

Appendix E

Glebe Bridge – Invasive Alien Species Risk Assessment



Carlow & Wexford Bridges Rehabilitation Contract Refurbishment of Glebe Bridge WX-N11-003.00

Invasive Alien Species Risk Assessment



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Refurbishment of Glebe Bridge

Invasive Alien Plant Species Risk Assessment

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Refurbishment of Glebe Bridge

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1. INTRODUCTION

1.1 Background

Roughan & O'Donovan-AECOM Alliance (ROD-AECOM) has been appointed by Transport Infrastructure Ireland (TII) and the Kildare National Roads Office (KNRO) to undertake the design of refurbishment works to four bridges/culverts across Wexford. This scheme involves the rehabilitation of Glebe Bridge located on the N11 in County Wexford, hereafter referred to as "the Site".

1.2 Brief Description of Site

Glebe Bridge spans Edermine stream, which is a tributary of the River Slaney. The River Slaney is of considerable conservation interest and has been designated as the Slaney River Valley Special Area of Conservation (SAC) (site code: 000781) for the protection of habitats and species as part of Ireland's obligation under the EU Habitats Directive (92/43/EEC). The nearest proximity to the SAC is 125 m downstream from Glebe Bridge. The River Slaney also forms part of the Wexford Harbour and Slobs Special Protection Area (SPA) (site code: 004076) for the protection of endangered wild bird species as part of Ireland's obligations under the EU Birds Directive (2009/147/EC). The nearest proximity of the SPA to Glebe Bridge is c. 450 m downstream of the works.

1.3 Brief Description of Proposed Works

The following activities are proposed as part of the refurbishment Works:

- Repairs/reshaping and provision of rock armour to the downstream embankments that have been eroded/scoured away;
- Repairs to cobbled riverbed where it has broken up c. 2 m downstream of the bridge, including the installation of a rock ramp system constructed from 4–5 rock bar bed check weirs in the river channel over a 2–3 m length at this location;
- Repointing/pressure-grouting of wide cracks in the arch barrel;
- Resin-injection of cracks in concrete section of structure;
- Installation of grouted tie-back anchors at the downstream end of the structure to prevent the outlet spandrel wall (headwall) from overturning (this will involve coring through the wall and inserting an anchor through which grout can be pumped); and,
- Vegetation clearance on the embankment above the masonry arch section of bridge.

The Works will commence in September 2016. Elements of the Works that do not require in-stream activities will be undertaken at this time. In-stream activities will be required as part of the Works in order to install the new rock ramp and bank erosion protection and to gain access underneath the bridge. The in-stream elements of the Works will commence in July 2017 and will conclude within 16 weeks. Drawings of the Works are included in Appendix A. Tracked coring plant may be required at the masonry end for the installation of tie rods and pattress plates.

Vegetation removal will be necessary for site access and construction at overgrown sections of the Works. Under Section 40 of the Wildlife Acts, 1976–2012, in the course of road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided, an exemption is granted from restrictions in regard to clearance of vegetation. However, if vegetation removal is required during the restricted period (1st March to 31st August), a site inspection by a suitably qualified ecologist prior to and during clearance is considered best practice to ensure reasonable efforts are made to comply with other requirements of the Wildlife Acts and allow works to proceed.

1.4 Requirement for an Invasive Alien Plant Species (IAPS) Assessment

As part of the information gathering process, a desk study was carried out to identify recent and historical records of IAPS within and adjacent to the Glebe Bridge. The desk study was conducted using National Biodiversity Data Centre (NBDC Online Interactive Map). The desk study confirmed the presence of three IAPS species listed on the Third Schedule Part 1, of the European Communities (Birds and Natural Habitats) Regulations, 2011 and subject to restrictions.

The aforementioned regulations transpose into Irish law the EU Birds Directive and Habitats Directive and lists priority habitats and species of international importance that require protection. Regulation 49 of this legislation prohibits the introduction and dispersal of certain species and states that any person who “*plants, disperses, allows or causes to disperse, spreads or otherwise to grow*” any listed species will be guilty of an offence.

