.

6.4 Prevention of re-infestation on site

The area affected by the Japanese Knotweed (i.e. within 7m horizontally from any existing plants) should be covered with a root barrier membrane.

Horizontal Root Barrier Membrane.

The horizontal root barrier membrane is designed to prevent re-infestation and the spread of Japanese Knotweed into the site under the boundary fence as well as spread from rhizomes remaining in the soil following excavation. Japanese knotweed can produce seeds, but it is extremely rare for these seeds to germinate. The most common method of dispersal is by means of stem, crown and rhizome (underground stem sections.) The roots of the Knotweed plant can spread to a radius of 7 metres. The membrane barrier will prevent the emergence of new plants from the root system in the underlying soil.

The horizontal root barrier membrane shall be HDPE with a thickness of at least 2.0 mm. The membrane must stay intact for at least 50 years. A manufacturer's guarantee is required.

Prior to installing the Root barrier membrane the ground shall be rolled to provide a flat surface. The HDPE root barrier membrane shall be laid on a 75 mm layer of sand and covered with an additional 100 mm of sand. This in turn will be covered by CL804 fill material.

SECTION 7: DISPOSAL OF KNOTWEED INFESTED SOIL

If Japanese knotweed contaminated material is removed off site it will require a licence from the National Parks and Wildlife Service in advance of any removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).

The soil or vegetation removed from the area affected by the Japanese Knotweed will be disposed of in a licensed landfill site. All Class U2 material are to be disposed of at a suitably licensed landfill facility in accordance with the Irish Water Guidance document on Japanese Knotweed.

Material infected with Japanese Knotweed is deemed to be 'non-hazardous waste' during its transportation to a licensed landfill facility and such transportation is subject to the Waste Management Acts and Regulations

Landfill operators should be consulted in advance to determine whether the waste can be accepted at any individual facility.

SECTION 8: RECORDING AND MONITORING

The Contractor will provide full traceability of this material from its origin/source to its final disposal location and confirmation that both the transport and disposal of the material complies strictly with the Waste Management Acts. Records of all transport movements, evidence of collection permits, and certification by the Landfill Operator of disposal in accordance with the foregoing Guidelines, must be provided to the ER as per the Waste Management Plan.

Irish Water will engage a qualified specialist to verify if the Japanese Knotweed is still present following construction. This will be carried out for 2 years post-construction and a copy of any records of the plant will be lodged with the National Biodiversity Data Centre (www.biodiversityireland.ie). In the event that Japanese Knotweed is found to re-emerge, a programme of in-situ chemical treatment will be implemented.

SECTION 9: REFERENCES

Atkins 2009. *Biodiversity Management Plan for Irishtown Nature Park*. Dublin City Council.

Doogue, D., Nash, D., Parnell, J., Reynolds, S. and Wyse Jackson, P. (eds.) 1998. *Flora of County Dublin*. The Dublin Naturalists' Field Club. Dublin.

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Guidelines on the management of noxious weeds and non-native invasive plant species on National Roads. National Roads Authority, 2010.

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