UISCE ÉIREANN : IRISH WATER

GLAN AGUA
MOTA-ENGIL GROUP

Leixlip Water Treatment Plant, Co. Dublin Upgrade Works

Invasive Species Survey Summary Report

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Client	Irish Water
Project No.	4041
Project Title	Leixlip WTP Upgrades
Report Title	Invasive Species Survey Summary Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Issue Date
0	Draft	EG	GK	JB	02/03/2021
1	Amended	EG	GK/JOC	JB	23/03/2021
2	Revised	EG	MG	JB	22/09/2021
3	Revised	SN	MG	JB	30/09/2021

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1. INTRODUCTION

Ryan Hanley was commissioned by Glan Agua, on behalf of Irish Water, to carry out an invasive plant species survey for the proposed acid/lime dosing facility works to be completed in Leixlip Water Treatment Plant (WTP), Co. Dublin.

Invasive plant species are those that are not native/ have been introduced to specific locations and have the ability to succeed and spread aggressively causing harm to the environment, human economy and/ or health; and are now believed to be the second largest threat to global biodiversity.

1.1 Surrounding Habitat

Leixlip WTP is located on the River Liffey to the immediate south of Leixlip town, and north of the M4 motorway crossing. The plant comprises a series of treatment infrastructure (located internally and externally of site buildings), hardstanding areas and some grassed areas. There are no surface water drains on-site and the site is enclosed by kerbing and fencing. The site is surrounded by woodland/treelines/hedgerows, beyond which lies the River Liffey running to the west and north, and agricultural fields to the south and east.

1.2 Policy and Legislation

The global threat of invasive species is recognised in the suite of international, European and national policy and legislation. From an international perspective the Conference of the Parties to the **10th Convention on Biological Diversity** addressed invasive species under Target 9 which states:

"By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment."

In Europe, the **Regulation on the prevention and management of the introduction and spread of invasive alien species** [1143/2014], a binding legal tool for all Member States, entered into force on the 1st of January 2015. This Regulation sets out rules to prevent, minimise and mitigate the adverse impacts of the introduction and spread, both intentional and unintentional, of invasive alien species on biodiversity and the related ecosystem services, in addition to human economy/ health impacts. The main outcomes of this Regulation are:

- Publication of a list of Invasive Alien Species of Union concern (Table 1 – plant only);
- Early detection issue of alert notification to Commission and other Member States;
- Rapid eradication in place within 3 months after alert notification (if possible/ feasible);
- Management measures put in place for widely spread species by February 4th, 2018;
- Restoration of damaged ecosystems undertaken [proportionate]; and
- Reporting on surveillance system, distribution of species, action plans etc.

Table 1: Invasive plant species of Union Concern

	Plant species		Plant species
1	Alligator weed (*Alternanthera philoxeroides*)	20	Indian balsam (*Impatiens glandulifera*)
2	American skunk cabbage (*Lysichiton americanus*)	21	Japanese hop (*Humulus scandens*)
3	Asiatic tearthumb (*Persicaria perfoliate*)	22	Japanese stilt grass (*Microstegium vimineum*)
4	Balloon vine (*Cardiospermum grandiflorum*)	23	Kudzu vine (*Pueraria lobata*)
5	Broadleaf watermilfoil (*Myriophyllum heterophyllum*)	24	Mesquite (*Prosopis juliflora*)
6	Broomsedge bluestem (*Andropogon virginicus*)	25	Nuttall's waterweed (*Elodea nuttallii*)
7	Chilean rhubarb (*Gunnera tinctoria*)	26	Parrot's feather (*Myriophyllum aquaticum*)
8	Chinese bushclover (*Lespedeza cuneata*)	27	Persian hogweed (*Heracleum persicum*)
9	Chinese tallow (*Triadica sebifera*)	28	Perennial veldtgrass (*Ehrharta calycina*)
10	Common milkweed (*Asclepias syriaca*)	29	Purple pampas grass (*Cortaderia jubata*)
11	Crimson fountainmgrass (*Pennisetum setaceum*)	30	Salvinia moss (*Salvinia molesta*)
12	Curly waterweed (*Lagarosiphon major*)	31	Sosnowsky's hogweed (*Heracleum sosnowskyi*)
13	Eastern baccharis (*Baccharis halimifolia*)	32	Senegal tea plant (*Gymnocoronis spilanthoides*)
14	Fanwort (*Cabomba caroliniana*)	33	Tree of heaven (*Ailanthus altissima*)
15	Floating pennywort (*Hydrocotyle ranunculoides*)	34	Vine-like fern (*Lygodium japonicum*)
16	Floating primrose-willow (*Ludwigia peploides*)	35	Water hyacinth (*Eichhornia crassipes*)
17	Eastern baccharis (*Baccharis halimifolia*)	36	Water-primrose (*Ludwigia grandiflora*)
18	Giant hogweed (*Heracleum mantegazzianum*)	37	Whitetop weed (*Parthenium hysterophorus*)
19	Golden wreath wattle (*Acacia saligna*)		

