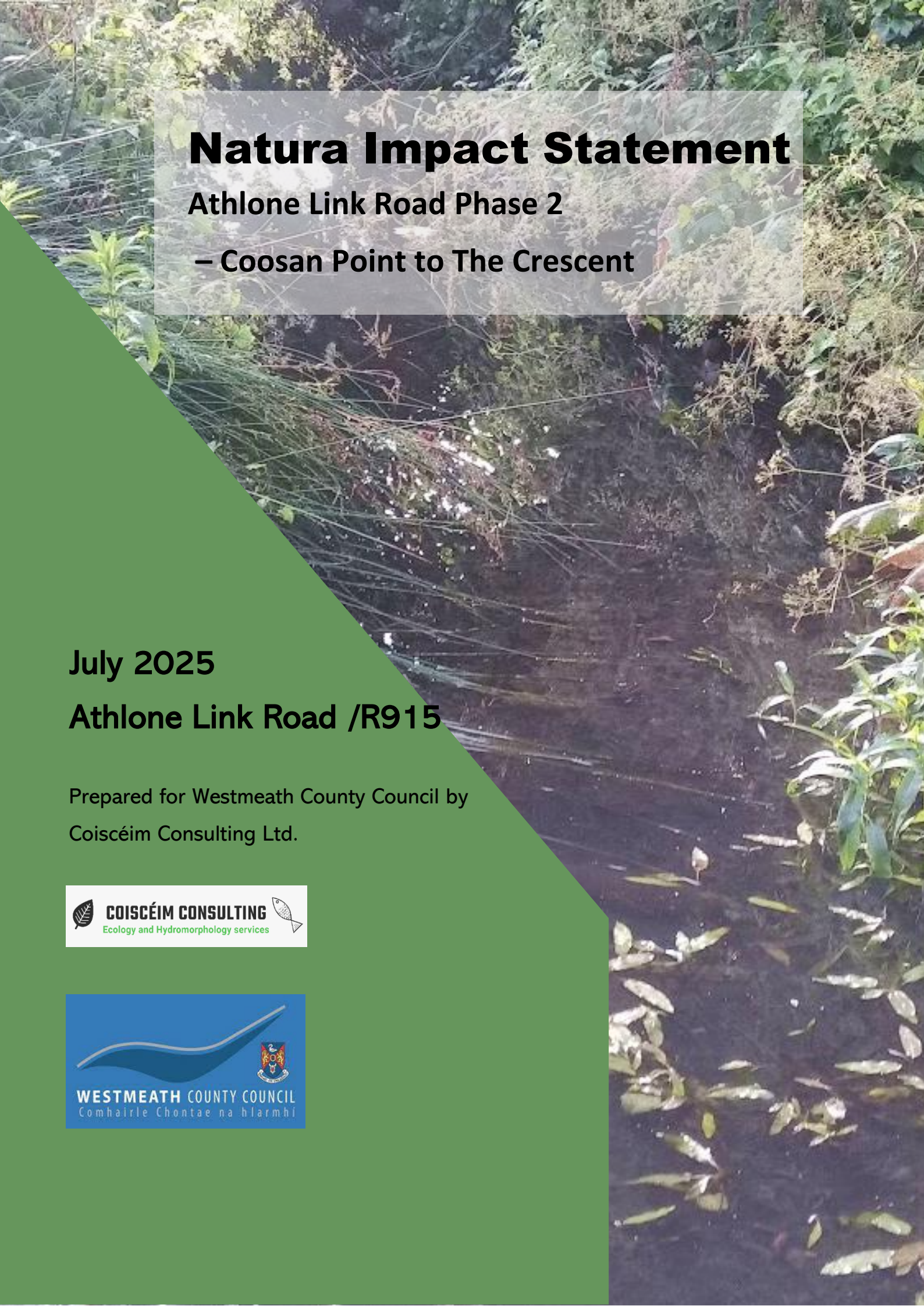

Natura Impact Statement

Athlone Link Road Phase 2 – Coosan Point to The Crescent

July 2025

Athlone Link Road /R915

Prepared for Westmeath County Council by Coiscéim Consulting Ltd.

COISCÉIM CONSULTING
Ecology and Hydromorphology services

WESTMEATH COUNTY COUNCIL
Comhairle Chontae na hIarmhí

Project Title	ATHLONE - LINK ROAD PHASE 2		**Project Ref:**	ALR123
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Contents

1 Introduction

This report has been prepared by Coiscéim Consulting Ltd. at the request of the client, Westmeath County Council, who wish to construct a link road along the southern boundary of the site of Athlone Bus Depot to connect Athlone Hospital roundabout to The Crescent intersection. The Proposed Development comprises the following:

The proposed development will include the construction of Phase 2 of the link road from Coosan Point to The Crescent, the provision of additional bus parking within the CIE lands, alterations to the signalised junction at Coosan Point and alterations to the alignment of the existing foul sewer that currently is within the area of the future bus parking.

This NIS has been prepared in accordance with the requirements of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive), and with the provisions of Part XAB of the Planning and Development Act, 2000 (as amended) ("Planning Act").

The report considers the implications of the Proposed Development, (on its own and in combination with other plans or projects), on European sites in view of the conservation objectives of those sites. It examines the evidence and data to identify and assess the implications of the Proposed Development on European sites, in view of the conservation objectives of each of those sites. It considers whether the Proposed Development, by itself and in combination with other plans or projects, would adversely affect the integrity of any European sites. In reaching a conclusion, the mitigation measures deemed necessary to avoid or reduce any potential negative impacts, are proposed and explained.

An Appropriate Assessment of the Proposed Development is required for this project as, in view of the best scientific knowledge and on the basis of objective information, it cannot be excluded that the Proposed project, either individually or in combination with other plans or projects, will not have a likely significant effect on some European site(s) in view of their conservation objectives.

The purpose of this NIS is to provide an examination, analysis and evaluation of the potential impacts of the Proposed Development on European sites and to present findings and conclusions with respect to the Proposed Development in light of the best scientific knowledge in the field. This NIS will inform and assist the competent authority in carrying out its Appropriate Assessment as to whether or not the Proposed Development will adversely affect the integrity of any European sites, either alone or in combination with other plans and projects, taking into account their conservation objectives.

The Proposed Development is hydrologically connected with nearby European sites and is not necessary for their management. It is the considered view of the authors of this NIS, Coiscéim Consulting Ltd, that the Proposed Development, left unmitigated, may have adverse effects on the integrity of European sites in the vicinity of the development, in view of their conservation objectives.

1.1 Relevant Legislation

The Birds and Habitats Directives - Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (the Birds Directive) and Council Directive 92 /43 /EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) – require Ireland to establish protected sites as part of a European wide network of sites (the Natura 2000 network which are known in Ireland as European sites) for habitats and species that are of international importance for conservation. In Ireland, European sites include Special Areas of Conservation (SACs) and Special Protection Areas

(SPAs). SACs are selected for habitats listed on Annex I of the Habitats Directive (including priority Annex I habitat types which are in danger of disappearance) and species listed on Annex II. SPAs are selected for bird species (listed on Annex I of the Birds Directive), regularly occurring populations of migratory bird species (such as ducks, geese and waders), and areas of international importance for migratory birds. The specified habitats and species for which each SAC and SPA is selected, correspond to the qualifying interests (in the case of SACs) or special conservation interest species (in the case of SPAs) for the sites, for which conservation objectives are prepared.

Article 6(3) of the Habitats Directive states that:

'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'

This provision is transposed into Irish law by Part XAB of the Planning Act. Section 177U(4) of the said Planning Acts provides for screening for Appropriate Assessment as follows:

'The competent authority shall determine that an appropriate assessment of [...] a 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 European site.'

Section 177T(1) and (2) provide that a NIS is '*a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a Proposed Development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites' and specifies that it 'shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites'*.

The Court of Justice of the European Union (CJEU) has made relevant rulings in relation to Appropriate Assessment, regarding when it is required, its purpose and the standards it should meet. Two of the key rulings include, Case C-127/02 Waddenzee where the CJEU found that '*Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects*' and that the plan or project may only be authorised '*where no reasonable scientific doubt remains as to the absence of such effects*', and Case C-258/11 where the CJEU found that *'[The Appropriate Assessment] cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned*'.

In this report, consideration also has been given to the evolution in interpretation and application of directives and national legislation arising from recent case-law studies of the European and Irish courts, in respect of Article 6 of the Habitats Directive.

2 Methodology

2.1 Statement of Competence

This NIS was authored by Dr Niamh Burke of Coiscéim Consulting. The background and experience of the author and contributors to this report are set out below.

Dr Niamh Burke (BSc, PhD, CEnv, MCIEEM, Dip Env Law and Planning), is Director and Principal Ecologist with Coiscéim Ecology. She holds a BSc (Hons) in Natural Sciences with Environmental Science and a PhD in salmonid ecology. She is a Chartered Environmentalist (CEnv) with the Society for the Environment (Soc Env) and a Full Member of the CIEEM. Recently (2022), she attained the Higher Diploma in Environmental Law and Planning from Kings Inns. Niamh is a senior scientist with academic research and consulting experience in terrestrial ecology, aquatic ecology and fluvial geomorphology. She is an experienced project manager with a full working knowledge of EIA, the planning process and relevant environmental legislation, both national and European. With a specialism in aquatic habitats, she also has experience of terrestrial species' surveys and mitigation approaches. In her extensive consultancy roles she has acted as reviewer for all ecological reporting, ensuring consistency of standards and approach.

2.2 Assessment Guidance

This Nature Impact Statement has been prepared in reference to the following documents:

European Commission Guidance:

- *Assessment of Plans and Projects in Relation to Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021)
- *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* (European Commission, 2001)
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019)
- *Communication from the Commission on the Precautionary Principle* (European Commission 2000)
- *Nature and Biodiversity Cases – Ruling of the European Court of Justice* (European Commission 2006)
- *Article 6 of the Habitats Directive – Rulings of the European Court of Justice* (European Commission Final Draft September 2014)

National Guidance:

- *OPR Practice Note PN01. Appropriate Assessment Screening for Development Management* (Office of the Planning Regulator, 2021)
- *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities* (Department of Environment, Heritage and Local Government 2010 revision)
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. *Circular NPW 1/10 & PSSP 2/10* (NPWS, 2010)
- The following guidance has been referenced in characterising the habitats and impacts, including determining magnitude and significance of impacts, as relevant in the application to Appropriate Assessment and European sites:
- *Guidelines for Ecological Impact Assessment in the UK and Ireland* (Chartered Institute of Ecology and Environmental Assessment, 2018)
- *Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (EPA, August 2017)
- *Environmental Guidelines Series for Planning and Construction of National Roads* (National Roads Authority, 2005-2009)

The following documents were referenced during the Desk-top study to inform the assessment:

- Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents
- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie
- Information on the surface water network and surface water quality in the area available from www.epa.ie
- Information on groundwater resources and groundwater quality in the area available from www.epa.ie and www.gsi.ie
- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- Information on the location, nature and design of the Proposed Development supplied by the applicant's design team
- Westmeath County Development Plan 2021 – 2027

2.3 Appropriate Assessment Process

Guidance on the Appropriate Assessment (AA) process was produced by the European Commission in 2002, which was subsequently developed into guidance specifically for Ireland by the Department of Environment, Heritage and Local Government (DEHLG) (2009). These guidance documents identify a staged approach to conducting an AA, as shown in Figure 2.1:

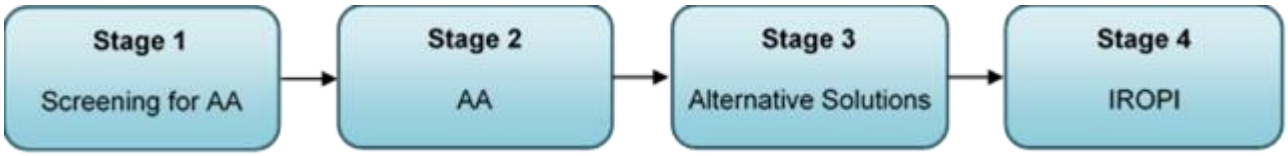

Figure 2.1 The Appropriate Assessment Process (from: Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities, DEHLG, 2009)

2.3.1 *Stage 1 - Screening for AA*

The initial, screening stage of the Appropriate Assessment is to determine:

a. whether the proposed plan or project is directly connected with or necessary for the management of the European designated site for nature conservation

b. if it is likely to have a significant adverse effect on the European designated site, either individually or in combination with other plans or projects.

