



- Map Legend**
- ◆ Invasive species
 - ◆ Japanese Knotweed
 - ◊ Japanese knotweed 7m Buffer
 - Indicative knotweed bund location
 - Washlands Extent
 - Temporary Construction Works Area
 - Permanent Works Area



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Drawing Title	
Invasive Species Map	
Project Title	
Crossmolina Flood Relief Scheme	
Drawn by	Checked By
JOS	PR
Project No.	Drawing No.
120211 -a	Figure 5.8
Scale	Date
1:4000	25.06.2020

MKO
 Planning and Environmental Consultants
 Tuam Road, Galway
 Ireland, H91 VV84
 +353 (0) 91 735611
 email: info@mkofireland.ie
 Website: www.mkofireland.ie

- In advance of any works being carried out on the site of the proposed flood relief scheme, any invasive species that occur within the identified works area will be subject to treatment with a non-persistent glyphosate herbicide. This will be undertaken at the end of the growing season (late August – September) and the method of application and chemical formulation will be agreed with all relevant stakeholders prior to application and treatment. Some of the stands are currently being treated in advance of any works.
- Treatment will be undertaken from hand held sprayers and will avoid the potential for spray drift into other areas.
- It is intended that these advance works will weaken the plant in advance of the construction works that are proposed as part of the flood defences.
- The stand that is within the washlands is not within the footprint of the proposed development and will not be affected by the construction of the project. It will be subject to continued treatment on an annual basis until it is eradicated.
- In all areas where Japanese Knotweed has been identified within the footprint of the proposed works (including areas within 7 metres of recorded stems) will be fenced off and included within the Knotweed Management Plan.
- Knotweed and infested soil will be excavated from its current location and removed to a containment bund within the works area for ongoing treatment. The location of this bund is shown in Figure 5.8.
- The following procedure will be followed to safely and legally remove the Knotweed from its current locations to the bund:
 - The ECoW will supervise any operations within the fenced exclusion zones and will assess whether or not soil is contaminated.
 - Excavators will be used to load waiting trucks with Knotweed and infested soil. These will transport the infested material to the bund within the works area.
 - The loading of each truck will be undertaken on a surface that can be easily cleaned (such as a radon barrier) and will be inspected by the ECoW and if necessary brushed down before departure to ensure that there is no knotweed present on the outside of it.
 - The excavation will be overseen by a suitably qualified ecologist and will involve the excavation of the Knotweed and associated rhizomes. The ecologist will inspect the excavated area following removal and will determine whether all rhizomes have been removed. Once satisfied, the sites will be declared free from Knotweed.
 - All excavation machinery will be thoroughly cleaned and disinfected prior to leaving the section of the proposed works that is subject to the Knotweed Management Plan.
 - Following completion of the construction and reinstatement, the site will be sown with grass seed mix and allowed to quickly re-vegetate.
 - Follow up surveys will be undertaken for at least three years following the construction to ensure that these small stands are completely eradicated.
- The containment bund will be constructed using the following methodology:
- Following the pre-commencement invasive species surveys the potential volume of contaminated material to be moved, will be identified (this will include the location of the identified stands plus the 7metre radius surrounding them and a depth of 3m. It is unlikely that this amount of space will be required but a worst case scenario will be assumed at the outset.

- A containment bund will be constructed by scraping back the topsoil and creating earth berms to surround the bund. The bund will be no more than 1.5m deep. The location of the bund is shown on Figure 5.8.
- The bund will be covered with a layer of soft sand, then lined with root barrier membrane, which will extend over the sides of the bund.
- Contaminated material will be tipped into the bund and the containing vehicles washed or brushed out before leaving the containment area.
- Care will be taken not to damage the root barrier membrane when filling the bund with no driving on exposed membrane permitted.
- Once full, the bund will be fenced and appropriate signage placed on it to warn of its contaminated nature.
- Any regrowth will be treated with glyphosate herbicide for a period of at least three years following creation of the bund. This will be applied annually in late summer or early autumn for maximum effect.
- Following a period of three years, or when there is no regrowth, the bund will be rotovated. Any Knotweed that is exposed and starts to grow following this procedure, will be treated until none remains within the bund.
- Any machinery or personnel used to undertake this procedure will follow strict biosecurity procedures before leaving the site and will be thoroughly cleaned.