Nationally, the **European Communities (Birds and Natural Habitats) Regulations 2011 [SI.477]** as amended 2015 and contain the provisions to address the invasive species problem. A blacklist of unwanted species is set out in the Regulations (Table 2). It will be an offence without a licence, to release or allow to disperse or escape, to breed, propagate, import, transport, sell or advertise such species. Two regulations that deal specifically with these scheduled lists of species are:

- Regulation 49: Prohibition on introduction and dispersal of certain species;
- Regulation 50: Prohibition on dealing in and keeping certain species; and
- Regulation 74: Transitional provisions in relation to Regulations 49 and 50
  (Incl. Regulation 50 is not yet in effect until such time that the Minister gives public notice of it).

Furthermore, disposal of invasive plant species is regulated under **Section 32** of the **Waste Management Act, 1996 to 2008**; and **Section 4** of the **Air Pollution Act, 1987**.

Table 2: Invasive plant species listed in the Third Schedule (Part 1) of Regulations 49 and 50, Birds and Natural Habitats Regulations 2011 [SI. 477] as amended 2015.

	Plant species		**Plant species contd.**
1	American skunk-cabbage (*Lysichiton americanus*)	18	Hottentot-fig (*Carpobrotus edulis*)
2	A red alga (*Grateloupia doryphore*)	19	Japanese knotweed (*Fallopia japonica*)
3	Brazilian giant-rhubarb (*Gunnera manicata*)	20	Large-flowered waterweed (*Egeria densa*)
4	Broad-leaved rush (*Juncus planifolius*)	21	Mile-a-minute weed (*Persicaria perfoliate*)
5	Cape pondweed (*Aponogeton distachyos*)	22	New Zealand pigmyweed (*Crassula helmsii*)
6	Cord-grasses (*Spartina* - all species and hybrids)	23	Parrot's feather (*Myriophyllum aquaticum*)
7	Curly waterweed (*Lagarosiphon major*)	24	Rhododendron (*Rhododendron ponticum*)
8	Dwarf eel-grass (*Zostera japonica*)	25	Salmonberry (*Rubus spectabilis*)
9	Fanwort (*Cabomba caroliniana*)	26	Sea-buckthorn (*Hippophae rhamnoides*)
10	Floating pennywort (*Hydrocotyle ranunculoides*)	27	Spanish bluebell (*Hyacinthoides hispanica*)
11	Fringed water-lily (*Nymphoides peltate*)	28	Three-cornered leek (*Allium triquetrum*)
12	Giant hogweed (*Heracleum mantegazzianum*)	29	Wakame (*Undaria pinnatifida*)
13	Giant knotweed (*Fallopia sachalinensis*)	30	Water chestnut (*Trapa natans*)
14	Giant-rhubarb (*Gunnera tinctoria*)	31	Water fern (*Azolla filiculoides*)
15	Giant salvinia (*Salvinia molesta*)	32	Water-primrose (*Ludwigia* - all species)
16	Himalayan balsam (*Impatiens glandulifera*)	33	Waterweeds Elodea (all species except *Elodea canadensis*)
17	Himalayan knotweed (*Persicaria wallichii*)		Wireweed (*Sargassum muticum*)

Furthermore, the National Biodiversity Data Centre (NBDC) has compiled two further resources pertaining to invasive plant species:

1) Catalogue of Ireland's Non-native Species https://species.biodiversityireland.ie; and
2) Invasive species of Ireland list, derived from the prioritisation risk assessment undertaken by NBDC and IFI; ranked as 'at risk of having High Impact (52 species)', 'at risk of having Medium Impact (78 species)', and 'potential invaders with a risk of High Impact to Ireland' (51 species) (Kelly et al., 2013).