For those sites where potential adverse impacts are identified, either alone or in combination with other plans or projects, further assessment is necessary to determine if the proposals will have an adverse impact on the integrity of a European designated site, in view of the site's conservation objectives (i.e., the process proceeds to Stage 2).

2.3.2 *Stage 2 - AA*

This stage requires a more in-depth evaluation of the plan or project, and the potential direct and indirect impacts of them on the integrity and interest features of the European designated site(s), alone and in-combination with other plans and projects, taking into account the site's structure, function, and conservation objectives. Where required, mitigation or avoidance measures will be suggested.

The competent authority can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site(s) concerned. If this cannot be determined, and where mitigation cannot be achieved, then alternative solutions will need to be considered (i.e., the process proceeds to Stage 3).

2.3.3 *Stage 3 - Alternative Solutions*

Where adverse impacts on the integrity of Natura 2000 sites are identified, and mitigation cannot be satisfactorily implemented, alternative ways of achieving the objectives of the plan or project that avoid adverse impacts need to be considered. If none can be found, the process proceeds to Stage 4.

2.3.4 *Stage 4 – IROPI*

Where adverse impacts of a plan or project on the integrity of Natura 2000 sites are identified and no alternative solutions exist, the plan will only be allowed to progress if imperative reasons of overriding public interest can be demonstrated. In this case compensatory measures will be required.

The process only proceeds through each of the four stages for certain plans or projects. For example, for a plan or project, not connected with management of a site, but where no likely significant impacts are identified, the process stops at stage 1. Throughout the process, the precautionary principle must be applied, so that any uncertainties do not result in adverse impacts on a site.

2.4 The Source-Pathway-Receptor Approach

Consideration has been given to the **source-pathway-receptor** approach in this screening assessment. This is a standard tool in environmental assessment consistent with the approach outlined in National and European guidance. The source-pathway-receptor concept in ecological impact assessment relates to the idea that for the risk of an impact to occur, a 'source' is needed, e.g. a construction site; then a 'receptor', in this case, sites designated for nature conservation; and finally, a ‘pathway’ between the source and the receptor, (for example, a watercourse that links the development site to the designated site). Even though there may be connection between Source and Receptor, (ie: potential risk of impact), that does not mean that it might necessarily occur, and if it does occur, it may not be significant. Identification of a risk means that there is a possibility of ecological or environmental damage occurring, with the level and significance of the impact depending upon the nature and exposure to the risk and the characteristics of the receptor (in this instance, this is any Natura 2000 sites).

2.5 Non-Statutory Pre-Application Consultations

Consultation with **NPWS (Development Applications Unit)** was undertaken by AONA Consulting during 2021, prior to Coiscéim Consulting taking on this work. The DAU responded with some key advisory points on the ecology of the site and the potential for species groups.

These points were taken into consideration during site survey design, ecological assessments and mitigation proposals.

Westmeath Birdwatch Ireland was also consulted by phone and species of interest were noted and considered within the survey design and subsequent assessments.

2.6 Desktop Study

A comprehensive desktop review was conducted of available published and unpublished information, together with the above list of consultations.

This included, the following:

- review of all data available on the NPWS http://www.npws.ie/en/ and National Biodiversity Data Centre (NBDC) http://maps.biodiversityireland.ie/ web-based databases was undertaken.
- Birds of Conservation Concern in Ireland (Gilbert et al, 2021)
- Westmeath County Development Plan 2021-2027
- Westmeath County Council planning enquiry website

2.7 Site Surveys

2.7.1 *Habitat survey*

Baseline surveys of the site of the Proposed Development (the Study Area) was conducted on on 22nd March 2023, 25th of April 2023 and 20th June 2023 by Dr. Niamh Burke of Coiscéim Consulting, to record the habitats within the site, and to detect the presence or likely presence, of a range of protected species. Fauna were recorded by sightings, signs of presence and/or activity. Notes of potentially valuable habitat features for protected species that may occur on the Site were made during the walkover. The Proposed Development and indicative study area for the purposes of this NIS, are set out in Figure 3.1 on the following page.

A habitat map of the Study Area is provided in **Appendix A**.

Ecological Survey methods were in general accordance with those outlined in the following documents;

- Habitat Survey Guidelines (The Heritage Council, 2011)
- A Guide to Habitats in Ireland (the Heritage Council 2000)
- Phase 1 Habitat Survey methodology (Joint Nature Conservation Committee (JNCC), 1990, revised 2003);
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009)
- *Guidelines for Ecological Impact Assessment in the UK and Ireland* (Chartered Institute of Ecology and Environmental Assessment, 2018)

Aerial photographs and site maps assisted the habitat survey.

Habitat maps have been produced in general accordance with the habitat codes as developed by Dr Julie Fossitt (Heritage Council 2000) and outlined in 'Habitat Survey Guidelines' (Irish Heritage Council, 2011)

3 Project Background and Description

Details of the Site Location and proposed Site Layout Plans are provided in **Appendix B**. A location map is shown in Figure 3-1 below.

Figure 3-1 Location of the Proposed Development

The Site is located on the grounds of the existing Athlone Bus Depot, adjacent to Athlone Hospital and bounded by Southern Station Road to the north, with The Mance and St Francis Terrace to the south. The western half of the Site consists of greenfield land currently fringed with hedgerow and tree line habitat. The proposed link road will be constructed along the southern boundary of the site.

Construction of facility

The applicant, Westmeath County Council, intend to apply for planning permission for the further development of a link road between Crescent Junction (R915) to Coosan Point Road/Southern Station Road Junction and lands within the CIE Bus Depot boundary.

The proposed development will include the construction of Phase 2 of the link road from Coosan Point to The Crescent, provision of additional bus parking within the CIE lands, alterations to the signalised junction at Coosan Point and alterations to the alignment of the existing foul sewer that currently is within the area of the future bus parking.

The proposed works are outlined in a series of engineering drawings by PUNCH/CST Group Consulting Engineers (See **Appendix C** for details).

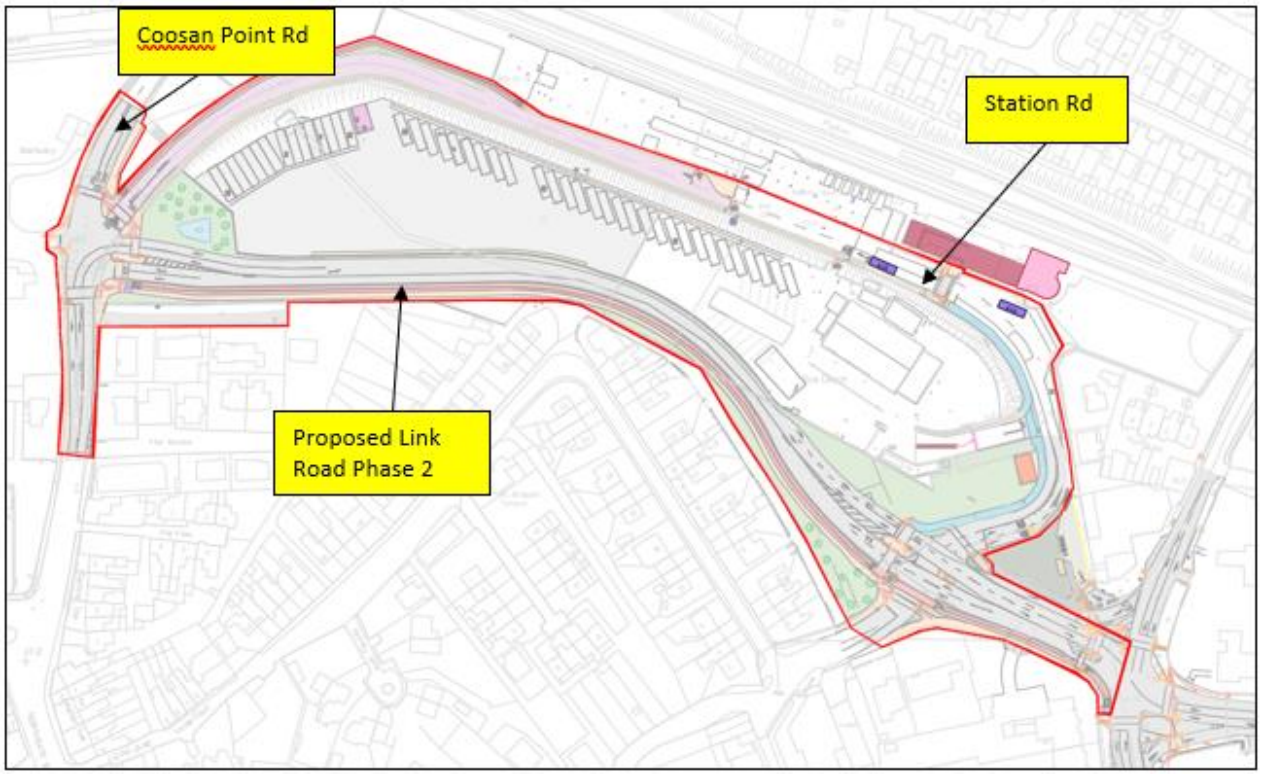

Figure 3.2 *Schematic of proposed link road and bus depot extension*

On-site drainage will include the following:

A new surface water sewer network shall be provided for the proposed development which will be entirely separated from the foul water sewer network. All surface water run-off from existing roof areas and hardstanding areas are to be collected by a gravity pipe network.

All storm water run-off from hard paved surfaces will be collected via trapped gullies, thereby ensuring removal of detritus and floating contaminates.

As part of the SuDS design there will be an attenuation system incorporated into the proposed stormwater drainage design. The CIE drainage will pass through an attenuation storage tank and a petrol Interceptor. The interceptors will be subject to regular maintenance / cleaning to ensure suitable operation is maintained long term. A hydrobrake provided downstream of the attenuation system will limit forward flow to existing run-off rates as per the Development Plan requirements.

It is proposed to retain a wetland area in the Southwest corner of the site. This will be achieved through directing water from the existing drain coming from St Francis Terrace under the road and into the wetlands where it can then overflow into the outlet under the Coosan Point Road. A detailed drainage plan is provided in **Appendix D**.

Construction Schedule

The proposed development will be constructed over a duration of approximately 18 months.

Operation of the facility

As of January 2023, 10,000 passengers use Athlone's bus service weekly, which is a 20% increase since 2019 (pre-pandemic).

Enhancing the infrastructure surrounding the bus depot and bus station aims to serve the growing demand for public transport, reduce traffic congestion in the surrounding area and allow for an upscaling of bus routes through Athlone town and rural Ireland.

Enhancement of the infrastructure of Athlone Bus Depot is in line with the implementation of the National Sustainable Mobility Policy, which sets out the government's plan to meet Ireland's requirements to achieve a 50% reduction in greenhouse gas emissions in the transport sector by 2030.

4 Screening Assessment

4.1 Overview of the Receiving Environment

4.1.1 *European sites*

The nearest European sites to the proposed development are the overlapping River Shannon Callows SAC and Middle Shannon Callows SPA, situated approximately 0.9km south of the site. Other European sites within the potential Zone of Influence are the Lough Ree SAC, Lough Ree SPA, Crosswood Bog SAC, Carn Park Bog SAC, Castlesampson Esker SAC, Ballynamona Bog and Corkip Lough SAC , Pilgrim's Road Esker SAC, Mongan Bog SAC, Mongan Bog SPA, Fin Lough (Offaly) SAC and Lough Funshinagh SAC.

All of the European sites present in the vicinity of the proposed development are shown on Figure 4.1 below. The QIs/SCIs of the European sites in the vicinity of the proposed development are provided in Table 4.1 below.

