

MWP

Screening for Appropriate Assessment
Proposed Dredging at Limerick City

June 2023

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1. Summary of Findings

1.1 Screening for Appropriate Assessment

Project Title	Proposed Dredging at Limerick City
Project Proponent	Waterways Ireland
Project Location	Limerick City
Screening for Appropriate Assessment	The report for screening for Appropriate Assessment is undertaken to determine the potential for likely significant effects of proposed dredging in the Shannon and Abbey Rivers in Limerick City, individually, or in combination with other plans or projects, in view of the conservation objectives of certain Natura 2000 sites identified within this report.
Conclusion	It has been objectively concluded during the screening process that significant effects on the following Natura 2000 sites are not likely as a result of the proposed development: • Glenomra Wood SAC (001013) • Danes Hole, Poulnalecka SAC (000030) • Ratty River Cave SAC (002316) • Askeaton Fen Complex SAC (002279) • Tory Hill SAC (000439) • Askeaton Fen Complex SAC (002279) • Slievefelim to Silvermines Mountains SPA (004165) However, it is concluded that significant effects, which could potentially ensue from water quality and disturbance impacts, cannot be precluded for the following Natura 2000 sites: • Lower River Shannon SAC (002165) • River Shannon and River Fergus Estuaries SPA (004077) Therefore, further assessment is required to determine whether the proposed development is likely to adversely affect the integrity of these Natura 2000 sites. This assessment will be presented in a Natura Impact Statement (NIS).

2. Introduction

2.1 Purpose of the Assessment

This screening for Appropriate Assessment report has been undertaken to determine whether a proposed dredging works in the River Shannon in Limerick City is likely to result in significant effects on nearby sites with European conservation designations (i.e. Natura 2000 Sites). The screening for Appropriate Assessment report has been prepared in order to provide a sufficient level of information to the competent authority, in this case Limerick City and County Council (LCCC), on which to base an Appropriate Assessment of the proposed works described in **Section 4.2** below.

The report comprises a description of the proposed works, particularly in relation to the aspects that could interact with the receiving environment, the identification in **Section 4.5** of the impacts that are reasonably foreseeable as potentially ensuing from it, and a determination as to whether these predicted impacts, either alone or in combination with the other plans or projects identified in **Section 4.3**, are likely to have significant effects on the Natura 2000 sites identified in **Section 4.6.2**, in view of those sites' conservation objectives.

The screening for Appropriate Assessment report has been undertaken by an ecologist from Malachy Walsh and Partners (MWP). A Finding of No Significant Effects Report has been included as **Appendix 1**.

2.2 Statement of Competency

This screening for Appropriate Assessment report has been prepared by Gerard Hayes (BSc.) Ecologist at MWP. Gerard has 15 years' experience in ecological surveying, ecological impact assessment and the appropriate assessment process. He is an appropriately qualified, trained and competent professional. He has completed numerous ecological assessments for a wide variety of projects. He is an experienced field ecologist and has a diverse ecological survey profile, including habitats and flora, mammals (including bats), birds and terrestrial/aquatic invertebrates. He has held licences for surveying numerous protected species including salmon, lampreys and white-clawed crayfish.

2.3 Project Overview

Waterways Ireland is the North / South Implementation Body responsible for the inland navigable waterways systems in Ireland. The main functions of Waterways Ireland are the management, maintenance, development and restoration of the inland navigable waterway system throughout the island of Ireland, principally for recreational purposes. The Shannon Navigation in the Limerick City area, around Sarsfield Lock and the Abbey River, underwent a significant dredging operation in November and December 2011. Almost 12,000m³ of bed material deposits were removed to licensed landfill to restore navigation depths for boat traffic.

After the most recent flood event of 2015/16, a Hydrographic survey was carried out at the request of locals and users on the navigation to determine if the Limerick Navigation had silted up. From the survey, approx. 3,000m³ of material was shown upstream of the Lock at three (3) locations. A more recent survey showed estimated quantities in excess of 3,120m³ of material above the Lock and 3,430m³ of material below the Lock (6,300m³ of silt and 200m³ of material containing solids).

The proposed works involve the excavation of sediment from the river bed, termed "maintenance dredging", at locations upstream and downstream of Sarsfield Lock, Limerick City. Dredging is an activity carried out by a dredge, which removes material from the river bed and deposits it elsewhere. Dredged material will be

removed using two methods (a) by injection into the water column of the main channel of the River Shannon (ca. 6,000m³) and (b) transported by truck to a suitably licensed disposal facility (ca. 200m³). Dredged material will be pumped across the weir at a discharge location. Refer to **Figure 1** for location of proposed dredge area and disposal/discharge area.

2.4 Legislative Context

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats of wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). It is the responsibility of each member state to designate SPAs and SACs, both of which form part of Natura 2000, a network of protected sites throughout the European Community. The Habitats Directive has been transposed into Irish law and the relevant Regulations are the European Communities (Birds and Natural Habitats) Regulations 2011. The requirement for Appropriate Assessment of the implications of plans and projects on the Natura 2000 network of sites comes from the Habitats Directive (Article 6(3)).

Under the European Communities (Birds and Natural Habitats) Regulations 2011, the Competent Authority is required to carry out a screening for Appropriate Assessment of a proposed development prior to issuing consent to assess, in view of best scientific knowledge and the sites conservation objectives, if that project or plan, individually or in combination with other plans or projects, is likely to have a significant effect on a Natura 2000 site. The screening for Appropriate Assessment will determine whether an Appropriate Assessment of the proposed development is required.

If it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a Natura 2000 site, in view of the site's conservation objectives, then Appropriate Assessment of the proposed development is required. If it is determined that an Appropriate Assessment is required in respect of the proposed development, a Natura Impact Statement (NIS) must be prepared.

The information presented in this screening for Appropriate Assessment report will be used by the Competent Authority to assist them in undertaking an Appropriate Assessment of the proposed dredging.

2.5 Stages of Appropriate Assessment

The Appropriate Assessment process is a four-stage process with issues and tests at each stage. The purpose of the screening assessment is to record in a transparent and reasoned manner the likely effects on Natura 2000 sites of a proposed development. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required. The stages are set out in **Appendix 2**. This proposal has proceeded as far as Stage 2.

3. Methodology

3.1 Appropriate Assessment Guidance

This screening for Appropriate Assessment report has been undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001), the European Commission Guidance '*Managing Natura 2000 Sites*' (EC, 2018), and

Appropriate Assessment of Plans & Projects - Guidance for Planning Authorities prepared by the NPWS (DoEHLG, 2010).

3.2 Consultation

The following statutory and non-statutory bodies were consulted in relation to the proposed project on the 16th October 2020.

- Limerick City and County Council
- Department of Housing, Local Government and Heritage (DHLGH)
- Environmental Protection Agency Ireland (EPA)
- Inland Fisheries Ireland (IFI)

Responses were received from IFI and DHLGH which can be seen in **Appendix 3**.

IFI expressed concerns about juvenile lampreys at the proposed dredge sites. IFI highlighted the likelihood of extensive sea lamprey presence in deeper sediments and concerned about the potentially destructive nature of suction dredging on lamprey, particularly if electrofishing cannot be proven to remove lamprey from sediments prior to dredging. A lamprey assessment of the proposed works area was undertaken to the satisfaction of IFI (see **Appendix 4**). This report describes the lamprey habitats and lamprey abundance within the study area of the proposed works, and informed works methodology and reporting.