EU Regulation 1143/2014 on IAPS entered into force on the 1st of January 2015. This Regulation seeks to address the problem of invasive alien plant species in a comprehensive manner so as to protect native biodiversity and ecosystem services, as well as to minimise and mitigate the human health or economic impacts that these species can have. This Regulation foresees three types of interventions: prevention; early detection and rapid eradication; and management. A list of IAPS of European Union concern will be drawn up and managed with Member States using risk assessments and scientific evidence.

1.5 Scope of the IAPS Survey

A survey for IAPS was conducted at the Site of proposed works on the 1st April 2016, adhering to best practice guidance (NRA, 2010). The entire Site was walked at a slow pace to accurately establish the distribution and abundance of all IAPS. Where IAPS were identified, the precise locations were mapped in the field. Target notes were taken of any IAPS with 10 figure grid reference readings using a hand-held Garmin geographical positioning system (GPS) and then imported into a geospatially referenced Geodatabase in Arc GIS and integrated into CAD layout drawings. The survey was conducted using 1:1000 Ordnance Survey maps and cross referenced with publicly available topographical maps and orthophotography.

The assessment included:

- A walkover survey covering a 50 m radius around the bridge and 150 m upstream and downstream along the river;
- Detailed recording of the presence and extent of IAPS (e.g. plant height, condition and area of infestation);
- Recording of Site features that may affect any control action (e.g. proximity to other vegetation, services, built structures and water bodies);
- Identification and mapping of IAPS and broad description of the associated habitats within the Site; and,
- Evaluation of the risks posed by IAPS in light of the Scope of Works and identification of appropriate control measures.

An additional IAPS survey, following the same procedures as the previous April 2016 survey was conducted at the Site of proposed works on the 10th August 2016.

1.6 Main Sources of Consultation

- Stokes, K., O'Neill, K. & McDonald, R.A. (2004) Invasive species in Ireland. Unpublished report to Environment & Heritage Service and National Parks & Wildlife Service. Quercus, Queens University Belfast, Belfast;
- Department of Environment, Heritage and Local Government (2010) Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities;
- European Communities (Birds and Natural Habitats) Regulations 2011;

- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 & PSSP 2/10;
- European Commission Environment Directorate-General (2001). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; and,
- European Commission Environment Directorate-General (2000) Managing European Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC.

2. INVENTORY OF THE SITE

2.1 Description of Site boundaries, topography, access and special features

The Site is on the western embankment of the N11 at Glebe Bridge, south of Enniscorthy and on the eastern side of the River Slaney. The old masonry bridge is readily accessible from the N11. Behind the roadside barrier, the embankment to Edermine stream is steep and densely vegetated with cherry laurel (*Prunus laurocerasus*) and broadleaved woodland. The Edermine stream flows west from the bridge and is bordered by a wooded area for 50 m on the northern bank and parkland on the southern bank. The boundary of the Slaney River Valley SAC [000781] is located 125 m downstream from the Site.

2.2 Description of IAPS

Five stands of Japanese knotweed (*Fallopia japonica*) were identified on the Site (Appendix A). Details of each stand are as follows:

- Stand JK1 was recorded on the east side of the N11. The stand is on the river bank and had an area of approximately 3 m². The old canes present were 2 m tall. There was a live electricity pole within the stand.
- Stand JK2 was recorded on the eastern embankment. Old canes were present from the carriageway edge, including inside the crash barrier, to the base of the embankment. The area of the stand was 100 m².
- Stand JK3 was recorded on the west side of the N11 on the northern bank of the river approximately 8 m downstream from the masonry bridge. The old canes were < 1m tall and it would appear the plant is recently established in the area. Fresh growth was recorded at the stand. The area of the stand was approximately 5 m².
- Stand JK4 was recorded on the west side of the N11. The old canes were < 2 m tall. The cover was patchy and the total area was approximately 25 m².
- Stand JK5 was recorded on the west side of the N11 and was between the wall by the carriageway and an area of woodland. The stand was dense and had old canes up to 2.5 m tall. The area of the stand was approximately 200 m².

Four other IAPS were recorded on the Site. Himalayan balsam was found to be dominant throughout the survey area. The risk assessment carried out by Invasive Species Ireland identified Himalayan balsam as one of the highest risk IAS in Ireland.