2. METHODOLOGY

The methodology for this study involved a desktop review of existing information, which included:

- Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads, National Roads Authority, 2010;
- The Management of Invasive Alien Plant Species on National Roads – Technical Guidance, Transport Infrastructure Ireland, 2020;
- *Rhododendron ponticum*: A guide to management on nature conservation sites;
- IWM No. 33, 2008; and
- Recordings of invasive plant species logged on the National Biodiversity Data Centre.

In addition, a field survey of the WTP site was undertaken (Figure 1). The site was surveyed by a Ryan Hanley Ecologist on the 10th February 2021, which is a sub-optimal survey period for detecting Invasive species.

Detailed examinations were carried out in the boundaries of the WTP and the surrounding area. Surveys were conducted to determine if any invasive plant species were present within or in the vicinity of the site.

3. DESCRIPTION OF THE PROPOSED WORKS

The proposed development will consist of the construction of the following elements:

1) Demolition of existing Workshop and (defunct) Activated Carbon Building adjacent the 'old' / northern Treatment Plant Building;

2) Construction of a Sulphuric Acid Storage and Dosing Facility Building (single storey up to approximately 8.7 metres in height) adjacent the 'new' / southern Treatment Plant Building;

3) Construction of a Lime Storage & Dosing Facility Building (single storey up to approximately 11 metres in height) adjoining the 'old' / northern Treatment Plant Building, associated external storage silos (2 no.) with external staircase (up to approximately 12.3 metres in height) partially enveloped with a perforated metal architectural screen, and ancillary plant and equipment;

4) Reconfiguration and repurposing for use as a De-Alkalisation Plant of existing (disused) High-Lift Pump Hall within the 'old' / northern Treatment Plant Building;

5) The construction of a new ancillary Workshop Building (single storey up to approximately 4.5 metres in height) to the rear / south of the 'old' / northern Treatment Plant Building;

6) Temporary and enabling works to facilitate construction and continued / uninterrupted operation of the Treatment Plant site;

7) Associated network of underground pipelines / connections, and redirection of existing where necessary, throughout the site; and,

8) Provision of additional car parking (to the rear / south of the 'old' / northern Treatment Plant Building), modification and extension of existing drainage, utility and services infrastructure and connections to serve and facilitate new and reconfigured buildings, and all other associated and ancillary development and works above and below ground level.

The proposed development will not alter the intake/inlet of water from the Liffey nor the outlet to the public water network, rather will link into the existing networks/infrastructure within the site.

4. FINDINGS

4.1 Existing Data

A review of the NBDC website was searched, specifically the 2 km² grid square, O03C that contained the water treatment plant to determine if there was a presence of third schedule listed species in the vicinity. No species were found within the 2km Grid Square O03C.

4.2 Survey Observations at Water Treatment Plant

The survey was completed on the 10th of February 2021. Weather conditions were dry and cold with a light covering of snow. No species listed as 'Invasive' on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (Regulation 477/2011) or on the Union Concerned list (Regulations 1143/2014) were found present at the survey site. The walkover survey did find the presence of the non-native species Butterfly Bush (*Buddleja davidii*) and Cotoneaster species which are not listed as invasive on the Third Schedule or on the Union Concerned list but is listed as a Medium Impact on the Invasive species of Ireland list.