DHLGH pointed out that in order to fulfil Article 6 legal requirements, the following information should be supplied in relation to Annex I habitats and Annex II species:

- a) Full description of proposed operation/activity
 - A full and finalised description of the proposed methodology including the likely timescale of works. It is not currently clear what level of interaction would occur within or adjacent to European designations.
 - Are there similar operations/activities already in the locality? If existing operations/activities occur adjacently then a justification for additional facilities should be included. Would the proposed works act in conjunction with any existing or planned developments?
 - The facilities or licensing to be put in place to cope with both biological and industrial waste (e.g. extracted dredge materials, etc.) generated during the proposed work should be detailed. Detailed contingency plans sufficient to address potential negative interactions with the marine environment e.g. oil spills.
- b) Full description of proposed operation/activity
 - A description of the biological environment over which the activity would impact, including the aquatic flora and fauna, must be included if work is envisaged within or in proximity to Natura sites.
 - The design and duration of ecological surveys should be sufficient to evaluate the potential impacts through appropriate stages of the year.
 - Consideration should be given to whether the likely works would result in disturbance or loss to Annex I or Annex II qualifying interests in Special Areas of Conservation or to bird species in Special Protection Areas. Any loss or interruption of normal

processes must be quantified relative to the entire designated area not just within the direct footprint of development.

3.3 Desktop Study

In order to complete the screening for Appropriate Assessment report certain information on the existing environment is required. A desk study was carried out to collate available information on the subject site's natural environment. This comprised a review of the following publications, data and datasets:

- Ordnance Survey Ireland (OSI) Aerial photography and 1:50000 mapping
- National Parks and Wildlife Service (NPWS)
- National Biodiversity Data Centre (NBDC) (on-line map-viewer)
- BirdWatch Ireland
- Geological Survey Ireland (GSI) area maps
- Environmental Protection Agency (EPA) water quality data
- Shannon International River Basin District (ShIRBD) datasets (Water Framework Directive)
- Limerick Development Plan 2022-2028
- Other information sources and reports footnoted in the course of the report

Concise and site-specific information on species records available for the hectad R56 was retrieved from the NBDC on-line database and reviewed. A marine sediment characterisation report for the proposed dredge site (Aquafact 2018) was reviewed.

GIS shapefiles were downloaded from the websites of the National Parks and Wildlife Service (NPWS) and Environmental Protection Agency (EPA). Maps of the proposed dredge areas provided by Waterways Ireland were transferred to a GIS platform to allow information on the natural environment to be analysed and to assist in field surveys.

3.4 Field Surveys

The desk top study was supplemented by both multi-disciplinary ecological walkover surveys and targeted ecological surveys of the proposed development site. These habitat and faunal surveys were undertaken by MWP staff ecologists between March and October 2021.

Summaries of the field survey methodologies employed which are of relevance to the screening for Appropriate Assessment are provided in the following sub-sections.

3.4.1 Habitats and Flora

Habitat surveys were carried out on multiple dates in June, July and August 2021 and were undertaken within the optimum flora survey period. The habitat surveys had regard to '*Best Practice Guidance for Habitat Survey and Mapping*' (Smith *et al.*, 2011) and '*A Guide to Habitats in Ireland*' (Fossitt, J. A., 2000). Habitats within and surrounding the subject site were categorised to Level 3 according to Fossitt (2000). A habitat map for the development site was prepared.

During all ecological surveys in the study area, the presence of any Invasive Alien Species (IAS) was documented. Particular focus was given to species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended). Surveys were based on Best Practice Guidance Methodology (Guidelines for the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (TII, 2010)).

3.4.2 Lampreys

The fluvial habitats of the proposed dredge sites and other parts of the River Shannon as far as Thomond Bridge were categorised according to the following:

- Suboptimal (mostly clay substrate)
- Suboptimal (interstitial pockets between hard substrates)
- Optimal (silt/clay substrate)
- Unsuitable (predominantly hard substrates).

Lamprey occurrence and population surveys were undertaken to ascertain the importance of the proposed dredge sites for this group. This involved habitat assessment and sampling (agitation sampling, electric fishing and dredge sampling). Survey methods are outlined in **Appendix 4**.

3.4.3 Otter

Otter surveys included checking for the presence of otter holts and recording any evidence of site usage. Detection of field evidence such as tracks, prints, feeding signs, spraints or holts were used to indicate the presence/absence of otter within the site. Otter surveys had regard to methodology outlined in 'Monitoring the Otter *Lutra lutra*' (Chanin, 2003).

3.5 Screening for Appropriate Assessment

As set out in the NPWS guidance, the task of establishing whether a plan or project is likely to have an effect on a Natura 2000 site(s) is based on a preliminary impact assessment using available information and data, including that outlined above, and other available environmental information, supplemented as necessary by local site information and ecological surveys. This is followed by a determination of whether there is a risk that the effects identified could be significant. The precautionary principal approach is required.

Once the potential impacts that may arise from the proposal are identified the significance of these is assessed through the use of the following key indicators:

- Habitat loss and alteration
- Disturbance and/or displacement of species
- Habitat or species fragmentation
- Water quality

4. Screening for Appropriate Assessment

The purpose of the screening assessment is to record in a transparent and reasoned manner the likely effects, on relevant Natura 2000 Sites, of the project, and whether these likely effects are significant.

Screening for Appropriate Assessment (Stage 1) determines the need for a full Appropriate Assessment (Stage 2) and consists of a number of steps, each of which is addressed in the following sections of this report:

- 4.1 Establish whether the project is necessary for the management of a Natura 2000 site
- 4.2 Description of the project
- 4.3 Identification of other plans, projects and activities with which the proposed development could interact to create in-combination effects
- 4.4 Identification of Natura 2000 sites potentially affected
- 4.5 Identification and description of potential individual and cumulative impacts (in-combination effects) of the project
- 4.6 Assessment of the significance of the impacts on Natura 2000 sites
- 4.7 Conclusion of screening stage

4.1 Management of Natura 2000 Sites

The proposal is not connected with or necessary to the conservation management of a Natura 2000 Site.

4.2 Description of Project

4.2.1 Site Location and Context

The proposed dredge sites are situated at various locations upstream and downstream of Sarsfield Lock, adjacent to the southern bank of the Abbey River and River Shannon in Limerick City (see **Figure 1**). The Abbey River is a tributary of the River Shannon and isolates King's Island from the mainland. Flow in the Abbey River is affected by a weir and a lock (Sarsfield Lock) at the lower end of the channel. The Abbey River and River Shannon are both within the intertidal zone, this transitional waterbody known at Limerick Dock (EU Code IE_SH_060_0900).