Cherry laurel is abundant throughout the Site including in a large stand west of Glebe Bridge between the Edermine stream and the local road (L2050). Cherry laurel is a non-native species and can be an aggressive invasive in certain conditions. However, it is not currently subject to restrictions or considered to be an "Amber Risk" species.

Rhododendron (*Rhododendron* sp.), a species subject to restrictions under Regulation 49, was recorded 150 m downstream of the masonry bridge and is unlikely to be affected by the works. Also at this location, there occurred an example of Montbretia (*Crocsmia x crocosmiiflora*), a species considered as an "Amber Risk" invasive though not subject to restriction. Winter Heliotrope (*Petasites fragrans*), also found at this point on the stream, has been listed on the "Amber List: Uncertain Risk" and is therefore considered as a medium risk invasive species.

3. IAPS RISK ASSESSMENT

3.1 Limitations and Threats to Works

The presence of IAPS at the Site and in the surrounding area will incur further costs on the project.

Japanese Knotweed

Japanese knotweed, if allowed to spread, has the potential to damage the masonry bridge long term post refurbishment and the tie-back anchors proposed as part of these works. Japanese knotweed is present upstream of the bridge and if left untreated, has the potential to spread downstream and damage the bridge structure. Other stands of Japanese knotweed in the area have the potential to spread to the Site naturally or by disturbance as a result of the works.

Himalayan Balsam

The continued presence of Himalayan balsam within the Site poses a risk to the riparian and freshwater habitats present. In particular, the bare banks that are left after this species dies back in winter are susceptible to erosion, thus increasing the sediment input into the Edermine stream and decreasing habitat quality for species such as crayfish and salmonids.

Himalayan balsam does not, however, pose any direct risk to the Works with regard to the bridge structure or the health and safety of site personnel. Furthermore, given that the works area will not extend into the vegetated riparian zone where Himalayan balsam occurs, the risk of the Works causing further spread of this species within the Site or exporting from the Site seeds or soil contaminated by this species is considered minimal. Therefore, the overall risk to the Works from Himalayan balsam is not deemed to be significant.

4. CONCLUSIONS

4.1 Preventing Further Spread

The access for GI works and cores, pits, trenches and probes for works can be secured without any potential disturbance or encroachment on the Japanese knotweed 7 m rhizome buffer zone (Appendix A). However, given proximity, the following generic best practice control measures should be applied to prevent the spread of IAPS at the Site during GI:

- Prior to Works, areas containing Japanese knotweed shall be demarcated, including a 7m buffer around each stand;
- No access or works should take place within this 7 m buffer; and,
- Equipment entering and leaving the Site should be cleaned and checked to ensure that Japanese knotweed is not potentially brought into or spread from the works area.

The Bridge refurbishment works will result in the likely disturbance to the rhizome system and spread of Japanese knotweed in the absence of adequate control measures. The following further work is required to prevent the spread of IAPS at the Site:

- Prior to commencement of Works, an IAPS Management Plan should be produced detailing the works area and access routes, impacted stands of IAPS and the specific control measures to prevent further spread during works.

5. REFERENCES

- Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.
- Maguire, C. M., Kelly, J., & Cosgrove, P. J. (2008). *Best Practice Management Guidelines Rhododendron ponticum and cherry laurel Prunus laurocerasus*. Prepared for NIEA and NPWS as part of Invasive Species Ireland.
- NBDC (2016) *Biodiversity Maps* <<http://maps.biodiversityireland.ie>> [Accessed 15/02/2016]. National Biodiversity Data Centre, Waterford.
- NPWS (2016) *Map Viewer* <<http://webgis.npws.ie/npwsviewer/>> [Accessed 15/02/2016]. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin.
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- Turner, S. (2008) *The control of invasive alien species-a review of legislation and governance for Ireland and Northern Ireland*. Invasive Species Ireland.