5.5.6.6. Biosecurity

All plant, machinery and equipment will be thoroughly cleaned and disinfected using Virkon 1% biocide prior to arrival and departure from the site to prevent the spread of invasive species such as Asian Clam, Zebra Mussel, Crayfish plague.

5.5.7. Cumulative and In Combination Effects

5.5.7.1. Cumulative Effects

The interaction of the various elements of the proposed development was considered and assessed in this EIA. The potential for each individual element of the proposed development on its own to result in significant effects on biodiversity was considered in the impact assessment. The entire project, including the interactions between all its elements, was also considered and assessed for its potential to result in significant effects on biodiversity in the impact assessment presented above. The complex interactions between the requirement for large scale earthmoving and construction works within and adjacent to the River Deel and upstream of sensitive lacustrine habitats in Lough Cullin to facilitate the scheme requirements was considered cumulatively along with the and the requirement to protect biodiversity within those watercourses. Any potential cumulative impacts were taken into account and any significant impacts avoided through a series of mitigation measures that were fully described above in this chapter. The requirement to minimise disturbance on humans was considered and evaluated cumulatively in the assessment, when considering the potential for disturbance to wildlife. The requirements to minimise impacts on the landscape were similarly cumulatively considered when assessing the impact of the development on biodiversity.

Following this cumulative assessment of the interactions between all aspects of the project, no additional effects were identified and a full and comprehensive cumulative assessment of the potential effects of the proposed development on biodiversity has been achieved.

5.5.7.2. In- Combination Effects

The proposed development was considered alongside other projects in the area that could result in in-combination effects on biodiversity. This included a review of online Planning Registers and served to identify past and future programmes and projects, their activities and their predicted environmental effects.

Ongoing Programmes on the River Deel

The following ongoing maintenance operations and plans were considered when undertaking this cumulative impact assessment:

1. OPW drainage maintenance programme, which includes the River Deel up as far as the Jack Garrett Bridge in Crossmolina. OPW complete drainage maintenance operations on the lower reaches of the River Deel as part of their obligation under the Arterial Drainage Act. These works are undertaken following the OPW's drainage maintenance environmental guidance and are the subject of their own ecological impact assessment and appropriate procedures. Additional works such as vegetation and gravel berm removal are from time to time undertaken. Any such works have been considered in this cumulative impact assessment.
2. OPW/IFI/Mayo County Council, Japanese Knotweed eradication programme. The ongoing management of invasive species has been considered in this cumulative impact assessment.

Projects

The potential for the proposed works to contribute to cumulative or in combination effects on biodiversity was considered in combination with other projects in the local area. The online planning system for Mayo County Council was consulted on the 12/05/2020. Additional projects identified in the townlands of Cartrongilbert and Mullenmore North, where the proposed scheme is located, include:

- Permission to construct new dwelling house, garage, waste water treatment system and all associated site works (Planning Ref: 15227).
- Permission to retain a dwelling house, domestic shed and retain and upgrade proprietary effluent treatment system (Planning Ref: 1684).
- Permission to construct a new vehicular and pedestrian entrance, roadway and carpark and all ancillary works to the existing cemetery (Planning Ref: 18789).

- Permission to construct a single storey ASD unit extension to existing school building comprising of classrooms and ancillary accommodation together with alterations to existing building and site works (Planning Ref: 17869).
- Permission for the retention of existing dwelling house and shed to the rear including retention of boundaries and all other associated works/services (Planning Ref: 17821).
- Permission to construct dwelling house incorporating a basement with connections to public sewer and public water main including all other ancillary site works and services (Planning Ref: 16324).
- Permission to construct a single storey extension within the school site, the block will include 5 no. classrooms, sanitary facilities, storage and circulation of approx 443 sqm gross floor area in total. the development will also include an extension to existing car park and all associated site works and connections to existing services (Planning Ref: 15670).
- Permission for the extension to existing school building, comprising of 1 no. classroom and 3 no. special education tuition rooms, including all associated development works and services. (Planning Ref: 19814).
- Permission for the extension to the existing school building, comprising 1. no staff room and minor alterations to existing storage room including all associated development works and services (Planning Ref: 19953)
- Permission for the extension to the existing school building, comprising of a new classroom and a new staff room facility, including all associated development works and services (Planning Ref: 19117).
- Permission to construct dwelling house incorporating garage and septic tank with percolation area including all other ancillary site work and services (Planning Ref: 18545).