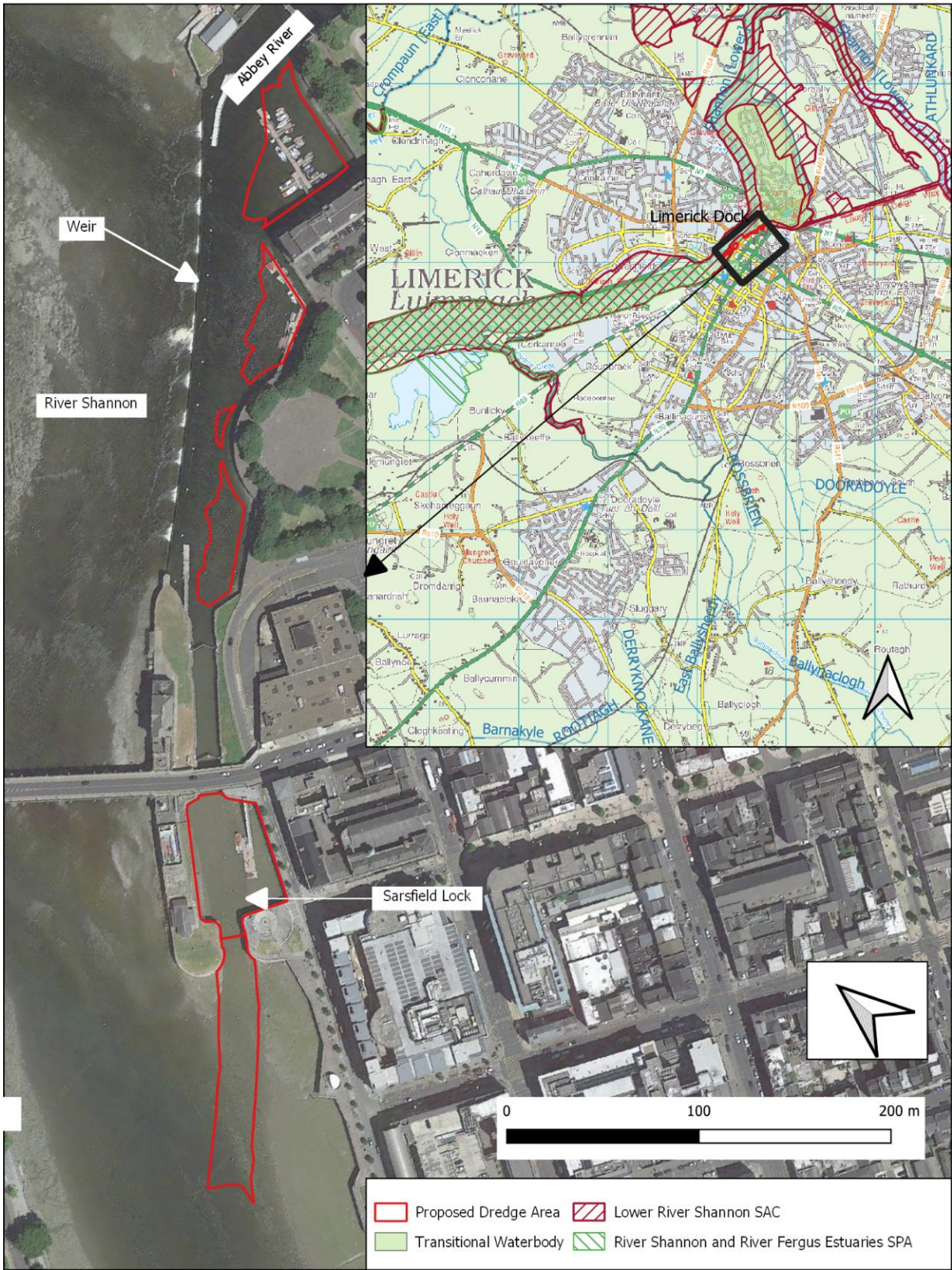


Figure 1. Location of proposed development site

4.2.2 Purpose of the Project

The proposed works involve the excavation of sediment from the river bed, termed “maintenance dredging”, at locations upstream and downstream of Sarsfield Lock. Maintenance dredging is required to deepen or maintain navigable channels, which are at risk of becoming silted over time due to the transport of suspended sediments into the sheltered waters of the harbour, that in turn deposit on the riverbed. This is required also to allow boats to moor in the marina and other parts of the channel. The project will increase the navigability of the quays and thereby reduce the associated safety concerns for pleasure and commercial boats. The works will focus on maintaining the navigability of the river channel and ensuring safe access for users.

4.2.3 Description of Existing Site

4.2.3.1 General Site Description

The proposed development is located in the Abbey River and River Shannon. The proposed development site is influenced by the tide, so flows and water levels vary considerably. Flow in the River Shannon is controlled by the ESB using structures installed for the Shannon hydroelectric scheme at Parteen Weir and Ardnacrusha generating station. When water levels fall to their minimum level at the end of the ebb of Spring tide, the wetted area of the river is reduced and much of the river substrate is above water level. This is a feature of the main channel of the River Shannon as far upstream as Thomond Weir and beyond, with the effect diminishing with distance upstream. The Abbey River also experiences this effect but to a lesser degree because of the weir at the lower end of the channel.

The Corine (2018) land cover categories for the development site comprise ‘Continuous urban fabric’ and ‘watercourses’. The Abbey River and River Shannon are confined by vertical limestone walls at the study sites. There is a marina at the proposed uppermost dredge site. The WFD Status (2018 – 2020) of Limerick Dock is ‘Unpolluted’.



Plate 1 Lower reach of the Abbey River at the marina (left) and at the weir (right).



Figure 1 Proposed development site and waterbodies

4.2.3.2 Field Survey Results

Habitats

The habitat at the subject site comprises **depositing/lowland rivers - FW2** associated with the lower reaches of the Shannon and Abbey Rivers. This part of the river is tidal but is considered fresh, but perhaps experiences some saline intrusion when river flows are low and tides are high, in which case the habitat may correspond to **tidal river - CW2**. At low tide, river substrates are exposed. These consist of mixed sediment with some areas (Sarsfield Lock) entirely of mud. These habitats are classified as **Mud shores - LS4** and **Mixed sediment shores - LS5** but do not feature the infaunal communities associated with such habitats that are regularly inundated by sea water. A habitat map for the proposed development site can be seen in **Figure 2** where areas exposed during spring tides at the southern bank of the river have been mapped as Mud shores and Mixed sediment shores. The banks of the waterbodies in the study area are constructed of limestone blocks and classified as **Stone walls - BL1**. Terrestrial habitats adjacent to stone walls are classified as **Buildings and artificial surfaces (BL3)**.

Otter

During one site visit, otter was observed foraging in the Abbey River next to the weir. No other evidence of otter was recorded during any of the ecological field surveys and no otter breeding or resting places were identified within the study area. The waterbodies in the study area are suitable foraging and commuting habitats, as they are large and support fish populations. Otter is a conservation interest of the Lower River Shannon SAC.

Birds

Common gull *Larus canus* and herring gull *Larus argentatus* were frequently recorded in the study area.

Fish

Fish encountered during surveys were sea lamprey (*Petromyzon marinus*), river/brook lamprey (*Lampetra* sp.), European eel (*Anguilla Anguilla*), roach (*Rutilus rutilus*), flounder (*Platichthys flesus*), goby (*Gobius* sp.), perch (*Perca fluviatilis*) and three-spined stickleback (*Gasterosteus aculeatus*). **Table 7** lists the length statistics of other fish recorded during the surveys. Sea lamprey, brook lamprey (*Lampetra planeri*) and river lamprey (*Lampetra fluviatilis*) are conservation interests of the Lower River Shannon SAC.