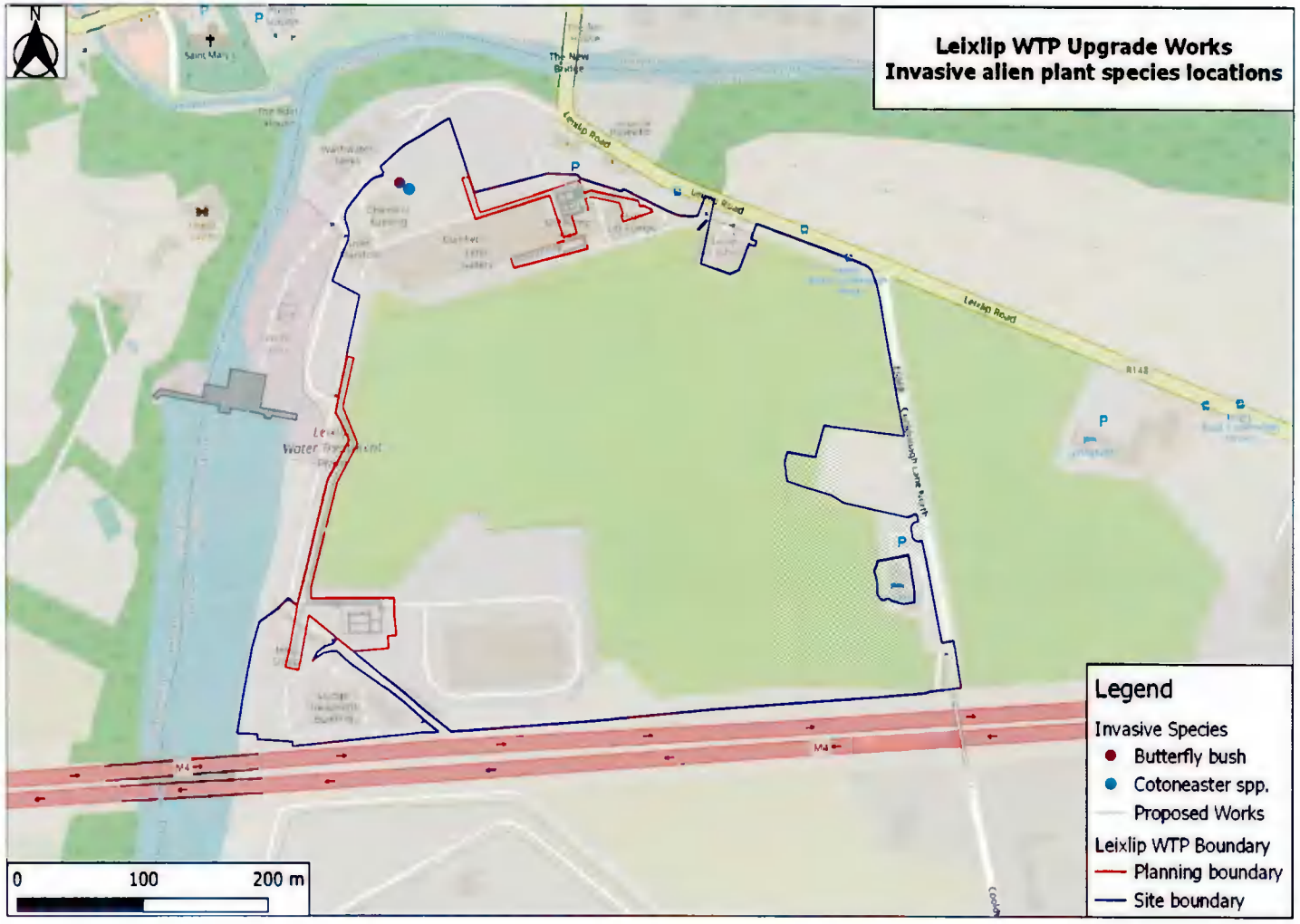

Figure 4.1 Invasive alien plant species present within the site boundary.

5. IMPACT ASSESSMENT

The findings from the desktop review **did not** find the presence of any Invasive Plant Species regulated for in the SI. 477/2011 or 1143/2014 Regulations and the walkover survey on the 10th of February 2021 confirmed this.

Therefore, an Invasive Species Management Plan will not be required prior to the commencement of works. However, it is recommended that the survey is repeated 3 months prior to commencement of works, during the growing season, particularly if more than one growing season elapses.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Summary

The findings of this study show Leixlip Water Treatment Plant (WTP) is free of invasive plant species regulated for in Statutory Instruments 477/2011 and 1143/2014; thus, an Invasive Species Management Plan will **not be required** prior to the commencement of works.

The site should be rechecked prior to commencement of works during the growing season (April – September) due to the sub-optimal survey period the invasive species survey was carried out in, in order to confirm these findings.

6.2 Recommendations

It is recommended to remove and eradicate all invasive species found on-site. This includes the Butterfly bush (*Buddleja davidii*) and *Cotoneaster* species (spp.) that were identified during the walkover survey, although there are no statutory obligations to undertake treatment of these species

If planting is undertaken as a measure to screen the WTP, consideration should be given to planting with native species such as Blackthorn (*Prunus spinosa*) and/or hawthorn (*Crataegus monogyna*) as part of Irish Water's objectives towards enhancing biodiversity under its 'Water Service Strategic Plan' and the Irish Water Biodiversity Action Plan.

Additionally, the contractor should include best practise methods to mitigate against the threat of introducing invasive plant species through spoil material if required. It is important that all materials are assessed for the presence of noxious weeds in advance of being transported on-site.

Where use of chemical treatment is required, works should be undertaken in accordance with best practise guidelines (NRA, 2006).