Assessment of plans

The following plans have been reviewed and taken into consideration as part of this assessment:

Mayo County Development Plan 2014 – 2020

National Biodiversity Action Plan 2017-2021

The Regional Planning Guidelines for the West 2010-2022

The review focused on policies and objectives that relate to designated sites for nature conservation, biodiversity and protected species. An overview of the search results with regard to plans is provided in Table 5.21.

Objective or Policy	Context of Proposed scheme
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Mayo County Development Plan 2014 – 2020

WQ-01 - It is an objective of the Council to implement the Western River Basin District Management Plan “Water Matters” 2009-2015 to ensure the protection, restoration and sustainable use of all waters in the County, including rivers, lakes, groundwater, coastal and transitional waters, and to restrict development likely to lead to deterioration in water quality or quantity.

NH-01 - It is an objective of the Council to protect, enhance, conserve and, where appropriate restore:

a) Candidate Special Areas of Conservation, Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed National Heritage Areas, Statutory Nature Reserves, Ramsar Sites and Biogenetic Reserves, including those listed in the Environmental Report documenting the Strategic Environmental Assessment of this plan and any modifications or additional areas that may be so designated during the lifetime of the plan.

b) Natural habitats and plant and animal species identified under the Habitats Directive, Birds Directive, Wildlife Act and the Flora Protection Order, or any other relevant legislation that may be implemented during the lifetime of the plan.

c) Features of natural interest and amenity, which provide a unique habitat for wildlife including ecological networks (including ecological corridors and stepping stones), riparian zones, hedgerows, stone walls and shelterbelts.

g) Surface waters, aquatic and wetland habitats and freshwater and water-dependent species through the implementation of all appropriate and relevant Directives and transposed legislation.

The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts were identified when considered in conjunction with the current proposal.

National Biodiversity Action Plan 2017-2021

Target 6.2 - Sufficiency, coherence, connectivity, and resilience of the protected areas network substantially enhanced by 2020.

The proposed scheme will not result in significant effects on habitat and features of ecological importance. The proposed project will not impact on connectivity within the wider area and will maintain the watercourse within the

	development site in good condition.
The Regional Planning Guidelines for the West 2010-2022	
EAP13: To support the protection of Natural Heritage Areas, Special Protection Areas, Special Areas of Conservation, Nature Reserves, Ramsar Sites (Wetlands), Wildfowl Sanctuaries, National Parks, Nature Reserves and the biodiversity designated under the Habitats Directive, Birds Directive, Wildlife Act, Flora Protection Order and other designated or future designated sites.	The proposed scheme will not result in significant effects on habitat and features of ecological importance.
EA018: Support the achievement of favourable conservation status of Annex I habitats, Annex II species, Annex I bird species and other regularly occurring migratory bird species and their habitats in the region.	

Table 5.21 Assessment of plans

The proposed scheme was considered in combination with the above plans and projects and no additional effects or potential for cumulative/in combination effects on Biodiversity were identified. The proposed scheme will not result in significant direct or indirect effects on any biodiversity when considered on its own and therefore cannot contribute to any additional, cumulative or in combination effects when considered alongside any other plans or projects.

5.6. CONCLUDING STATEMENT

The proposed scheme has been designed to achieve its aim of alleviating flooding in Crossmolina Town whilst also minimising effects on the sensitive ecological receptors including the River Deel, Lough Conn, the Mullenmore springs and stream, wet woodlands and wetlands. It has also been designed to avoid significant effects on any of the sensitive species that are associated with the area. The identified impacts and potential direct and indirect significant effects of the scheme on biodiversity have been fully identified, assessed, quantified and where necessary and appropriate, mitigated. Residual effects that remain post mitigation have also been assessed. A reasoned conclusion has been reached based on the assessment of the potential direct and indirect impacts, that the proposed scheme will not result in significant effects on biodiversity, flora or fauna either on its own or in combination with other plans and projects