European eel occurred less frequently than lampreys and showed preference to vegetated areas and larger substrate sizes. The European eel is subject to European Council Regulation 1100/2007 'Establishing measures for the recovery of the stock of European eel'. European eel is listed as 'Critically endangered' and is now 'Red Listed' according to 'Red List No. 5: Amphibians, Reptiles & Freshwater Fish' (King *et al.* 2011). Survey results are outlined in detail in **Appendix 4**.

Flora

No rare or protected flora species were recorded during any of the ecological surveys. One European Communities Regulations 2011 (S.I. 477 of 2015) Third Schedule species was recorded, namely Canadian pondweed *Elodea canadensis*. This non-native species was recorded growing in the lower reach of the Abbey River within the proposed works area. Reproduction in *Elodea* spp. in the British Isles is through vegetative means. Water milfoil (*Myriophyllum* sp.) and *Cladophora* sp. were also recorded.

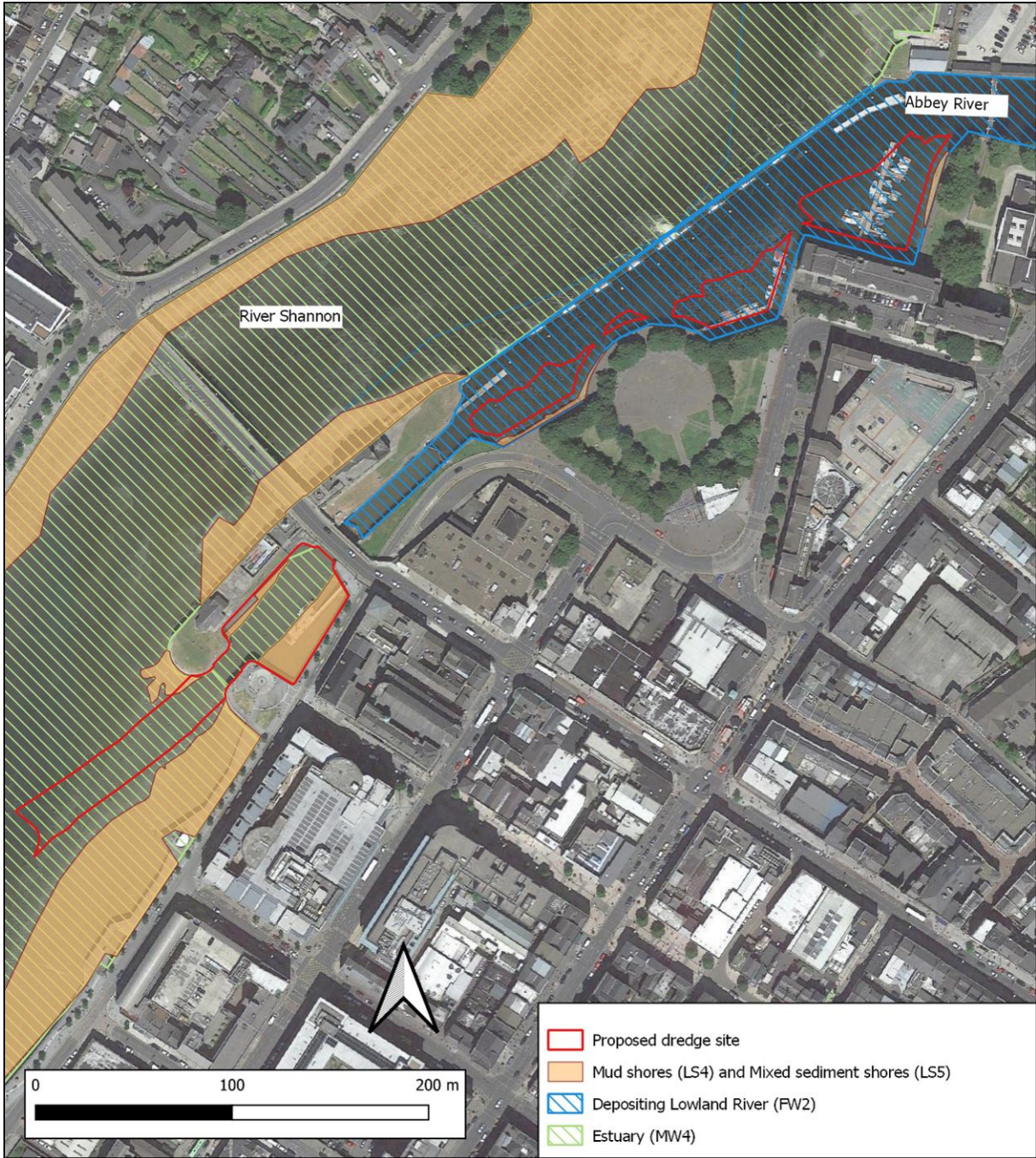


Figure 2 Habitat map



Plate 2 Sarsfield Lock (left) and River Shannon below Sarsfield Lock (right).



Plate 3 Aquatic plants (left) and fish (right) recorded in the study area.

4.2.4 Characteristics of the Project

The following table provides a summary of the characteristics of the project.

Size, scale, area, land-take	The proposed dredge site comprises six areas of collective area of 0.96 ha. upstream and downstream of Sarsfield Lock. The proposed dredge material has depths of up to 1m (~0.3m on average). The total volume of material at 8735 m³ and it is estimated that ca. 70m³ of this will be hard material. The remainder will be pumped to the River Shannon upstream of Shannon Bridge
Details of physical changes that will take place during the various stages of implementing the proposal	Hard substrates deposited in the dredge areas will be removed from the river and taken to an authorised waste facility. The finer sediments, including sand, silt and clay will be transported west, or downstream by the flow of the River Shannon. These activities will result in a reduction in the volume of fine sediment at the proposed dredge areas and an increase in the volume of fine sediment along the margins of the Shannon Estuary where they will eventually settle out.
Description of resource	Suction hopper dredger equipped with one or two rearward extending suction

requirements for the construction/operation and decommissioning of the proposal (water resources, construction material, human presence etc)	pipes, dredging pumps, an overflow to discharge the water Fuel and oils
Description of timescale for the various activities that will take place as a result of implementation (including likely start and finish date)	The dredging works will take place between February and the end of May annually to avoid adversely affecting oysters in the bay and summer leisure activities. The suction hopper dredger will be on site for a 4-6 week period in the initial year (250,000T) and annually thereafter over a 3-4 week period (between 75,000 and 150,000T p/a), subject to weather and tides
Description of wastes arising and other residues (including quantities) and their disposal	The principal waste is the dredge material, which comprises of muddy sand dominated by silt-clay and very fine sand for the most part.
Identification of wastes arising and other residues (including quantities) that may be of particular concern in the context of the Natura 2000 network	Some of the substrates in the proposed dredge areas are considered marginally contaminated with arsenic, nickel and zinc. All other parameters are below the lower Irish action limit within the proposed dredge areas.
Description of any additional services required to implement the project or plan, their location and means of construction	N/A

4.3 Identification of Other Projects or Plans or Activities

4.3.1 Plans

With regards to the potential for in-combination effects, the Limerick City Development Plan was considered. The River Shannon or Abbey River are not zoned. Areas adjacent to these channels are zoned as 'City Centre Areas' described as 'retail commercial' or 'Public Open Space'.