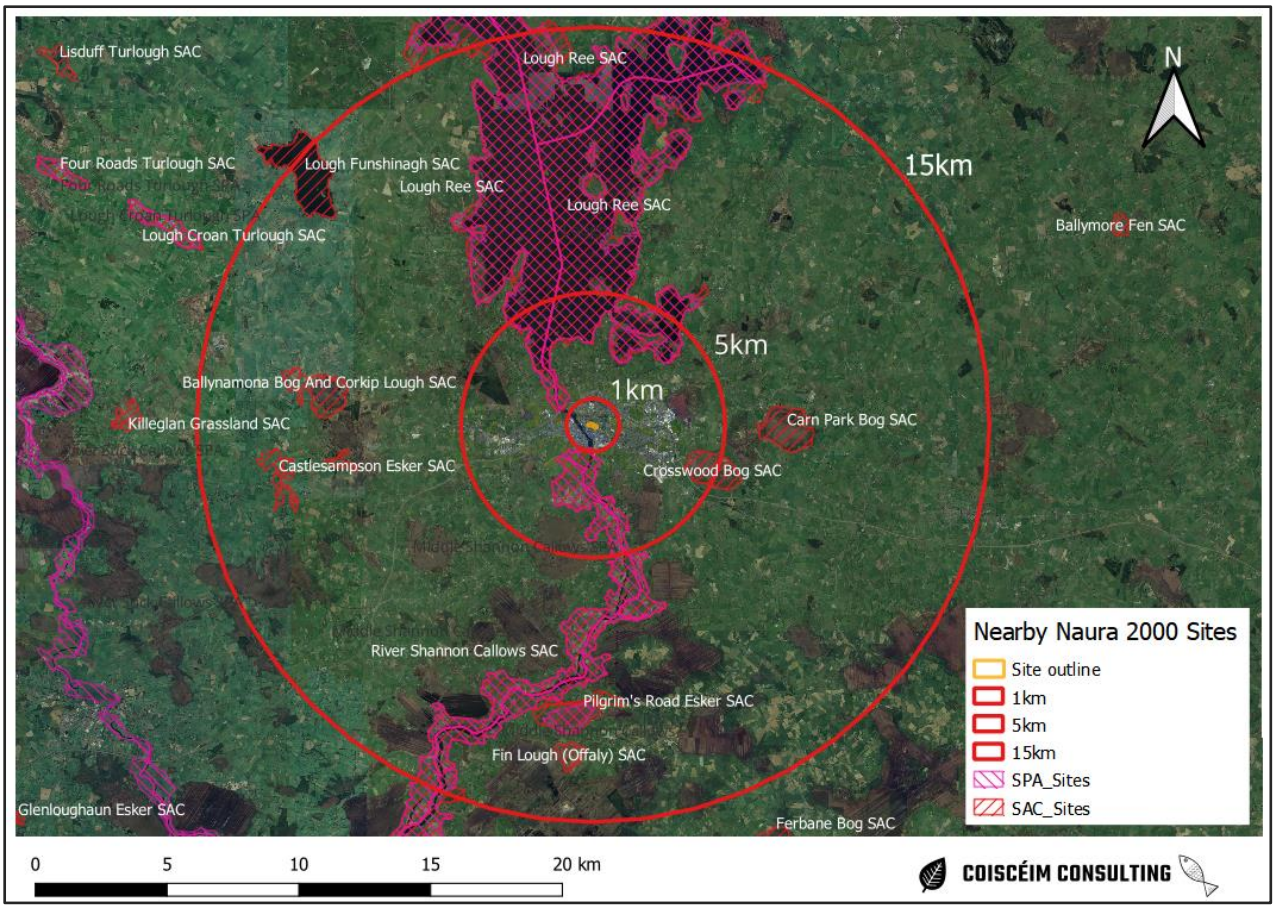

Figure 4.1 European sites in the vicinity of the proposed development site, with distances of 1km, 5km and 15km highlighted

In total, thirteen European sites were found to fall within the 15km radius considered as the possible Zone of Influence. The details of their individual Qualifying Interests and relative distances from the proposed site development is shown in table 4.1 below:

Table 4.1 European sites in the vicinity of the Proposed Development

Site name and code	Distance from Operation	Reasons for designation[1] (*= Priority Annex I Habitat)[2] (Sourced from NPWS online Conservation Objectives)
Special Areas of Conservation (SACs)		
River Shannon Callows SAC [000216]	The European site is approx. 0.9km from the proposed development boundary	Otter (*Lutra lutra*) [1355] *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*) [6510] Alkaline fens [7230] Limestone pavements*[8240] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)* [91E0] **NPWS (2022) Conservation Objectives: *River Shannon Callows SAC 000216*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.**
Middle Shannon Callows SPA [004096]	The European site is approx. 0.9km from the proposed development boundary	Whooper Swan (*Cygnus cygnus*) [A038] Wigeon *(Anas penelope*) [A050] Corncrake (*Crex crex*) [A122] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Black-tailed Godwit (*Limosa limosa*) [A156] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Wetland [A999] **NPWS (2022) Conservation Objectives: *Middle Shannon Callows SPA 004096*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage**
Lough Ree SAC [000440]	The European site is approx. 1.4km from the proposed development boundary	Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation [3150] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] Active raised bogs [7110]

[1] "Qualifying Interests" for SACs and "Special Conservation Interests" for SPAs based on relevant Statutory Instruments for each SPA, and NPWS Conservation Objectives for SACs downloaded from www.npws.ie in September 2018. Data on NHA/pNHA sites from the site synopsis documents published by the NPWS (where available).

[2] Priority Annex I habitat types are denoted with an "*" and are habitat types which are in danger of disappearance at a European level – from the definition of "priority natural habitat types" in Article 1(d) of the Habitats Directive

Site name and code	Distance from Operation	Reasons for designation[1] (*= Priority Annex I Habitat)[2] (Sourced from NPWS online Conservation Objectives)
		Degraded raised bogs still capable of natural regeneration [7120] Alkaline fens [7230] Limestone pavements [8240] Bog woodland [91D0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] Lutra lutra (Otter) [1355] **NPWS (2016) Conservation Objectives*: Lough Ree SAC 000440*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.**
Lough Ree SPA [004064]	The European site is approx. 1.4km from the proposed development boundary	Little Grebe (*Tachybaptus ruficollis*) [A004] Whooper Swan (*Cygnus cygnus*) [A038] Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Shoveler (*Anas clypeata*) [A056] Tufted Duck (*Aythya fuligula*) [A061] Common Scoter (*Melanitta nigra*) [A065] Goldeneye (*Bucephala clangula*) [A067] Coot (*Fulica atra*) [A125] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Common Tern (*Sterna hirundo*) [A193] Wetland and Waterbirds [A999] **NPWS (2022) Conservation objectives for *Lough Ree SPA [004064]*. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.**
Crosswood Bog SAC [002337]	The European site is approx. 3.8km from the proposed development boundary	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] **NPWS (2016) Conservation Objectives: *Crosswood Bog SAC 002337*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.**
Carn Park Bog SAC [002336]	The European site is approx. 6.1km from	Active raised bogs [7110]

Site name and code	Distance from Operation	Reasons for designation[1] (*= Priority Annex I Habitat)[2] (Sourced from NPWS online Conservation Objectives)
	the proposed development boundary	Degraded raised bogs still capable of natural regeneration [7120] **NPWS (2015) Conservation Objectives: *Carn Park Bog SAC 002336.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.**
Castlesampson Esker SAC [001625]	The European site is approx. 9.2km from the proposed development boundary	Turloughs [3180] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] **NPWS (2021) Conservation Objectives: *Castlesampson Esker SAC 001625.* Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.**
Ballynamona Bog and Corkip Lough SAC [002339]	The European site is approx. 9.6km from the proposed development boundary	Turloughs [3180] Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion* [7150] Bog woodland [91D0] **NPWS (2016) Conservation Objectives: *Ballynamona Bog and Corkip Lough SAC 002339*. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.**
Pilgrim's Road Esker SAC [001776]	The European site is approx. 10.2km from the proposed development boundary	Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] **NPWS (2018) Conservation Objectives: *Pilgrim's Road Esker SAC 001776*. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.**
Mongan Bog SAC [000580]	The European site is approx. 10.7km from the proposed development boundary	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion* [7150] **NPWS (2016) Conservation Objectives: *Mongan Bog SAC 000580.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.**
Mongan Bog SPA [004017]	The European site is approx. 10.7km from the proposed development boundary	Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395] **NPWS (2022) Conservation objectives for *Mongan Bog SPA [004017]*. First Order Site Specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.**
Fin Lough (Offaly) SAC [000576]	The European site is approx. 12.0km from the proposed	Alkaline fens [7230] *Vertigo geyeri* (Geyer's Whorl Snail) [1013]

Site name and code	Distance from Operation	Reasons for designation[1] (*= Priority Annex I Habitat)[2] (Sourced from NPWS online Conservation Objectives)
	development boundary	**NPWS (2019) Conservation Objectives: *Fin Lough (Offaly) SAC 000576.* Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.**
Lough Funshinagh SAC [000611]	The European site is approx. 12.5km from the proposed development boundary	Turloughs [3180] Rivers with muddy banks with *Chenopodion rubri p.p*. and *Bidention p.p*. vegetation [3270] **NPWS (2018) Conservation Objectives: Lough Funshinagh SAC 000611. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.**

[1] "Qualifying Interests" for SACs and "Special Conservation Interests" for SPAs based on relevant Statutory Instruments for each SPA, and NPWS Conservation Objectives for SACs downloaded from www.npws.ie in September 2018. Data on NHA/pNHA sites from the site synopsis documents published by the NPWS (where available).

[1] Priority Annex I habitat types are denoted with an "*" and are habitat types which are in danger of disappearance at a European level – from the definition of "priority natural habitat types" in Article 1(d) of the Habitats Directive

4.2 Baseline information

The proposed development site is located along Southern Station Road, Athlone, County Westmeath alongside and on the grounds of Athlone Bus Depot.

Baseline surveys of the site were undertaken by Dr Niamh Burke during 22nd March 2023, 25th of April 2023 and 20th June 2023 to define the habitats and potential for protected species within and close to the proposed development site.

In addition, a desktop reviews (June and July 2023) were carried out to collate the available information on the ecological environment within a 15km radius (or further where an ecological link exists) of the development site. The National Parks and Wildlife (NPWS) database was consulted concerning designated conservation areas, individual site synopsis for each conservation area, conservation objectives, standard Natura 2000 data forms and GIS layering. The following documents were referenced during the desk-top study to inform the Appropriate Assessment and the baseline ecology information:

- Online data available on European sites and habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents.
- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www.biodiversityireland.ie
- Information on the hydrology in the area available from www.epa.ie
- Information on soils, geology and hydrogeology in the area available at www.epa.ie
- Geological Survey Ireland (GSI) online Spatial Resources service. www.gsi.ie
- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- GeoHive online mapping (https://geohive.ie/index.html)

4.2.1 *Geology / Hydrogeology and Soils*

The site is underlain by massive, unbedded lime-mudstone, which is a locally important aquifer with moderately productive bedrock. Subsoils are man-made, and soils are urban.

The underlying Groundwater body is the Inny Groundwater body (Code **IE_SH_G_110)**, which is classed as at 'Good' Status for the period 2016-2021. This groundwater body is considered 'Not at Risk'. Further details on the nature of the hydrogeology at the site and assessment of potential impact, is provided in the Hydrogeology Report, **Appendix E**.

4.2.2 *Hydrology and WFD Status*

The surface water features within the proposed development site include a small, semi-permanent pond situated in the south-west end of the scheme, and a drainage ditch that runs across the centre of the greenfield area of the site. Both features are part of the Shannon [Lower]_SC_010 sub catchment. Broad-leaved pondweed (*Potamogeton natans*), Amphibious bistort (*Persicaria ampibia*) and a small range of emergent macrophytes were present in the ditch at the time of survey.

The drainage ditch hydrologically connects the site to the Upper River Shannon (WFD code IE_SH_26S021800), 385m downstream from the site boundary, west of the scheme footprint.

The current WFD status of the river is classed as 'Poor' defined by biological elements (invertebrates) which represents no improvement from previous WFD cycles of WFD testing – previously also classed as 'Poor' (2013-2018, 2010-2015, 2010-2012 and 2007-2009).

The Athlone Water Treatment Plant abstracts approximately 12,000 m^3/day from the Upper River Shannon to serve a population of roughly 20,000 with drinking water. The surface water feature is considered 'At Risk' of not reaching 'Good' status in the next WFD cycle.

4.2.3 *Habitats recorded at the Proposed site*

This section describes the habitat as recorded currently on the site of the proposed development.

Table 4.2 below list the Fossitt habitat types noted, and Figure 4.2 provides a spatial representation of these habitat within the site.

Table 4.2 Habitats recorded at the proposed site

Fossitt Habitat	Habitat Code
Treeline	WL2
Mixed Woodland	WD1
Scrub	WS1
Dry Meadows / grassy verges	GA1
Wet grassland	GS4
Buildings and artificial surfaces	BL3
Wet woodland	WN6
Tall herb swamp	FS2
Drainage ditch/ lowland stream	FW4/ FW2
Recolonizing bare ground	ED3
Spoil and Bare Ground	ED2
Ornamental / non-native Scrub	WS3

Figure 4.2 Habitats recorded within the site boundary

Tree line (WL2)

Tree lines form part of the site boundary where hedgerows have become overgrown and dominated by trees. Tree lines are present along the lower western boundary and also separating the site from adjacent agricultural grassland along the upper eastern boundary.

This habitat may provide birds with nesting possibilities and bats with somewhere suitable to roost. Tree lines provide shelter and a corridor for wildlife to move.