APPENDIX A

Site Works and Invasive Alien Plant Species

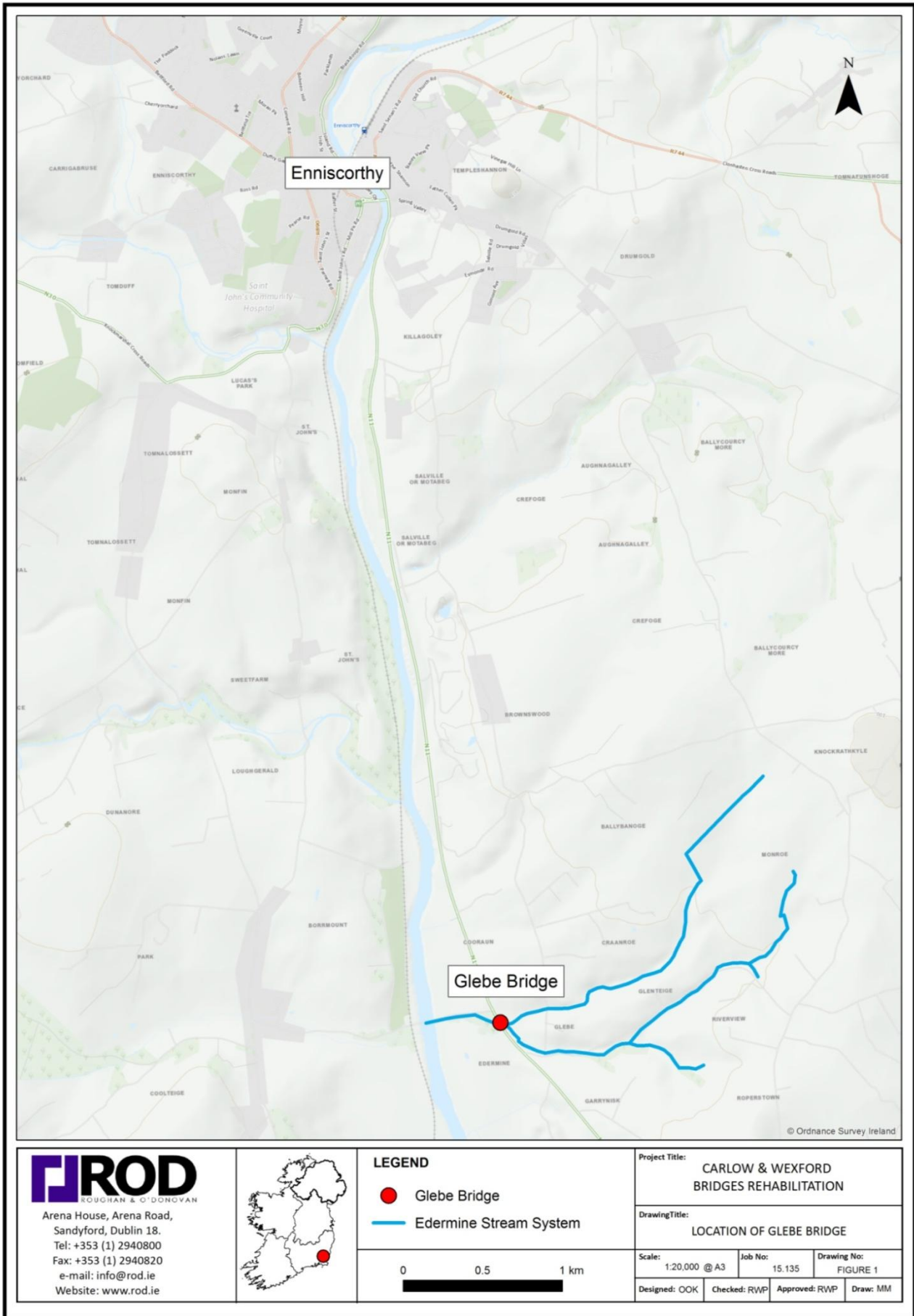


Figure 1. Location of the Works.

APPENDIX B

Site Photos



Plate 1. Himalayan balsam on Edermine stream upstream of Glebe Bridge.



Plate 2. Japanese knotweed on Edermine stream upstream of Glebe Bridge.



Plate 3. Himalayan balsam on Edermine stream upstream of Glebe Bridge.



Plate 4. Himalayan balsam on Edermine stream upstream of Glebe Bridge.



Plate 5. Himalayan balsam growing out of the rock riverbed on Edermine stream immediately downstream of Glebe Bridge.



Plate 6. Himalayan balsam on Edermine stream downstream of Glebe Bridge.