4.3.2 Permitted and Proposed Minor Developments in the Locality

A search of Limerick County Council's online planning enquiry system for granted or on-going planning applications for the River Shannon and the Abbey River in Limerick was undertaken in June 2023

Table 1. List of granted and/or on-going planning applications within the vicinity of the proposed development site

Application No	Applicant	Location	Proposed Development	Decision	Status	Decision Date
312559	Limerick City and County Council	Annacotty, Ballynanty, Castletroy, Corbally, Condell Road, Dock Road and Conigar embankments, Co. Limerick and Athlunkard, Knockballynameath and Quinspool South embankments, Co. Clare.	Ground investigation works to inform the option selection and design of the proposed Limerick City and Environs Flood Relief Scheme.	Conditional	Finalised	20/9/2022
306270	Limerick City and County Council	King's Island, Limerick.	Flood protection measures around King's Island.	Conditional	Finalised	21/5/2021
312146	Aughinish Alumina Ltd.	Townlands of Aughinish East, Aughinish West, Island Mac Teige, Glenbane West, and Fawnamore at or adjacent to Aughinish Island, Askeaton, Co. Limerick	Expansion of the Bauxite Disposal Area, extension to the existing Salt Cake Disposal Cell and extension of the permitted borrow pit at Aughinish Alumina Limited.	Conditional	*	8/12/2021

4.3.3 EPA Licenced/Registered Facilities

A review of the EPA mapping tool determined that there are no IPPC, IPC or IEL¹ facilities within the immediate vicinity of the subject site. Approximately 2 km upstream of the proposed development, a licenced landfill site (identified as Longpavement Landfill²) is situated on the west bank of the River Shannon at Monabraher, Longpavement, Limerick. Limerick Gasworks (IEL Registered Licence No. W00281-01) is located adjacent to the Dock Road, Limerick, approximately 1km south-west of the proposed development. Other EPA licenced facilities comprise Atlas Aluminium Limited (P0436-01) and James McMahon Limited (P0329-01) approximately 1.5 km southwest of the proposed development respectively. Limerick waste water treatment plant is located approximately 4 km southwest of the proposed development. This treatment works an agglomeration >10,000 P.E. This facility discharges treated effluent to the River Shannon.

4.3.4 Potential for Significant In-combination Effects

It is considered that discharges to the River Shannon could potentially interact synergistically with the proposed development to result in significant cumulative or in-combination effects.

The potential in-combination effects are discussed further in **Section 4.6.7** below.

¹ Integrated Pollution Control (IPC) Licence (formerly IPPC Licence), and Industrial Emissions Licence (IEL)

² EPA Waste Licence No. W0076-01

4.4 Identification of Natura 2000 Sites

4.4.1 Zone of Impact Influence

The screening stage of AA involves compiling a 'long list' of Natura 2000 sites within a likely zone of impact for later analysis which may or may not be significantly impacted upon by the proposed development. All Natura 2000 sites within 15 km of the proposed development will be characterised in the context of the rationale for designation and qualifying features. In line with the precautionary principal, during the preparation of this report, Natura 2000 sites that lie outside 15 km that may be significantly impacted as a result of the proposal are also considered.

Following this, the potential effects associated with the proposal will be identified before an assessment is made of the likely significance of these effects. As described above, the test for the screening for Appropriate Assessment is to assess, in view of best scientific knowledge, if the development, individually or in combination with other plans/projects, is likely to have a significant effect on a Natura 2000 site. If there are any significant, potentially significant, or uncertain effects, it will be necessary to proceed to Appropriate Assessment and submit an NIS.

4.4.2 Identification of Natura 2000 Sites

Adopting the precautionary principle in identifying potentially affected European sites, it has been decided to include all SACs and SPAs within a 15 km radius of the proposal site.

Designated SACs and SPAs within the potential likely zone of impact of the proposal, including their proximity are shown in **Table 2** below. The locations of these designated sites in relation to the subject site are shown on a map in **Figure 4** below.

Table 2. Natura 2000 Sites within 15 km of the proposal

Designated Site	Site Code	Proximity of Designated Site to Nearest Point of Subject Site	Hydrological/Ecological Connection? (Yes/No)
Lower River Shannon SAC	002165	Within this site	Yes
Glenomra Wood SAC	001013	10 km to north-east	No
Danes Hole, Poulnalecka SAC	000030	14.5 km to north	No
Ratty River Cave SAC	002316	14.5 km to north-west	No
Tory Hill SAC	000439	13.4 km to south	No
River Shannon and River Fergus Estuaries SPA	004077	270 m to south-west	Yes
Askeaton Fen Complex SAC	002279	14.5 km to west	No
Slievefelim to Silvermines Mountains SPA	004165	15 km to east	No

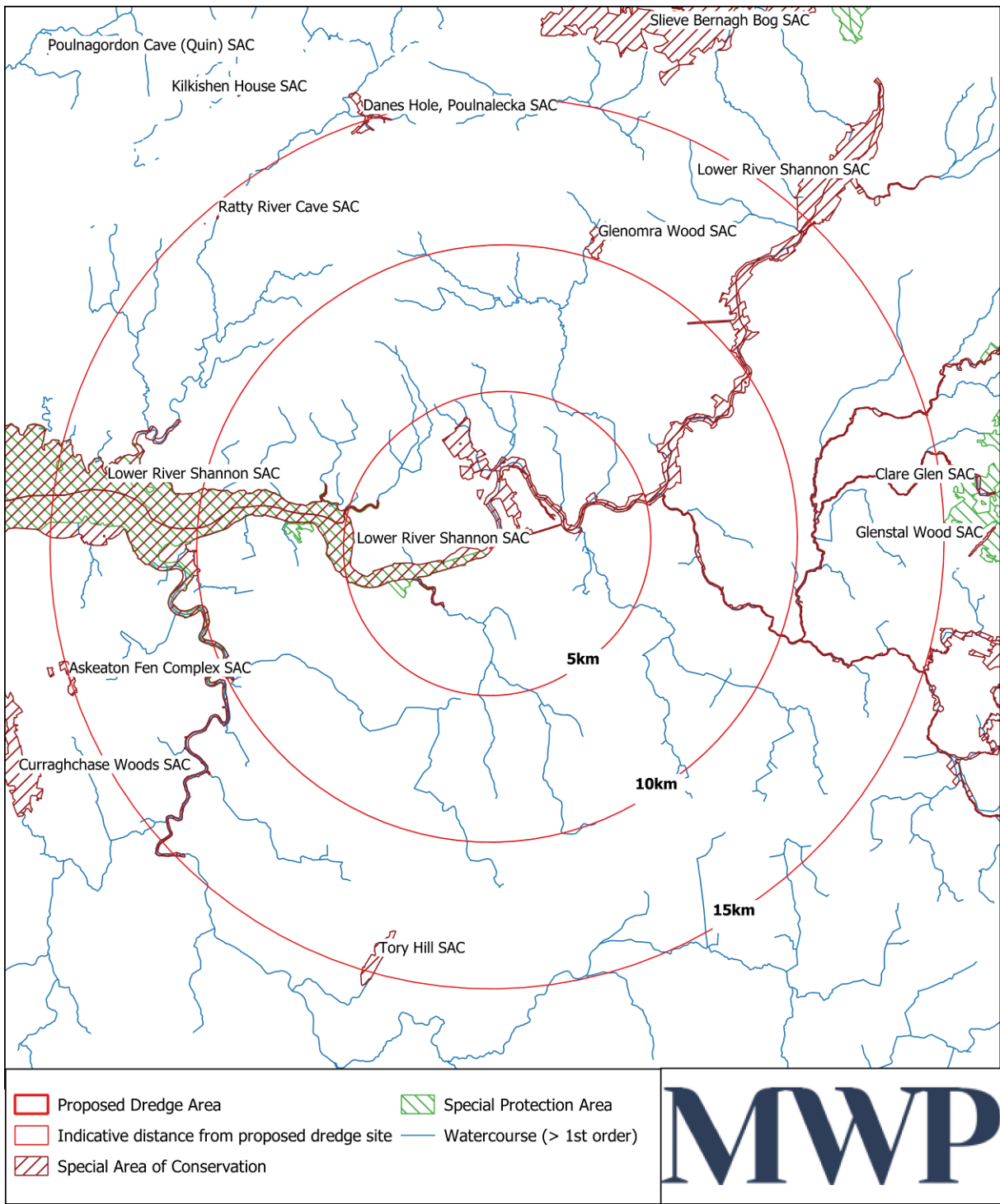


Figure 3 Natura 2000 sites within 15 km of the proposed development.