Tree line species consist of ash (*Fraxinus excelsior*), and sycamore (*Acer pseudoplatanus*). This habitat is considered to be of local importance (higher value).

Mixed Broadleaved woodland (WD1)

The perimeter of the area with vegetation is occupied by either hedgerows tree lines or mix woodland in the case of the station Rd. Boundary. This boundary along the footpath is occupied by a swathe of mixed woodland trees on a fairly steep bank which leads down to the grassland area. Tree species here include Ash, Sycamore, Elder, Willow, Poplar, Hawthorn, and some Alder. hawthorn (*Crataegus*), ivy (*Hedera*), bramble (*Rubus*), honeysuckle (*Lonicera periclymenum*), dogrose (*Rosa canina*), ash (*Fraxinus*), sycamore (*Acer pseudoplatanus*), Poplar (*Populus sp.*), elder (*Sambucus nigra*) and butterfly bush (*Buddleja davidii*). Blackthorn (*Prunus spinosa*) was also present along the western end of the boundary.

This area is of value in its own right but also as good habitat for breeding birds, mammals and invertebrates. This habitat is considered of local importance (higher value).

Scrub (WS1)

Much of the marginal areas of the site are covered with thick stands of scrub vegetation. The area to the north of the vegetated surveyed area is dominated by Bramble with some other tool herbs. The area to the southwest of the site is dominated by goat willow, gorse, dogwood, wild rose, Patches of scrub are also present in the greenfield zone along the southern boundary and in the western corner of the scheme. Species noted here were butterfly bush (*Buddleja davidii*), bramble (*Rubus*), old man's beard (*Clematis vitalba*), and great willowherb (*Eqilobium hirsutum)*. Bluebells (*Hyacinthoides non-scripta)* are present in the ground layer, and several stands of cherry laurel *(Prunus laurocerasus)* also grow in this corner. Both old man's beard and cherry laurel are considered to be invasive non-native species.

This habitat is considered to be of local importance (lower value.)

Wet Woodland (WN6)

A small area to the south of the vegetated western part of the site contains pooled areas of water - apparently due to a drainage issue which has been ongoing for some time. Stands of alder *(Alnus glutinosa)* have grown in this area - between the flowing water feature (ditch / stream) and the southern boundary of the site at 'The Manse'.

This area of habitat is considered to be of local importance (higher value).

Wet grassland (GS4)

Present to the south of the drainage ditch, where scrub and alder have not grown. Species recorded in this sward were creeping buttercup (*Ranunculus repens*), rosebay willowherb (*Chamaenerion angustifolium*), and dock (*Rumex*).

North of the ditch is a more expansive sward of wet grassland, containing grasses and forbs. Species recorded were cleavers (*Galium aparine*), hogweed (*Heracleum sphondylium*), wild carrot (*Daucus carota*), dock (*Rumex*), nettle (*Urtica*), creeping buttercup (*Ranunculus repens*), and rosebay willowherb (*Chamaenerion angustifolium*). This habitat is considered to be of local importance (lower value).

Dry Meadows and Grassy verges GS2)

The area to the northwest of the site - north of the drainage ditch, is covered by a mixture of grasses and tall herbs to include hogweed, nettle, field bindweed, creeping buttercup, great willowherb, chervil, broad-leaved dock, rose-bay willowherb and cleavers. A number of mammal tracks were observed at the outer margins of this area close to the tree line/ woodland steep bank, by station road.

This habitat is considered to be of local importance (lower value).

Drainage Ditch / Lowland Stream (FW4 /FW2)

A drainage ditch runs across the centre of the scheme's greenfield area in a westerly direction from the existing Bus Depot. It is bordered partially by Hawthorn (*Crataegus*). Mallard (*Anas platyrhynchos*) and water hen (*Gallinula chloropus*) were observed on the ditch. This drainage ditch runs into the River Shannon (Upper)_120 (WFD code IE_SH_26S021800), 385m from the scheme footprint.

The water feature (possible historically a stream, now largely culverted, flows slowly in a westerly direction. This drainage feature is culverted at both its eastern and western ends and the habitat

within the site is limited due to the restricted flow regime in this modified channel. This habitat is considered to be of local importance (higher value). Species observed included amphibious bistort (*Persicaria amphibia*), Nathan's potemegaton (*Potamogeton natans*) (instream), watercress (Nasturtium officinale) , lesser water parsnip (*Berula erecta*), watermint (*mentha aquatica*), and horsetail (*equisetum fluviatile*), and great willowherb (epilobium histutum) , hard rush (*Juncus inflexus*) in adjacent areas.

Tall Herb Swamp (FS2)

Within the area where elder have established are 2 pools of shallow water present at all times during the surveys and which support an assemblage of plants which correspond to told herb swamp habitat. Yellow iris and water horse tail dominate, with areas of Willow herb creeping buttercup at the margins.

This habitat is considered to be of local importance (higher value).

Recolonizing Bare Ground (ED3)

Recolonizing bare ground occurs at the western extremity of the vegetated area of the site, near to the access gates from Southern Station road. Areas of rubble also occur around the existing water interceptor – with stones, gravel and broken tarmac. Some pioneer vegetation emerging to include coltsfoot (*Tussilago farfara*) bramble (*Rubus*), butterfly bush (*Buddleja davidii*), pheasant berry (*Leycesteria formosa*), hogweed (*Heracleum sphondylium*), creeping buttercup (*Ranunculus repens*), and goat willow (*Salix caprea*) along the margins.

This habitat is considered to be of local importance (lower value) due to its limited habitat opportunities for wildlife.

Buildings and artificial surfaces (BL3)

Located within the mid-section of the wider site are the existing bus depot buildings and the depot itself, with parking areas for both buses and staff parking. This habitat is considered to be of local importance (lower value), due to its low habitat opportunities for wildlife.

4.2.2 *Flora and Fauna Species*

Mammals

Signs of mammal activity were observed on site at the time of survey. Mammal trails were evident in the grassland area and close to the margins of the wooded areas.

A mammal hole was also located beneath a central stand of hawthorn and elder. A trail camera was installed for a period of 6 weeks to confirm whether the hole was in use and to ascertain if it was in use by Badger. Badger (*meles meles*) are a protected species under the Wildlife Act.

On review of the footage, it revealed that the hole was in use by a family of foxes with four young cubs. Foxes are not a protected species under law, but should be dealt with humanely. Den closure, during the Autumn / early winter months and prior to the next breeding season (December-June) and occupation by cubs, is advised in advance of site clearance works.

There is also marginal cover and vegetation which may be suitable for other small mammals. Such as hedgehog (*Erinaceus europaeus*) and pygmy shrew (*Sorex minutus*), protected under the Wildlife Act, have been recorded in the vicinity (NBDC), and thus is it possible that this species is supported

on site also. These species use hedgerows as wildlife corridors to navigate the landscape safely. The site is thus considered as of **local importance (higher value)** for mammals.

It is also possible that species including west European hedgehog (*Erinaceus europaeus*), and the Eurasian pygmy shrew (*Sorex minutus*) may be present on site, particularly within scrub, treeline, and hedgerow habitats. These species have been reported to NBDC in proximity to the site of the proposed development.

Otter (*Lutra lutra*) have been recorded along the River Shannon.

Birds

Twenty-five bird species were recorded in the study area during the site visit, as listed in Table 4..3 below.

Within the wetland areas and the drainage feature running through the site, two water birds were observed during site surveys, specifically Waterhen (*Gallinula chloropus*) and Mallard (*Anas platyrynchos*).

All bird species, their nests and eggs are protected under the that occur naturally in Ireland are fully protected at all times by the Wildlife Act 1976 and relevant amending legislation.

Breeding bird surveys were undertaken during the period April - June 2023.

In total, 25 bird species were recorded on or near the lands. Of these, 2 were red listed species, 5 were amber listed and 18 were green listed.

Terrestrial species observed on site and on the surrounding lands during the surveys included four amber listed species which were identified as possible breeders; Greats tit, Goldfinch, Bullfinch and Linnet.

Code (BTO)	**Species**	**BoCCI List**
MH	Moorhen (*Gallinula chloropus*) - in stream	Green
HS	House sparrow (*Passer Domesticus*)	Amber
HM	House Martin ((*Delichon urbicum)*	Amber
LI	Linnet (*Linaria cannabina*)	Amber
R.	Robin (*Erithacus rubecula*)	Green
MA	Mallard (*Anas platyrynchos)* - in stream	Amber
BT	Blue tit (Cyanistes caeruleus)	Green
BC	Blackcap (*Sylvia atricapilla*)	Green
D.	Dunnock (*Prunella modularis*)	Green
WR	Wren (*Troglodytes troglodytes*)	Green
CD	Collared Dove (*Streptopelia decaocto*)	Green
ST	Song Thrush (*Turdus philomelos*)	Green
WW	Willow warbler (*Phylloscopus trochilus*)	Green
BF	Bullfinch (*Pyrrhula pyrrhula*)	Green
C.	Carrion crow (*Corvus corone*)	Red
GO	Goldfinch (*Spinus tristis*)	Green

Code (BTO)	Species	BoCCI List
GT	Great Tit (*Parus major*)	Green
LB	Lesser Black-backed Gull (*Larus fuscus)*	Amber
B.	Blackbird (*Turdus merula)*	Green
CH	Chaffinch (*Fringilla coelebs*)	Green
WP	Woodpigeon (*Columba palumbus*)	Green
JD	Jackdaw (*Corvus monedula*)	Green
MG	Magpie (*Pica pica*)	Green
RO	Rook (*Corvus frugilegus*)	Green
SI	Swift (*Apus apus*)	Red

Fig 4.3 Bird species recorded on site during breeding bird surveys.

The majority of the birds observed are relatively common species associated with hedgerow, scrub, semi-urban areas and grassland. Mallard are associated with waterbodies, and were observed by the small semi-permanent pond and within the drainage ditch. Mallard are listed as a qualifying interest of Lough Ree SPA, and although common and widespread in Ireland, the lough Ree SPA had been included in the stage 2 level of this assessment as a result.

No birds of qualifying interest for Middle Shannon Callows SPA; whooper swan, wigeon, corncrake, golden plover, lapwing, black-tailed godwit or black-headed gull were seen during the site visit. Due to its urban nature, the site of the proposed development is not a suitable habitat or foraging ground for these species.

Reptiles and Amphibians

There are no standing water areas or ponds on site that would provide a suitable habitat for breeding smooth newt (*Lissotriton vulgaris*).

No evidence of frog (*Rana temporaria*) presence was observed on the site, however it is possible that frogs are present in the area.

Common lizard (*Lacerta vivipara*) may occur in the general area however the damp shady conditions within the proposed Site are probably unsuited to common lizard which must bask in sunny spots daily to thermoregulate.

Bats

The National Biodiversity Data Centre holds the Bat Conservation Ireland dataset of bat records. Bat species that have been recorded within the vicinity (~ 2km of the site) include brown long-eared bat (*Plecotus auratus*), Daubenton's bat (*Myotis daubentonii*), common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

Bat roost inspections

The 2km NBDC search returned records of one bat species Daubenton's Bat *(Myotis daubentonii*). This species is associate water and will feed on invertebrates in river corridors and over lakes. Given the prevalence of water around the general area, it is unsurprising that Daubenton's might be recorded the

general vicinity. Daubenton's may also use the ditch/ stream within the proposed site as a linear feature on which to commute and forage, although no observations of this species were recorded during the site surveys.

A ground-level assessment of all trees / structures within the site was undertaken on 23rd March 2023, to examine their suitability to support roosting bats and their potential to act as important landscape features for commuting and foraging bats. The site contained no trees with potential roosting features for bats.

The assessment was based on guidelines in Bat Surveys for Professional Ecologists: Good Practice Guidance (Collins, 2016) and included inspections of trees and structures for potential roost features (PRFs), and for signs of bats (staining at roost entrances, droppings, carcasses, insect remains).

During the bat activity survey on 20th June, the perimeter of the site was walked, several passes of the southernmost treeline (along The Manse) by soprano pipistrelle was recorded, and three pipistrelles. One record of one Leisler bat flying overhead near the westernmost boundary of the site was recorded also.

A precautionary approach has been adopted towards the use of the site by roosting, foraging and commuting bats. The bat species identified while carrying out the bat survey were all common species and of "Least Concern" (Nelson et al., 2019). The local bat populations using the proposed development site and the surroundings as foraging and commuting habitat are valued as being of **local importance (higher value).**

Flora

No records of any Annex II plant species were recorded within the footprint of the proposed development during field surveys.

There were no non-native invasive plant species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 identified along or adjacent to the Proposed Development.

The following non-native/ undesirable species were identified within the site boundary - laurel (*Laurus nobilis*), sycamore (*Acer pseudoplatanus*), old man's beard (*Clematis vitalba*), Pheasant berry (*Leycesteria Formosa)* and butterfly bush (*Buddleja davidii*). These species are not listed on the Third Schedule and are therefore not subject to restrictions in Irish Law but are still considered invasive in some habitats and locations.

Laurel is said to have a 'High Impact' risk according to Invasive Species Ireland, with a risk score of 18. Old Mans Beard has a rating of 17. Sycamore and butterfly bush are both considered to have a 'Medium Impact' risk, both with risk scores of 15, and Pheasant berry a risk score of 14.

Care should be taken to remove these species in advance of works, and not to proliferate these species which could spread to other areas in the locality, creating a risk to local biodiversity.

4.3 Potential Impacts Identification of European Sites at Risk of Effects

This section identifies the potential impacts associated with the proposed development, examines if there are pathways of impact with European sites within the Zone of Influence (ZoI) due to effects from the proposed development, and assesses whether there is any risk of the proposed development resulting in a likely significant effect on any European site, either alone or in combination with other plans or projects.

In assessing the potential for the proposed development to result in a likely significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

Identification of Relevant Natura 2000 Sites (Zone of Influence)

The potential zone of influence (ZoI) currently recommended for plans is a distance of 15km from the plan boundary and derives from UK guidance (Scott Wilson et al. 2006). For projects however, the distance could be more or less than 15km, but guidance advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.

A standard source-receptor-pathway conceptual model was used to identify 'relevant' European sites (i.e. those which could be potentially affected). For significant effects to arise, there must be a risk enabled by having all three elements of the Source - Pathway – Receptor model.

- Source(s) – e.g. sediment run-off from construction works at proposed project site
- Receptor(s) – e.g. qualifying habitats and/or species of European Sites
- Pathway(s) – e.g. a watercourse connecting proposed project site to a European site

The identification of a pathway does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. duration of construction works), the characteristics of the pathway (e.g. water quality status of watercourse receiving run-off from construction) and the characteristics of the receptor (e.g. the sensitivities of the European site and its qualifying interests).

Having considered the potential ecological impacts through source-receptor-pathway connectivity (e.g. hydrological link) and given the nature of the proposed works, the Zone of Influence for such project was considered as 15km.

Considering the scale and scope of the proposed development, sufficient distance from the development site and the relative sensitivity and habitat requirements of any mobile species within the sites (eg: mallard, otter), it is considered that negative impacts will not occur on European Sites that have no direct or indirect connectivity to the development site, either alone or in combination with other projects and plans. Therefore, with due consideration, impacts on the conservation objectives of Mongan Bog SPA, Fin Lough (Offaly) SAC and Lough Funshinagh are not considered likely and are thus 'screened out'.

The River Shannon Callows SAC and Middle Shannon Callows SPA are hydrologically connected to the area of proposed works and are thus considered further in this assessment.

Lough Ree SPA is upstream of the proposed site and thus not at risk of hydrological impacts. The site is however included since one species listed as a qualifying interest of Lough Ree SPA was observed during site surveys, and thus the possibility of **Ex-situ impacts** on designated species of the site, must be considered .

River Shannon Callows SAC (Site Code: 000216)

The River Shannon Callows is a long and diverse site which consists of seasonally flooded, semi-natural, lowland wet grassland, along and beside the river between the towns of Athlone and Portumna. It is approximately 50 km long and averages about 0.75 km wide (reaching 1.5 km wide in places). Along much of its length the site is bordered by raised bogs (many, but not all, of which are subject to large-scale harvesting), esker ridges and limestone-bedrock hills. The soils grade from silty-alluvial to peat. The River Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive; molinia meadows, lowland hay meadows, alkaline fens, limestone pavement, alluvial forests and otter (*Lutra lutra*).

The callows plant communities are very diverse in their total number of plant species and include scarce species Meadow-rue (*Thalictrum flavum*), Summer Snowflake (*Leucojum aestivum*) and Marsh Stitchwort (*Stellaria palustris*).

Lowland dry grassland areas within the site, especially where they exist within hay meadows, are species-rich, and of two main types: calcareous grassland on glacial material, and dry grassland on levees of river alluvium. The former can contain many orchid species, Cowslip (*Primula veris*), abundant Adder's-tongue (*Ophioglossum vulgatum*) and Spring-sedge (*Carex caryophyllea*), and both contain an unusually wide variety of grasses. In places summer snowflake (*Leucojum aestivum*) occurs.

Two species which are legally protected under the Flora (Protection) Order, 2015, occur on the site - Opposite-leaved Pondweed (*Groenlandia densa*) in drainage ditches, and Meadow Barley (*Hordeum secalinum*) on dry alluvial grassland. This is one of only two known inland sites for Meadow Barley in Ireland. Green-winged orchid (*Orchis morio*), listed in the Red Data Book is substantial within calcareous grasslands within the site.

This site holds a population of Otter, a species listed on Annex II of the E.U. Habitats Directive, while the Irish Hare, which is listed in the Irish Red Data Book, is a common sight on the callows.

The overarching Conservation Objective for River Shannon Callows Special Area of Conservation is to restore and maintain the favourable conservation conditions of the habitats and species listed as qualifying interests of the site. This includes, as an integral part, the need to avoid deterioration of habitats and significant disturbance; thereby ensuring the persistence of site integrity. Conservation Objectives for River Shannon Callows, based on the principles of favourable conservation status, are described below:

Objective 1: To restore / maintain the favourable conservation conditions of the habitats listed as qualifying interests of River Shannon Callows SAC

Objective 2: To maintain the favourable conservation condition of Otter (Lutra lutra) in River Shannon Callows SAC

Middle Shannon Callows SPA (Site Code: 004096)

The Middle Shannon Callows SPA overlays the River Shannon Callows SAC. It is a long and diverse site which extends for approximately 50 km from the town of Athlone to the town of Portumna; it lies within Counties Galway, Roscommon, Westmeath, Offaly and Tipperary. The site averages about 0.75 km in width though in places is up to 1.5 km wide. Water levels on the site are greatly influenced by the very small fall between Athlone and Portumna and by the weir at Meelick. The site has extensive areas of callow, or seasonally flooded, semi-natural, lowland wet grassland, along both sides of the river. Other habitats of smaller area which occur alongside the river include lowland dry grassland, freshwater marshes, reedbeds and wet woodland.

The diversity of semi-natural habitats present and the sheer size of the site attract an excellent diversity of bird species. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: whooper swan, wigeon, corncrake, golden plover, lapwing, black-tailed godwit and black-headed gull. It holds internationally important populations of whooper swan and black-tailed godwit. It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

A wide range of other species occurs within the site, including mute swan, teal, tufted duck, dunlin, curlew and redshank. Small numbers of Greenland white-fronted goose use the Shannon Callows, generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows. The callow grasslands provide optimum feeding grounds for these various species of waterfowl, while many of the birds also roost or rest within the site.

Quail, a related, scarce species, is also known to breed within the callow grasslands.

A good variety of other bird species are attracted to the site. Birds of prey, including scarce species such as merlin and wintering hen harrier have been recorded hunting over the callows. A range of passerine species associated with grassland and swamp vegetation breed, including sedge warbler, grasshopper warbler, skylark

and reed bunting. Kingfisher is also known to occur within the site. Whinchat, an uncommon breeding species, occurs in small numbers.

The overarching Conservation Objective for Middle Shannon Callows Special Protection Area is to ensure that overwintering waterbird populations and their wetland habitats are maintained at, or restored to, favourable conservation condition. This includes, as an integral part, the need to avoid deterioration of habitats and significant disturbance; thereby ensuring the persistence of site integrity. Conservation Objectives for Middle Shannon Callows Special Protection Area, based on the principles of favourable conservation status, are described below:

Objective 1: To maintain / restore the favourable conservation conditions of the waterbird Special Conservation Interest species listed for Middle Shannon Callows SPA

Objective 2: To maintain the favourable conservation condition of wetlands in Middle Shannon Callows SPA

Lough Ree SPA (Site Code: 004046)

Situated on the River Shannon between Lanesborough and Athlone, Lough Ree is the third largest lake in the Republic of Ireland. It lies in an ice-deepened depression in Carboniferous Limestone. Some of its features (including the islands) are based on glacial drift. The main inflowing rivers are the Shannon, Inny and Hind, and the main outflowing river is the Shannon. The greater part of Lough Ree is less than 10 m in depth, but there are six deep troughs running from north to south, reaching a maximum depth of about 36 m just west of Inchmore. The lake has a very long, indented shoreline and hence has many sheltered bays. It also has a good scattering of islands, most of which are included in the site. Beds of Common Reed (*Phragmites australis*) are an extensive habitat in a number of the more sheltered places around the lake; monodominant stands of Common Clubrush (*Scirpus lacustris*), Slender Sedge (*Carex lasiocarpa*) and Saw Sedge (Cladium mariscus) also occur as swamps in suitable places. Some of these grade into species-rich calcareous fen or freshwater marsh. Lowland wet grassland, some of which floods in winter, occurs frequently around the shore. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Whooper Swan, Wigeon, Teal, Mallard, Shoveler, Tufted Duck, Common Scoter, Goldeneye, Little Grebe, Coot, Golden Plover, Lapwing and Common Tern.

The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Lough Ree is one of the most important Midland sites for wintering waterfowl, with nationally important populations of Little Grebe, Whooper Swan, Wigeon, Teal, Mallard, Shoveler, Tufted Duck, Goldeneye, Coot, Golden Plover and Lapwing. Other species which occur in winter include Great Crested Grebe, Cormorant, Curlew and Black-headed Gull (307) as well as the resident Mute Swan (85). Greenland White-fronted Goose has been recorded on occasion on the flooded margins of the site.

The site supports a nationally important population of Common Tern. It is a traditional breeding site for Black-headed Gull and whilst a full survey has not been carried out in recent years, substantial numbers of nesting birds were present on at least one island in 2003. Lesser Black-backed Gull and Common Gull have bred in the past and may still breed. Lough Ree is a noted site for breeding duck and grebes: Tufted Duck and Great Crested Grebe – records from 1995. Of particular note is that Lough Ree is one of the two main sites in the country for breeding Common Scoter, a Red Data Book species. Cormorant also breeds on some of the islands within the site. The woodland around the lake is a stronghold for Garden Warbler and this scarce species probably occurs on some of the islands within the site. Lough Ree SPA is of high ornithological importance for both wintering and breeding birds. It supports nationally important populations of eleven wintering waterfowl species. The site has a range of breeding waterfowl species, notably nationally important populations of Common Scoter and Common Tern. Of particular note is the regular presence of three species, Whooper Swan, Golden Plover and Common Tern, which are listed on Annex I of the E.U. Birds Directive. Parts of Lough Ree SPA are Wildfowl Sanctuaries.

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

4.4 Findings of the Screening for Appropriate Assessment

The purpose of this section of the screening for appropriate assessment is to examine the possibility that the proposed project, either individually or in combination with other plans and projects, may result in significant negative effects on the Conservation Objectives and the integrity of the Natura 2000 Sites identified, which are potentially affected by the proposed project.

Table 4.3 below presents the criteria against which the impacts of the development may be measured in order to assess potential impacts on European sites.