4.4.3 Characteristics of Natura 2000 Sites

The following table lists the qualifying features of conservation interest for the Natura 2000 sites identified in the previous table. Information pertaining to the Natura 2000 sites is from site synopses, conservation objectives and other information available on www.npws.ie.

Table 3. Qualifying features of conservation interest of identified designated sites

Designated Site	Site Code	Qualifying features of conservation interest
Lower River Shannon SAC	002165	- Sandbanks which are slightly covered by sea water all the time [1110] - Estuaries [1130] - Mudflats and sandflats not covered by seawater at low tide [1140] - Coastal lagoons [1150] - Large shallow inlets and bays [1160] - Reefs [1170] - Perennial vegetation of stony banks [1220] - Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] - <i>Salicornia</i> and other annuals colonising mud and sand [1310] - Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) [1330] - Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] - Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] - <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410] - Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] - <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] - <i>Petromyzon marinus</i> (Sea Lamprey) [1095] - <i>Lampetra planeri</i> (Brook Lamprey) [1096] - <i>Lampetra fluviatilis</i> (River Lamprey) [1099] - <i>Salmo salar</i> (Salmon) [1106] QI status pertains only to freshwater phases of life cycle) - <i>Tursiops truncatus</i> (Common Bottlenose Dolphin) [1349] - <i>Lutra lutra</i> (Otter) [1355]
Glenomra Wood SAC	001013	- Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0]
Danes Hole, Poulnalecka SAC	000030	- Caves not open to the public [8310] - Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] - <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]
Ratty River Cave SAC	002316	- Caves not open to the public [8310] - <i>Rhinolophus hipposideros</i> (Lesser Horseshoe Bat) [1303]
Tory Hill SAC	000439	- Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210] - Calcareous fens with <i>Cladium mariscus</i> and species of

Designated Site	Site Code	Qualifying features of conservation interest
		the <i>Caricion davallianae</i> [7210] - Alkaline fens [7230]
River Shannon and River Fergus Estuaries SPA	004077	- Cormorant (<i>Phalacrocorax carbo</i>) [A017] - Whooper Swan (<i>Cygnus cygnus</i>) [A038] - Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] - Shelduck (<i>Tadorna tadorna</i>) [A048] - Wigeon (<i>Anas penelope</i>) [A050] - Teal (<i>Anas crecca</i>) [A052] - Pintail (<i>Anas acuta</i>) [A054] - Shoveler (<i>Anas clypeata</i>) [A056] - Scaup (<i>Aythya marila</i>) [A062] - Ringed Plover (<i>Charadrius hiaticula</i>) [A137] - Golden Plover (<i>Pluvialis apricaria</i>) [A140] - Grey Plover (<i>Pluvialis squatarola</i>) [A141] - Lapwing (<i>Vanellus vanellus</i>) [A142] - Knot (<i>Calidris canutus</i>) [A143] - Dunlin (<i>Calidris alpina</i>) [A149] - Black-tailed Godwit (<i>Limosa limosa</i>) [A156] - Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] - Curlew (<i>Numenius arquata</i>) [A160] - Redshank (<i>Tringa totanus</i>) [A162] - Greenshank (<i>Tringa nebularia</i>) [A164] - Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] - Wetland and Waterbirds [A999]
Askeaton Fen Complex SAC	002279	- Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> [7210] - Alkaline fens [7230]
Slievefelim to Silvermines Mountains SPA	004165	- Hen Harrier (<i>Circus cyaneus</i>) [A082]

4.4.4 Conservation Objectives

According to the Habitats Directive, the *conservation status of a natural habitat* will be taken as 'favourable' within its biogeographic range when:

- its natural range and areas it covers within that range are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable as defined below.

According to the Habitats Directive, the conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' within its biogeographical range when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and

- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The conservation objectives for each individual site listed in the tables above are available on www.npws.ie. These have been accessed on the 13/12/2021. Management plans are not currently available for any of the designated sites.

Site-specific conservation objectives were available for the following sites:

- Lower River Shannon SAC (002165). Version 1.0. Produced August 2012.
- Glenomra Wood SAC (001013). Version 1.0. Produced June 2018.
- Danes Hole, Poulnalecka SAC (000030). Version 1.0. Produced July 2018.
- Ratty River SAC (002316). Version 1.0. Produced July 2018.
- Kilkishen House SAC (002319). Version 1.0. Produced July 2018.
- Tory Hill SAC (000439). Version 1.0. Produced August 2018.
- Askeaton Fen Complex SAC (002279) Version 1.0. Produced May 2018.
- River Shannon and River Fergus Estuaries SPA (004077). Version 1.0. Produced September 2012.

Generic conservation objectives were available for the following sites:

- Slievefelim to Silvermines Mountains SPA (004165). Generic version 8.0. Produced March 2021.

4.5 Identification of Potential Impacts

Potential likely direct, indirect or secondary ecological impacts arising from the proposed development (either alone or in combination with other plans or projects) are identified in this section.

Table 4. Description of elements of the project likely to give rise to potential ecological impacts

Construction Phase
- Dredging of riverine habitats and associated loss of juvenile lamprey habitat areas where silt has accumulated. - Elevated Suspended Solids in the River Shannon and Abbey during dredging. - Siltation of river substrates in downstream areas. - Machinery: The presence and sustained use of heavy machinery on site, albeit at variable rates, during daylight hours for the duration of the works. - Human presence: Sustained increase in human activity, albeit at variable rates and numbers, during daylight hours for the duration of the works. - Use of fuels/oils/lubricants, concrete and other such substances considered harmful to the aquatic environment. - Increased noise and air emissions associated with construction activity.