Table 4.3 Assessment of proposed development against key criteria of the target Natura 2000 sites

	River Shannon Callows SAC	Middle Shannon Callows SPA	Lough Ree SAC	Lough Ree SPA	Crosswood Bog SAC
Describe the individual elements of the project (either alone or in combination with other plans and projects) likely to give rise to impacts on Natura 2000 sites.	The proposed development is outlined in section 3 above. This site is approximately 0.9km distance from the proposed development. Given the nature of the proposed project and the range of qualifying habitats associated with the European sites listed above, the following potential effect pathways include: 1. Water quality impacts during construction 2. Water quality impacts during operation 3. Disturbance of qualifying features during construction 4. Disturbance of qualifying features during operation	This site is approximately 0.9km distance from the proposed development. Given the nature of the proposed project and the range of qualifying habitats associated with the European sites listed above, the following potential effect pathways include: 1. Water quality impacts during construction 2. Water quality impacts during operation 3. Disturbance of qualifying features during construction 4. Disturbance of qualifying features during operation	This site is approximately 1.4km from the proposed development. The site is upstream of the development and thus no hydrological (or other) impacts likely	The site is approximately 1.4km from the proposed development. Given the nature of the proposed project and the range of qualifying habitats associated with the European sites listed above, the following potential effect pathways include: 1. Disturbance of qualifying features during construction 2. Disturbance of qualifying features during operation	The site is approximately 3.8km from the proposed development. No pathway of impact is present. No Impact likely
Describe any likely direct, indirect or secondary impacts of the project on the Natura 2000 Sites • Size and scale; • Land-take; • Distance from Natura 2000 Site	No land take of SPA land will occur as a result of the proposed works.	No land take of SAC land will occur as a result of the proposed works.	No land take of SPA land will occur as a result of the proposed works.	No land take of SAC land will occur as a result of the proposed works.	No Impacts likely

	River Shannon Callows SAC	Middle Shannon Callows SPA	Lough Ree SAC	Lough Ree SPA	Crosswood Bog SAC
• or key features of the Site; • Resource requirements; • Emissions; • Excavation requirements; • Transportation requirements; • Duration of construction, • operation etc					
Describe any likely changes to the site arising as a result of the following: • Reduction of habitat area; • Disturbance of key species; • Habitat or species fragmentation; • Reduction in species density; Changes in key indicators of conservation value; • Climate change	No loss of habitat is foreseen due to the location of the proposed development No habitat or species fragmentation due to the proposed development. Designated habitats of the SPA will not be impacted. There will be no barriers to movement of terrestrial and aquatic species of the Natura 2000 sites due to the proposed construction. Possible Hydrological Impacts Possible disturbance of key mobile QI species	No loss of habitat is foreseen due to distance. Possible disturbance of key mobile QI species	No loss of habitat is foreseen due to distance.	No loss of habitat is foreseen due to distance. Possible disturbance of key mobile QI species	No Impacts likely
Likely impacts on the Natura 2000 sites as a whole • Interference with the Key Relationships that	No significant impact on the structure or function of Natura 2000 sites is predicted due to the proposed project	No significant impact on the structure or function of Natura 2000 sites is predicted due to the proposed project	No significant impact on the structure or function of Natura 2000 sites is predicted due to the proposed project	No significant impact on the structure or function of Natura 2000 sites is predicted due to the proposed project	No Impacts likely

	River Shannon Callows SAC	Middle Shannon Callows SPA	Lough Ree SAC	Lough Ree SPA	Crosswood Bog SAC
Define the Structure of the Natura 2000 Site; • Interference with Key Relationships that Define the site and function of the Natura 2000 Site					

4.4.1 *Summary*

Table 4.3 below summarizes those sites within the ZoI to be considered either screened in or screened out of further (stage 2) Appropriate Assessment.

Table 4.4 AA Screening Conclusion Summary

Site Code	*Natura 2000 Site*	*Distance (km) from Development Site to nearest point*	*Pathway for Effects*
000216	**River Shannon Callows SAC**	***0.9km to south of proposed development***	***Hydrological pathway***
004096	**Middle Shannon Callows SPA**	***0.9km to south of proposed development***	***Hydrological pathway and Ex-Situ effects***
000440	**Lough Ree SAC**	***1.4km to north-west of proposed development***	*No - SAC is upstream of site*
004064	**Lough Ree SPA**	***1.4km to north-west of proposed development***	***Ex-Situ Effects for QI species***
002337	**Crosswood Bog SAC**	***3.8km to south-east of proposed development***	*No - separated by distance no of pathways of impact*

The potential impacts associated with the proposed development have the potential to affect the receiving environment and, consequently, have the potential to affect the conservation objectives supporting the qualifying interest/special conservation interests of the following European sites: River Shannon Callows SAC, Middle Shannon Callows SPA, Lough Ree SPA. **Therefore, an Appropriate Assessment is required to fully assess the nature of these effects and to propose mitigation to avoid and /reduce those effects on these European sites.**

As the proposed development is likely to have effects on the QIs/SCIs or conservation objectives of any European sites, there is also potential for other plans or projects to act in combination with it to result in significant effects on any European sites.

The potential impacts of the proposed development on the receiving environment, their ZoI, and the European sites at risk of significant effects are summarised in Table 4.5 below. In assessing the potential for the proposed development to result in a significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not taken into account.

Table 4.5 Summary of Analysis of Likely Significant Effects on European sites

Potential Direct, Indirect In Combination Effects and the ZoI of the Potential Effects	**Are there any European sites within the ZoI of the proposed development?**
Habitat loss Habitat loss will be confined to the lands outside of European Site boundaries.	**NO** No European sites are within the proposed development boundary, so no habitat loss will occur within the designated areas.

Potential Direct, Indirect In Combination Effects and the ZoI of the Potential Effects	Are there any European sites within the ZoI of the proposed development?
Habitat degradation as a result of hydrological impacts Habitats and species downstream of the proposed development site and the associated surface water runoff during construction.	**YES** There are two European sites at risk of hydrological effects associated with the proposed development
Disturbance and displacement impacts Potentially up to several hundred metres from the proposed development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, taking into account the sensitivity of the qualifying interest species to disturbance effects	**YES** The Shannon Callows SPA and Lough Ree SPA sites are designated for a number of wintering (non-breeding) bird species including Whooper Swan, Mallard, Wigeon, Teal, Golden Plover, Lapwing, Black-tailed Godwit and Black-headed Gull. Further examination of effects on these birds is warranted. The Shannon Callows SAC is designated for Otter.

5 Stage 2 - Statement of Impact for Appropriate Assessment

This section of the NIS assesses the direct and indirect impacts of the Proposed Development on the European sites which fall within its zone of influence. For each of these European sites, the assessment below sets out the relevant ecological baseline information, the analysis of the potential impacts, the qualifying interests/special conservation interests at risk of these potential impacts within the zone of influence in view of the sites' conservation objectives, and the mitigation measures (if required) to avoid/reduce the effects of any potential impacts. The area of the zone of influence for the purposes of this NIS is considered in further detail at 4.3 below.

5.1 Appropriate Assessment Methodology

At Stage 2 Of the Appropriate Assessment process, the impact of a project or plan alone and in combination with other projects or plans on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function.

5.1.1 *Prediction of Impacts*

Prediction of impacts is addressed in the NIS, but the Competent Authority, in considering the information submitted needs to carry out the AA within a structured and systematic framework that is evidence-based. Conclusions should be objective and scientifically grounded. This requires that the types of impact be identified e.g. direct and indirect effects; short- and long-term effects; construction, operational and decommissioning effects; noise, light pollution and disturbance; hydrological effects; pollution, including diffuse pollution; habitat degradation and loss; and isolated, seasonal interactive and cumulative effects. Examples of impact prediction methods are outlined in Figure 5.1 below.

Impact prediction methods for NIS and AA

Direct measurements, for example of areas of habitat lost or affected, can identify proportionate losses from species populations, habitats and communities.

Flow charts, networks and systems diagrams identify chains of impacts resulting from direct impacts; indirect impacts are termed secondary, tertiary, etc. impacts in line with how they are caused. Systems diagrams are more flexible than networks in illustrating interrelationships and process pathways.

Quantitative predictive models provide mathematically derived predictions based on data and assumptions about the force and direction of impacts. Models may extrapolate predictions that are consistent with past and present data (trend analysis, scenarios, analogies which transfer information from other relevant locations) and intuitive forecasting. Normative approaches to modelling work backwards from a desired outcome to assess whether the proposed project will achieve these. Some commonly used models predict the dispersal of pollutants in air, soil erosion, sediment loading of streams, and oxygen sag in polluted rivers.

Geographical information systems (GIS) can be used to produce models of spatial relationships, such as constraint overlays, or to map sensitive areas and locations of habitat loss or vulnerability. GIS are a combination of computerised cartography, storing map data, and a database management system, storing attributes such as land use and slope. GIS enable the variables stored to be displayed, combined, and analysed speedily.

Information from previous similar projects may be useful, especially if quantitative predictions were made initially and have been monitored in operation.

Expert opinion and judgment can be derived from previous experience and consultations.

Figure 5.1 Examples of impact prediction methods (From EC(2002), Box 8)

In assessing the potential impacts of the proposed development on the Qualifying interests of the River Shannon Callows SAC and Middle Shannon Callows SPA, a combination of direct measurements relative to the nature of the risks assessed, of international and national data, information from other projects and site surveys, and expert opinion was used to assess the risk of impact on QI species and on site integrity, and to devise suitable and effective measure to avoid or reduce any potential impacts such that that there will be no effect on site integrity.

5.2 River Shannon Callows SAC

5.2.1 *Ecological Overview of River Shannon Callows SAC*

The River Shannon Callows is a Special Area of Conservation (SAC), (Site Code 000216), and is also designated as a proposed Natural Heritage Area (pNHA) (Site Code 000216). It is a long and diverse site which consists of seasonally flooded, semi-natural, lowland wet grassland, along and beside the river between the towns of Athlone and Portumna. It is approximately 50 km long and averages about 0.75 km wide. Along much of its length the site is bordered by raised bogs (many, but not all, of which are subject to large-scale harvesting), esker ridges and limestone-bedrock hills. The soils grade from silty-alluvial to peat.

Two habitats listed on Annex I of the E.U. Habitats Directive are well-represented within the site – Molinia meadows and lowland hay meadows.

A further two Annex I habitats, both listed with priority status, have a minor though important presence within the site. Alluvial forest occurs on a series of alluvial islands just below the ESB weir near Meelick. Several of the islands are dominated by well-grown woodland consisting mainly of Ash (Fraxinus excelsior) and Willows (Salix spp.).

At Clorhane, an area of limestone pavement represents the only known example in Co. Offaly

South of Portumna Bridge and southeast of the town of Portumna the area of low-lying terrestrial land west of the river comprises are large area of the Annex I habitat alkaline fen. The fen comprises a complex of rich-fen plant communities. The orchids Early Marsh Orchid (Dactylorhiza incarnata), Western Marsh Orchid (D. majalis) and Marsh Helloborine (Epipactis palustris) and the red-listed plant species Marsh Pea (Lathyrus palustris) have been recorded within the fen.

Two species which are legally protected under the Flora (Protection) Order, 2015, occur in the site - Opposite-leaved Pondweed (Groenlandia densa) in drainage ditches, and Meadow Barley (Hordeum secalinum) on dry alluvial grassland. This is one of only two known inland sites for Meadow Barley in Ireland. The Red Data Book plant Green-winged Orchid is known from dry calcareous grasslands within the site.

This site holds a population of Otter, a species listed on Annex II of the E.U. Habitats Directive, while the Irish Hare, which is listed in the Irish Red Data Book, is a common sight on the Callows.

The main concern threatening the integrity of the River Shannon Callows SAC is habitat degradation through run-off during the construction phase leading to pollution and sedimentation. Two habitats listed on Annex I of the E.U. Habitats Directive are well-represented within the European site; Molinia meadows and lowland hay meadows, approximately 6km downstream of the proposed development site. Additionally, there are Alkaline Fens near Portumna, Limestone Pavement at Clorhane, and Alluvial Forests on a series of islands near Meelick.

5.3 Middle Shannon Callows SPA

5.3.1 *Ecological Overview of Middle Shannon Callows SPA*

Middle Shannon Callows is a Specially Protected Area (SPA), (Site Code 004096), extending for approximately 50km from the town of Athlone to the town of Portumna; lying within Counties Galway, Roscommon, Westmeath, Offaly and Tipperary. Water levels on the site are greatly influenced by the very small fall between Athlone and Portumna and by the weir at Meelick.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Whooper Swan, Wigeon, Corncrake, Golden Plover, Lapwing, Black-tailed Godwit and Black-Headed Gull. It is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The callow grasslands provide optimum feeding grounds for these various species of waterfowl, while many of the birds also roost or rest within the site.

The Middle Shannon Callows SPA is an internationally important site that supports an assemblage of over 20,000 wintering waterbirds. It holds internationally important populations of two species - Whooper Swan and Black-tailed Godwit. In addition, there are four species that have wintering populations of national importance. The site was formerly a stronghold for Corncrake and supported a breeding population. However, summer flooding caused their extinction in the area in 2010. Of

particular note is that several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Corncrake and Golden Plover.

No birds of qualifying interest for Middle Shannon Callows SPA; whooper swan, wigeon, corncrake, golden plover, lapwing, black-tailed godwit or black-headed gull were observed during the site surveys, nor in desk study record of the vicinity of the site. The habitat on site is not considered suitable for these species which largely favour more open wetlands - either inland lakes or coastal areas.

Due to its urban nature, the site of the proposed development is not an ideal habitat nor foraging ground for these species which are unlikely to be present in the vicinity of the development.

5.4 Lough Ree SPA

5.4.1 *Ecological Overview of Lough Ree SPA*

Situated on the River Shannon between Lanesborough and Athlone approximately 1.4km upstream of the proposed site, Lough Ree is the third largest lake in the Republic of Ireland. It lies in an ice-deepened depression in Carboniferous Limestone. Some of its features (including the islands) are based on glacial drift.

Lough Ree is one of the most important Midland sites for wintering waterfowl, with nationally important populations of Little Grebe (52), Whooper Swan (139), Wigeon (2,070), Teal (1,474), Mallard (1,087), Shoveler (54), Tufted Duck (1,012), Goldeneye (205), Coot (338), Golden Plover (3,058) and Lapwing (5,793) – all figures are three year mean peaks for the period 1997/98 to 1999/2000. Other species which occur in winter include Great Crested Grebe (29), Cormorant (99), Curlew (254) and Black-headed Gull (307) as well as the resident Mute Swan (85). Greenland White-fronted Goose has been recorded on occasion on the flooded margins of the site. The site supports a nationally important population of Common Tern (90 pairs in 1995). It is a traditional breeding site for Black-headed Gull and whilst a full survey has not been carried out in recent years, substantial numbers of nesting birds were present on at least one island in 2003. Lesser Black-backed Gull and Common Gull have bred in the past and may still breed. Lough Ree is a noted site for breeding duck and grebes in particular Tufted Duck and Great Crested Grebe. Of particular note is that Lough Ree is one of the two main sites in the country for breeding Common Scoter, a Red Data Book species.

Lough Ree SPA is of high ornithological importance for both wintering and breeding birds. It supports nationally important populations of eleven wintering waterfowl species. The site has a range of breeding waterfowl species, notably nationally important populations of Common Scoter and Common Tern. Of particular note is the regular presence of three species, Whooper Swan, Golden Plover and Common Tern, which are listed on Annex I of the E.U. Birds Directive

One species (Mallard), designated as a qualifying interest of the Lough Ree SPA was observed at the proposed site location during the 2023 surveys. Due to its urban nature, the site of the proposed development is not an ideal habitat nor foraging ground for other designated species which are unlikely to be present in the vicinity of the development.

5.5 Assessment of Impact on European Sites

The Qualifying Interests of River Shannon Callows SAC, Middle Shannon Callows SPA and Lough Ree SPA and their overall Conservation Objectives, are listed below in Table 5.6. The below sections will examine the potential impacts and establish their significance in the context of the risk of affecting the integrity of the European sites, as defined by conservation objectives.

Table 5.1 Qualifying Interests and Conservation Objectives of River Shannon Callows SAC, Middle Shannon Callows SPA and Lough Ree SPA

Qualifying Interest(s)	Conservation Objective(s)
River Shannon Callows SAC [000216] • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] • Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) [6510] • Alkaline fens [7230] • Limestone pavements [8240] • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0] • *Lutra lutra* (Otter) [1355] NPWS (2022) Conservation Objectives: River Shannon Callows SAC 000216. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage	**(Generic Site Objective):** **To maintain or restore the favourable conservation condition of the habitats and species listed as Qualifying Interests for this SAC.**
Middle Shannon Callows SPA [004096] • Whooper Swan (*Cygnus cygnus*) [A038] • Wigeon (*Anas penelope*) [A050] • Corncrake (*Crex crex*) [A122] • Golden Plover (*Pluvialis apricaria*) [A140] • Lapwing (*Vanellus vanellus*) [A142] • Black-tailed Godwit (*Limosa limosa*) [A156] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Wetland and Waterbirds [A999] NPWS (2022) Conservation Objectives: Middle Shannon Callows SPA 004096. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.	**(Generic Site Objective):** **To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.**
Lough Ree SPA [004046] • Little Grebe (*Tachybaptus ruficollis*) [A004] • Whooper Swan (*Cygnus cygnus*) [A038] • Wigeon (*Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Mallard (*Anas platyrhynchos*) [A053] • Shoveler (*Anas clypeata*) [A056] • Tufted Duck (*Aythya fuligula*) [A061] • Common Scoter (*Melanitta nigra*) [A065]	**(First-Order Site Objective):** **To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.**

Qualifying Interest(s)	Conservation Objective(s)
• Goldeneye (*Bucephala clangula*) [A067] • Coot (*Fulica atra*) [A125] • Golden Plover (*Pluvialis apricaria*) [A140] • Lapwing (*Vanellus vanellus*) [A142] • Common Tern (*Sterna hirundo*) [A193] • Wetland and Waterbirds [A999]	

A site-specific conservation objectives document sets out the specific **attributes, measures and targets** that define the favourable conservation condition of the qualifying interests within each European site.

Impacts affecting the conservation condition of the qualifying interests/special conservation interests is deemed to constitute an adverse effect on the **integrity of a European site**.

The impacts outlined in this report are measured against the site-specific conservation targets for each European site screened into the assessment.

Impacts predicted are considered for each sites' qualifying interest and the conservation targets set for each attribute of the QI, as defined by a quantifiable 'measure'. Table 6.1 details these attributes, measure and targets against potential impacts for the European sites being assessed in the stage 2 assessment.

5.5.1 *Threats and Pressures*

The threats and pressures to the Qualifying Interests defined for **River Shannon Callows SAC**, **Middle Shannon Callows SPA** and **Lough Ree SPA** are defined according to Natura 2000 Standard data forms and shown below in tables 5.5, 5.6 and 5.7.

A Standard Data Form is an EU document used to collate ..*"necessary information to enable the European Commission, in partnership with all Member States, to coordinate measures to create and maintain a coherent NATURA 2000 network and to evaluate its effectiveness for the conservation of Annex I habitats and for the habitats of species listed in Annex II to Directive 92/43/EEC as well as the habitats of Annex I bird species and other migratory bird species covered by Directive 2009/147/EC".*

The link to the online Standard Data Form for **River Shannon Callows SAC** is provided below:

http://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=IE0000216

Table 5.2: Threats and Pressures recorded for Middle Shannon Callows SAC

Rank (Low, Med, High)	Threats and pressures (Code)	Threats and pressures	inside/outside of site [i|o|b]
L	G01	outdoor sports and leisure activities, recreational activities	i
M	J02.11	siltation rate changes, dumping, depositing of dredged deposits	i
M	J02.05.02	modifying structures of inland water courses	i
L	F03.01	hunting	both
M	A04.01	intensive grazing	i
L	C01.03.02	mechanical removal of peat	i
L	J02.01	landfill, land reclamation and drying out	i
H	A03.03	Abandonment/ lack of mowing	i
L	G05.01	trampling, overuse	i
M	B02.02	forestry clearance	i
L	D01.01	paths, tracks, cycling tracks	i
M	K03.04	predation	Both
	A04.03	abandonment of pastoral systems, lack of grazing	i
H	A07	use of biocides, hormones and chemicals	i
	A04.02.05	non intensive mixed animal grazing	i
H	A10.01	removal of hedges and copses or scrub	i
L	J02.05	modification of hydrographic functioning	i
L	J02.04.01	flooding	i
M	A08	fertilization	i
L	B06	grazing in forests /woodland	i

The link to the online Standard Data Form for **Middle Shannon Callows SPA** is provided below:

https://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=IE0004096

Table 5.3: Threats and Pressures recorded for Middle Shannon Callows SPA

List of Negative Impacts on site:

Rank (Low, Med, High)	**Threats and pressures (Code)**	**Threats and pressures**	**inside/outside of site [i|o|b]**
L	A04.03	Abandonment of pastoral systems, lack of grazing	i
H	A04	Grazing	i
H	E01	Urbanised areas, human habitation	o
L	D01.01	Paths, tracks, cycling tracks	i
H	D01.05	Bridge, viaduct	i
H	G01.01	Nautical sports	i
M	A08	Fertilisation	o
L	A08	Fertilisation	i
M	G01.02	Non-motorised nautical sports	i
L	F03.01	Hunting	i
M	F02.03	Leisure fishing	i

The link to the online Standard Data Form for **Lough Ree SPA** is provided below:

http://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=IE0004064

***Table 5.3: Threats and Pressures recorded for* Lough Ree SPA**

List of Negative Impacts on site:

Rank (Low, Med, High)	Threats and pressures (Code)	Threats and pressures	inside/outside of site [i|o|b]
M	A04	Grazing	i
L	B	Sylviculture, forestry	i
M	I01	Invasive, non-native species	o
M	A08	Fertilisation	o
H	G01.01	Nautical sports	i
M	G01.02	Walking, Horse-riding and non-motorized vehicles	
M	F03.01	Hunting	
M	F02.03	Leisure fishing	i

5.6 Examination and Analysis of Potential Direct and Indirect Impacts

The direct and/or indirect impacts by which the Proposed Development could (in the absence of mitigation measures) potentially affect the conservation objective attributes and targets (table 5.3), supporting the conservation condition of the qualifying interests of **River Shannon Callows SAC and Middle Shannon Callows SPA,** are:

- Habitat degradation as a result of hydrological impacts
- Disturbance and displacement impacts

5.7 River Shannon Callows SAC- Potential Impacts

5.7.1 *Construction phase impacts*

Habitat degradation as a result of hydrological impacts

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, (or operation), has the potential to affect water quality in the receiving aquatic environment.
A reduction in water quality could degrade habitats associated with the River Shannon Callows SAC and have impacts on the quality of prey fish for the QI species associated with the SAC site (ie: Otter), with knock-on effects for their health. **Mitigation to reduce impacts on Middle Shannon Callows SAC during site works is proposed**.

The other Qualifying Interests of this European site are not considered to be at risk due their largely terrestrial nature, and their distance from the proposed site, as listed below:

Qualifying interest	Distance from site
6410 Molinia meadows	6.0km downstream
6510 Lowland Hay meadows	6.1km downstream
7230 Alkaline fens	51km downstream
8240 Limestone pavements*	19.7km downstream
91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior	36km downstream

Table 5.4 Distance of specific Qualifying Interests as derived from River Shannon Callows SAC Conservation Objectives habitat maps 3 to 6.

Disturbance and displacement impacts

Otter are unlikely to frequent the drainage features at the site, due to suboptimal instream foraging habitat and lack of connectivity as a result of culverting. The site does not represent suitable habitat for otter. Disturbance impacts on the population of otter for which this site is in part designated, are therefore not anticipated as a result of habitat removal or disturbance.

5.7.2 *Operational Phase Impacts*

Operational on-site drainage will include a new surface water sewer network which will be entirely separated from the foul water sewer network. Surface water run-off from existing hardstanding areas are to be collected by a gravity pipe network.

All storm water run-off from hard paved surfaces will be collected via trapped gullies, thereby ensuring removal of detritus and floating contaminates. As part of the Sustainable Urban Drainage (SUDs) design there will be an attenuation system incorporated into the proposed stormwater drainage design. The bus depot drainage area will pass through an attenuation storage tank and a petrol interceptor. The interceptors will be subject to regular maintenance / cleaning to ensure suitable operation is maintained long term.

A hydrobrake provided downstream of the attenuation system will limit forward flow to existing run-off rates as per the Development Plan requirements.

It is proposed to retain a wetland area in the Southwest corner of the site. This will be achieved through directing water from the existing drain coming from St Francis Terrace under the road and into the wetlands where it can then overflow into the outlet under the Coosan Point Road. A detailed drainage plan – which includes wastewater and surface runoff, is provided in **Appendix D**.

These SuDS measures allow a level of treatment and/or attenuation to be provided before discharge to the network, reducing the impact on water quality as well as preventing an increase in runoff rates.

There is thus no significant additional risk posed as a result of a hydrological pathway for the new development, from an operational perspective.

5.7.2.1 Impacts via Groundwater

Since the above-outlined SuDS measures and proposed drainage network allow a level of treatment and/or attenuation to be provided before discharge to the network, and limited contact with the groundwater in the area, there is no additional impact foreseen for the **Inny groundwater waterbody**.

The range of measures including SuDS systems installed during the Construction Phase will reduce both the volume and rate of surface waters discharging into the existing surface water drainage network, as well as improving the environmental quality of any such discharges during the Operational Phase of the Proposed Scheme.

These standard drainage design controls have been proven through widespread use in developments across the country. The proposed SuDs drainage system incorporated into the engineering design of the site are common drainage systems that are used in most development types. They are proposed and designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS, 2005). Once the Proposed Scheme is in operation, the Local Authority will be required to implement a maintenance and inspection regime (and / or emergency repairs if necessary). No additional mitigation is required.

There is thus no significant additional risk posed via hydrogeological pathways, as a result of the new development, from an operational perspective.