Table 5. Direct, indirect or secondary ecological impacts of the construction, operational and decommissioning phases (either alone or in combination with other plans or projects) which have the potential for having significant effects

<i>Describe any likely direct, indirect or secondary ecological impacts of the project (either alone or in combination with other plans or projects) by virtue of:</i> <i>Size and scale;</i> <i>Land-take;</i> <i>Distance from Natura 2000 Site or key features of the Site;</i> <i>Resource requirements;</i> <i>Emissions;</i> <i>Excavation requirements;</i> <i>Transportation requirements;</i> <i>Duration of construction, operation etc.; and Other.</i>	- There is overlap between the subject site and the Lower River Shannon SAC; therefore, there will be direct interference of habitats within this Natura 2000 site. - Potential for water quality impacts through the dredging and/or ingress of fuels/oils to the waters of the River Shannon. - Potential for indirect alteration of habitats outside of but hydrologically linked to the development site. - Potential for indirect species disturbance/displacement due to in-situ or ex-situ habitat loss/alteration impacts, impairment of water quality and/or impacts on prey availability. - Potential for direct species disturbance/displacement impacts due to construction activity including fugitive noise emissions from machinery, human activity. - The subject site is hydrologically connected to the River Shannon and River Fergus Estuaries SPA [004077] via the River Shannon. - Potential for spread of invasive species.
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4.6 Assessment of Significance of Potential Impacts

This section considers the list of sites identified in **Section 4.4.1** above, together with the potential ecological impacts identified in the previous section and determines whether the project is likely to have significant effects on a Natura 2000 site. When assessing impact, Natura 2000 sites are only considered relevant where a credible or tangible source-pathway-receptor link exists between the proposed development and a protected species or habitat type. In order for an impact to occur there must be a risk initiated by having a 'source' (e.g. excavation), and an impact pathway between the source and the receptor (e.g. a waterbody which connects the proposal site to the protected species or habitats). An evaluation based on these factors to determine which Natura 2000 sites are the plausible ecological receptors for potential impacts of the proposed development will be conducted in **Sections 4.6.1** and **4.6.2** below. The evaluation takes cognisance of the scope, scale, nature and size of the project, its location relative to the Natura 2000 sites listed in **Table 2** above, and the degree of connectedness that exists between the project and each Natura 2000 site's potential ecological receptors.

4.6.1 Natura 2000 sites outside the likely zone of impact

With regards to the proposal, it is considered that the works do not include any element that has the potential to significantly affect the conservation objectives for which certain Natura 2000 sites are designated. It is considered that these Natura 2000 sites are outside the zone of potential impact influence of the proposal due to the absence of plausible impact pathways and/or the attenuating effect of the distance intervening. Therefore, it is objectively concluded that significant effects on the conservation objectives of these sites are not reasonably foreseeable as a result of the proposed development described at **Section 4.2.5**. These sites, which are listed in **Table 6** below, along with their distance from the subject site and the rationale for exclusion, will not be considered further in this report.

Table 6. Natura 2000 Sites excluded from further assessment including rationale for exclusion

Designated Site	Proximity of Designated Site to Nearest Point of Subject Site	Rationale for Exclusion from Assessment
Glenomra Wood SAC (001013)	10 km to north-east	- Designated for woodland habitat - No spatial overlap with the proposal site - No plausible impact pathway for significant effects to the SAC
Danes Hole, Poulnalecka SAC (000030)	14.5 km to north	- Designated for cave and woodland habitats, and lesser horseshoe bat - No spatial overlap with the proposal site - Proposal site located outside the maximum foraging range of lesser horseshoe bat (c.6 km)(BCI, 2012) - No plausible impact pathway for significant effects to the SAC
Ratty River Cave SAC (002316)	14.5 km to north-west	- Designated for caves and lesser horseshoe bat - No spatial overlap with the proposal site - Proposal site located outside the maximum foraging range of lesser horseshoe bat (c.6 km)(BCI, 2012) - No plausible impact pathway for significant effects to the SAC

Designated Site	Proximity of Designated Site to Nearest Point of Subject Site	Rationale for Exclusion from Assessment
Tory Hill SAC (000439)	13.4 km to south	- Designated for 3 habitats associated with limestone - No spatial overlap with the proposal site - No plausible impact pathway for significant effects to the SAC
Askeaton Fen Complex SAC (002279)	14.5 km to west	- Designated for 2 habitats associated with limestone - No spatial overlap with the proposal site - No plausible impact pathway for significant effects to the SAC
Slieve Bernagh Bog SAC (002312)	11 km to north	- Designated for three peatland habitats - No spatial overlap with the proposal site - The proposal site is located in separate WFD sub-catchments to the SAC³ - No plausible impact pathway for significant effects to the SAC
Slievefelim to Silvermines Mountains SPA (004165)	15 km to east	- Designated for hen harrier - No spatial overlap with the proposal site, considerable intervening distance

4.6.2 Natura 2000 sites within the likely zone of impact

Therefore, the assessment of significance of potential impacts that follows focuses on the two remaining Natura 2000 sites identified in **Table 2** above, as it is considered that these sites have the potential to be impacted by the proposal.

Table 7. Natura 2000 sites within the likely zone of impact and rationale for inclusion

Designated Site	Proximity of Designated Site to Nearest Point of Subject Site	Rationale for Inclusion for Assessment
Lower River Shannon SAC (002165)	Within the SAC	Designated for wide variety of aquatic and terrestrial habitats and species The works involve spatial overlap with the SAC. Habitats within the proposal site suitable for some QIs Potential for significant effects to the SAC Further assessment is required
River Shannon and River Fergus Estuaries SPA (004077)	270 m to south-west	Designated for wide variety of predominantly wintering wader and waterbird species, and wetlands No spatial overlap: however, several watercourses draining the proposal site drain to the SPA A direct hydrological connection exists between the proposal site and the SPA (the SPA is located approximately 270m downstream at the closest point) Habitats within the proposal site suitable for some SCIs Potential for significant effects to the SPA Further assessment is required

³Slieve Bernagh Bog SAC (002312) overlaps with the Owenogarney_SC_010, Shannon [Lower]_SC_080, Graney [Shannon]_SC_010 and the Shannon [Lower]_SC_070 WFD Sub-catchments. Available at <https://gis.epa.ie/EPAMaps/> (Accessed 28/02/2022)

The likelihood of significant effects from the project to the Natura 2000 sites outlined above was determined based on several indicators including:

- Water quality
- Habitat loss/alteration
- Habitat or species fragmentation
- Disturbance and/or displacement of species

The likelihood of significant in-combination effects is assessed in **Section 4.6.7**.

4.6.3 Water Quality

During dredging, suspension of fine sediment into the water column of the River Shannon and lower reach of the Abbey River would cause Suspended Solids levels to increase. This could have associated water quality impact as metals in the sediment would also be liberated and disperse to downstream areas. The use of machinery in an aquatic environment brings the risk of hydrocarbon spills and pollution.

4.6.4 Habitat Loss and Alteration

There will be a reduction in the quantity of silt at the proposed dredge sites. Though silt can be expected to replenish these areas post works, the removal of silt represents a temporary loss of juvenile lamprey habitat. The transfer of dredge material to another part of the River Shannon Estuary could result in habitat alteration but this is unlikely to be significant.

Canadian pondweed occurs in the study area. As with any works, invasive species must be considered in terms of potential impact on a European site. It is problematic in that it outcompetes other plants by shading. Due to its growth pattern, in dense stands it creates anoxic conditions and traps sediments. This in turn reduces or removes completely the growth of primary producers such as alphytic algae and cyanobacteria (Millane & Caffrey, 2014).

4.6.5 Disturbance and/or Displacement of Species

Juvenile lampreys will be at least disturbed and possibly lost due to the proposal. There is a high risk that lampreys in silt will be fatally injured during dredging. The works may also cause fish to vacate the environs of the works areas. Along with this, increased human presence could reduce the occurrence of otter in the study area for the duration of the works.

4.6.6 Habitat or Species Fragmentation

Habitat fragmentation has been defined as 'reduction and isolation of patches of natural environment' (Hall, *et al.*, 1997) cited in (Franklin, *et al.*, 2002) which results in spatial separation of habitat areas which had previously been in a state of greater continuity. Adverse effects of habitat fragmentation on species include the increased isolation of populations which can detrimentally impact on the resilience or robustness of the populations.

The River Shannon is a large freshwater body at Limerick, the proposed works only affect a portion of one side of the channel and the works site is near the downstream end of the freshwater environment, so as such, habitat fragmentation is not envisaged. The habitats affected will start to build up fine sediment when the River Shannon experiences floods and associated high suspended solids levels. It is considered that the proposed

works areas are at the lower end of the distribution of lampreys in the Shannon system, so species fragmentation is not anticipated with respect to this group.

4.6.7 In-Combination Effects

Cumulative impact arises from incremental changes caused by other past, present or reasonably foreseeable actions together with the proposed rehabilitation works. There is a range of activities that could act in combination with the proposal to affect water quality in the Lower River Shannon SAC in the environs of Limerick such as licensed activities. With regard to the industries operating identified in **Section 4.3.3**, above, it is considered that their individual compliances with licence requirements, such as environmental quality standards, will preclude the possibility of significant adverse cumulative impacts ensuing from them.

Habitat loss and alteration could take place in parts of the Mulkear catchment within the Lower River Shannon SAC where OPW drainage maintenance activities could remove or adversely affect lamprey and salmon spawning and nursery areas. Arterial drainage maintenance includes a range of operations such as silt and vegetation management, aquatic vegetation cutting, bank protection, bush cutting/branch trimming, tree cutting, mulching gate installation, sluice and bridge maintenance and spraying with herbicide. These activities could affect fish that depend on good water quality.

4.7 Conclusion of Screening Stage

The screening for appropriate assessment is undertaken to determine the potential for likely significant effects of a project, individually, or in combination with other plans or projects, in view of the conservation objectives of the site on a Natura 2000 Site. The proposed project is within 15km of eight Natura 2000 sites. It has been objectively concluded that the following twenty sites are not likely to be significantly affected by the proposal and can therefore be screened out for appropriate assessment:

- Glenomra Wood SAC
- Danes Hole, Poulnalecka SAC
- Ratty River Cave SAC
- Tory Hill SAC
- Askeaton Fen Complex SAC002279
- Slievefelim to Silvermines Mountains SPA

On the basis of the precautionary principle, further assessment is required to determine potential effects of the proposed project on these sites:

- Lower River Shannon SAC; and
- River Shannon and River Fergus Estuaries SPA

Therefore, it has been concluded that, in respect of these European sites, the project should proceed to Stage 2 of the Appropriate Assessment process and as such a Natura Impact Statement is required. It is concluded that all other European sites have been correctly screened out or excluded from further consideration on the basis of objective information that the project, individually or in-combination with other plans or projects, will have no, or no appreciable effects on those sites.

5. References

- Department of the Environment, Heritage and Local Government (DoEHLG) (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government.
- European Commission (EC) (2018). Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. Luxembourg: Office for Official Publications of the European Communities.
- European Commission (EC) (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. Luxembourg: Office for Official Publications of the European Communities.
- Fossitt, J. A. (2000). *A Guide to Habitats in Ireland*. Kilkenny, The Heritage Council.
- Franklin, Alan B., Noon, Barry R. & Luke George T., (2002). What is Habitat Fragmentation?, *Studies in Avian Biology* No. 25: 20-29.
- Millane, M. & Caffrey, J. (2014). Risk Assessment of *Elodea canadensis* Michaux – Canadian Pondweed. Prepared for Inland Fisheries Ireland and the National Biodiversity Data Centre.
- NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report. Edited by: Deirdre Lynn and Fionnuala O'Neill. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- Smith, G., O'Donoghue, P., O'Hora, K. & Delaney, E., 2011. Best Practice Guidance for Habitat Survey and Mapping, Kilkenny, Ireland: The Heritage Council.

Appendix 1

Finding of No Significant Effects Report

FINDING OF NO SIGNIFICANT EFFECTS MATRIX

Name of project or plan	Proposed dredging at Limerick City
Name and location of Natura 2000 site	- Lower River Shannon SAC within the site - Glenomra Wood SAC 10 km to north-east - Danes Hole, Poulnalecka SAC 14.5 km to north - Ratty River Cave SAC 14.5 km to north-west - Askeaton Fen Complex SAC 10.1 km to north-west - Tory Hill SAC 13.4 km to south - River Shannon and River Fergus Estuaries SPA 270 m to south-west - Askeaton Fen Complex SAC 14.5 km to west - Slievefelim to Silvermines Mountains SPA 15 km to east
Description of the project	The proposed works involve the excavation of sediment from the river bed, termed “maintenance dredging”, at locations upstream and downstream of Sarsfield Lock, Limerick City. Dredging is an activity carried out by a dredge, which removes material from the river bed and deposits it elsewhere. Dredged material will be removed using two methods (a) by injection into the water column of the main channel of the River Shannon (ca. 6,000m ³) and (b) transported by truck to a suitably licensed disposal facility (ca. 200m ³). Dredged material will be pumped across the weir at a discharge location
Is the project or plan directly connected with or necessary to the management of the site?	No
Are there other projects or plans that together with the project or plan being assessed could affect the site?	Yes

THE ASSESSMENT OF SIGNIFICANCE OF EFFECTS

Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site(s).	Effects include reduction in lamprey in the habitats affected within the proposed works area along with downstream water quality impacts and potential habitat alteration within the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA
List of agencies consulted: provide contact name and telephone or e-mail address.	IFI (Jane.gilleran@fisheriesireland.ie)
Response to consultation.	Concern regarding lampreys

DATA COLLECTED TO CARRY OUT THE ASSESSMENT

Who carried out the assessment?	Gerard Hayes, Ecologist with Malachy Walsh and Partners
Sources of data	Refer to Section 3.3 Desktop study, Section 3.4 Field Surveys and Section 5 References
Level of assessment completed	Stage 1 AA – Stage 2 required.

Appendix 2

Stages of Appropriate Assessment

Stage 1 - Screening

This is the first stage of the Appropriate Assessment process and that undertaken to determine the likelihood of significant impacts as a result of a proposed project or plan. It determines need for a full Appropriate Assessment.

If it can be concluded that no significant impacts to Natura 2000 Sites are likely then the assessment can stop here. If not, it must proceed to Stage 2 for furthermore detailed assessment.

Stage 2 - Natura Impact Statement (NIS)

The second stage of the Appropriate Assessment process assesses the impact of the proposal (either alone or in combination with other projects or plans) on the integrity of the Natura 2000 Site with respect to the conservation objectives of the site and its ecological structure and function. This is a much more detailed assessment than Stage 1. A Natura Impact Statement containing a professional scientific examination of the proposal is required and includes any mitigation measure to avoid, reduce or offset negative impacts.

If the outcome of Stage 2 is negative i.e. adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned.

Stage 3 - Assessment of alternative solutions

A detailed assessment must be undertaken to determine whether alternative ways of achieving the objective of the project/plan exist.

Where no alternatives exist the project/plan must proceed to Stage 4.

Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain

The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a Natura 2000 Site where no less damaging solution exists.

Appendix 3

Consultation Responses

Appendix 4

Lamprey Assessment