5.7.3 *WFD Status*

Since no risk is posed to the SPA via hydrological pathways, it can be asserted that the core objectives of the Water Framework Directive, i.e. to '*prevent deterioration of the status of all bodies of surface water*' and '*prevent the deterioration of the status of all bodies of groundwater*' are also upheld.

5.8 Middle Shannon Callows SPA – Potential Impacts

5.8.1 *Construction phase Impacts*

Habitat degradation as a result of hydrological impacts

The release of contaminated surface water runoff and/or an accidental spillage or pollution event into any surface water features during construction, (or operation), has the potential to affect water quality in the receiving aquatic environment.
A reduction in water quality could degrade habitats associated with the Middle Shannon Callows SPA and have impacts on the quality of prey fish or food plant material for the QI species associated with the SPA site; Whooper swan, Golden plover, Lapwing, Black-tailed godwit, Black-headed gull, Widgeon or Corncrake with knock-on effects for their health. **Mitigation to reduce impacts on sites during site works is proposed.**

Disturbance and displacement impacts

A temporary and / or permanent increase in noise, vibration and / or human activity levels during the construction and / or operation of the proposed development has the potential for disturbance to and / or displacement of SCI bird species present within the vicinity of the Proposed Development. Such disturbance effects would not be expected to extend beyond a distance of c. 300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance and beyond.

The presence of bird species designated as qualifying interests of the Middle Shannon Callows SPA within the site's small semi-permanent wetland area or drainage ditch is highly unlikely. However, the use of large machinery and high traffic levels during the construction stage of works could amount to a level of disturbance for any birds that may be utilizing these habitats and those within a distance of c.300m, which is the accepted distance within which noise impacts may be typically considered to have any potential impact on bird species from a disturbance perspective[3]. Considering that the distance from the site to the SPA is over 300m, signification effects are not expected due to disturbance effects at the proposed site.

The sole QI species of the Middle Shannon Callows SPA that may utilize these habitats is the Wigeon (*Anas penelope*) a species of duck, although no records of this species occurrence at the site exist. Nonetheless as a duck species, it is considered that they may use the still water habitat in the way that Mallard, observed at the site, do (albeit Wigeon as a winter visitor). However, it is considered that there is availability of a wide range of alternative habitat more suitable for Wigeon in the vicinity of the proposed development site, along the River Shannon. The species is thus not at risk of impact as a result of the proposed works.

There is no suitable habitat on site for the other QI species of the Middle Shannon Callows SPA; Whooper swan, Golden plover, Lapwing, Black-tailed godwit, Black-headed gull, or Corncrake, and are therefore not at risk of disturbance impacts from the construction phase due to the distance between the SPA and the development site.

5.8.2 *Operational phase impacts*

Potential operational phase disturbance/displacement impacts include the following:

- Disturbance Impacts due to Traffic (human and vehicular)
- Hydrological Impacts due to hydrocarbons/pollutants

Disturbance Impacts

Human traffic is and will be prevalent in this area as it is within the central urban area of Athlone, with both Use of the N55 road and junction, and bus traffic present on the site into the future.

The semi-permanent wetland area will be removed as part of the proposed development, although a wetland area has been designed to compensate for the loss in wetland habitat.

As described above, there is no suitable habitat on site for the QI species of the **Middle Shannon Callows SPA;** Whooper swan, Golden plover, Lapwing, Black-tailed godwit, Black-headed gull, Widgeon or Corncrake, nor of the **River Shannon Callows SAC;** Otter. Therefore, these species are not at risk of disturbance impacts.

Finally, in the unlikely event that there is presence off any mobile QI species on the proposed site, and disturbance events do occur, it is considered that there is ample alternative foraging in the vicinity outside

[3] Current understanding of construction related noise disturbance to wintering waterbirds is based on the research presented in Cutts *et al.* (2009) and Wright *et al*. (2010). In terms of construction noise, levels below 50dB would not be expected to result in any response from foraging or roosting birds. Noise levels between 50dB and 70dB would provoke a moderate effect/level of response from birds, i.e. birds becoming alert and some behavioural changes (e.g. reduced feeding activity), but birds would be expected to habituate to noise levels within this range. Noise levels above 70dB would likely result in birds moving out of the affected zone, or leaving the site altogether. At c. 300m, typical noise levels associated with construction activity (BS 5228) are generally below 60dB or, in most cases, are approaching the 50dB threshold.

the disturbance ZoI to which birds could go within the SAC and SPA sites so as to ensure no population level effect for these species due to activity on the site.

Hydrological Impacts

Operational on-site drainage will include a new surface water sewer network which will be entirely separated from the foul water sewer network. Surface water run-off from existing hardstanding areas are to be collected by a gravity pipe network.

All storm water run-off from hard paved surfaces will be collected via trapped gullies, thereby ensuring removal of detritus and floating contaminates. As part of the Sustainable Urban Drainage (SUDs) design there will be an attenuation system incorporated into the proposed stormwater drainage design. The bus depot drainage area will pass through an attenuation storage tank and a petrol interceptor. The interceptors will be subject to regular maintenance / cleaning to ensure suitable operation is maintained long term.

A hydrobrake provided downstream of the attenuation system will limit forward flow to existing run-off rates as per the Development Plan requirements.

It is proposed to retain a wetland area in the Southwest corner of the site. This will be achieved through directing water from the existing drain coming from St Francis Terrace under the road and into the wetlands where it can then overflow into the outlet under the Coosan Point Road. A detailed drainage plan – which includes wastewater and surface runoff, is provided in **Appendix D**.

These SuDS measures allow a level of treatment and/or attenuation to be provided before discharge to the network, reducing the impact on water quality as well as preventing an increase in runoff rates.

There is thus no significant additional risk posed due to hydrological pathways from the new development, from an operational perspective.

5.8.3 *WFD Status*

Since no risk is posed to the SAC via hydrological pathways, it can be asserted that the core objectives of the Water Framework Directive, i.e. to '*prevent deterioration of the status of all bodies of surface water*' and '*prevent the deterioration of the status of all bodies of groundwater*' are also upheld.

5.9 Lough Ree SPA

5.9.1 *Construction phase Impacts*

Habitat degradation as a result of hydrological impacts

No potential construction phase impacts are foreseen for Lough Ree SPA, due to distance (1.4km) from the site and due to the European site's upstream location.
There is thus no significant risk posed as a result of hydrological impacts for the new development, from an construction perspective.

Disturbance and displacement impacts

A temporary and / or permanent increase in noise, vibration and / or human activity levels during the construction and / or operation of the proposed development has the potential for disturbance to and / or displacement of SCI bird species present within the vicinity of the Proposed Development. Such

disturbance effects would not be expected to extend beyond a distance of c. 300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance and beyond.

The presence of Mallard duck, a species designated as qualifying interest of the Lough Ree SPA was observed during the spring surveys 2023, within the site's small semi-permanent wetland area.

Other QI species of the Lough Ree SPA that may potentially utilize these habitats maybe other SPA duck species or Coot (*Fulica atra*), although there are no records of these species at the site.

Mallard are less sensitive than the above species which are largely winter visitors (as opposed to the resident Mallard) and generally show a preference for larger water bodies, and Tufted duck would not forage on the proposed site lands since their main food source are invertebrates (bivalves in particular). It should also be stated that there is availability of alternative sites more suitable for any duck species (or Coot) in the vicinity of the proposed development site along the River Shannon. The species is thus not at risk of impact as a result of the proposed works. In particular, Mallard and Coot are resident and very widespread species in Ireland and would not be at risk in the event of loss of this area of ex-situ habitat.

There is no suitable habitat on site for the other QI species of the Lough Ree SPA; Little Grebe, Whooper swan, Shoveler, Common Scoter, Goldeneye, Golden Plover, Lapwing and Common Tern, which are therefore not at any risk of disturbance impacts from the construction phase.

The use of large machinery and high traffic levels during the construction stage of works could amount to a level of disturbance for any birds that may be utilizing these habitats and those within a distance of c.300m, which is the accepted distance within which noise impacts may be typically considered to have any potential impact on bird species from a disturbance perspective[4]. Considering that the distance from the site to SPA is over 1400m, significant effects are not expected due to disturbance (noise) effects at the proposed site. It should also be stated that for those species potentially using the lands (such as Mallard or Coot), the availability of alternative nearby sites in the vicinity of the proposed development, along the River Shannon or its lakes, means that no significant impacts are foreseen as a result of any on-site disturbance. There is thus no significant risk posed as a result of disturbance / displacement impacts for the new development, from an operational perspective.

5.9.2 *Operational phase impacts*

No potential operational phase impacts are foreseen for Lough Ree SPA, due to distance (1.4km) from the site (in relation to disturbance effects) nor for hydrological effects due to the sites' upstream location.
There is thus no significant risk posed as a result of disturbance / displacement impacts or hydrological impacts for the new development, from an operational perspective.

[4] Current understanding of construction related noise disturbance to wintering waterbirds is based on the research presented in Cutts *et al.* (2009) and Wright *et al*. (2010). In terms of construction noise, levels below 50dB would not be expected to result in any response from foraging or roosting birds. Noise levels between 50dB and 70dB would provoke a moderate effect/level of response from birds, i.e. birds becoming alert and some behavioural changes (e.g. reduced feeding activity), but birds would be expected to habituate to noise levels within this range. Noise levels above 70dB would likely result in birds moving out of the affected zone, or leaving the site altogether. At c. 300m, typical noise levels associated with construction activity (BS 5228) are generally below 60dB or, in most cases, are approaching the 50dB threshold.

5.10 Summary

To summarize, the potential effects of the proposed works are related to hydrological degradation during both construction and operational phases of the development, and disturbance impacts associated respectively with runoff from the site area and with site noise and visual impacts, chiefly during the construction phase of the development.

Potential impacts identified are the degradation of water quality and subsequent negative effects on prey species on the qualifying interests of **Middle Shannon Callows SPA** of the **River Shannon Callows SAC**. These potential impacts are considered in further detail below, and mitigation measures to prevent or minimise impacts during both construction and operational phases, outlined.

6 Mitigation Proposed

Table 6.1 describes the potential impacts of the Proposed Development on the qualifying interests and conservation objectives of the River Shannon Callows SAC and the Middle Shannon Callows SPA and indicates where mitigation measures if any, should be applied to avoid or reduce impacts on these sites.

Regarding the QIs of the River Shannon Callows SAC, the integrity of the designated habitats: Molinia Meadows, Lowland Hay Meadows, Alkaline Fens, Limestone Pavement and Alluvial Forests habitats are not at risk from the proposed development due to distance and dilution and to their largely terrestrial nature. Ony the Otter as a designated species for this site, has been considered in the context of the mitigation measures described below.

A full description of those measures is provided in the subsequent sections 6.1, to 6.5.

The following section describes the potential impacts on the conservation objectives of each of the sites in question and outlines the mitigation measures proposed to avoid and reduce impacts on those sites, such that the residual effect is reduced to ‘insignificant’.

Table 6.1 Potential impacts and proposed mitigation for River Shannon Callows SAC and Middle Shannon Callows SPA

River Shannon Callows SAC			
Otter (*Lutra lutra*) [1355] To maintain the favourable conservation condition of Otter (*Lutra lutra*) in River Shannon Callows SAC, which is defined by the following list of attributes and targets:			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Distribution / Percentage positive survey sites / No significant decline	No direct impacts predicted. Possible indirect impacts if water quality affected	The mitigation measures described in Section 6.2 to protect water quality in the receiving environment will ensure that surface water quality in River Shannon Callows SAC is protected during construction and operation of the Proposed Development.	No
Extent of terrestrial habitat / Hectares / No significant decline. Area mapped and calculated as 282.1ha			
Extent of freshwater (river) habitat / Kilometres / No significant decline. Length mapped and calculated as 146.7km			
Couching sites and holts / Number / No significant decline			
Fish biomass available / Kilograms / No significant decline			
Barriers to connectivity / Number / No significant increase			

Qualifying Interest Habitats:

- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]
- Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) [6510]
- Alkaline fens [7230]
- Limestone pavements [8240]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0]

To restore the favourable conservation condition of the above habitats in River Shannon Callows SAC

No Impacts on these habitats foreseen as described above

Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Habitat area / Hectares / Area stable or increasing, subject to natural processes	No direct impacts predicted. No indirect impacts predicted	N/A	No
Habitat distribution / Occurrence / No decline, subject to natural processes			
Vegetation composition: positive indicator species / Number / number of positive indicator species present			
Vegetation composition: negative indicator species / Percentage cover at a representative monitoring stops / Negative indicator species at a sustainable level			
Vegetation composition: non-native species / Percentage cover / Cover of non-native species			

Middle Shannon Callows SPA			
Whooper Swan (*Cygnus cygnus*) [A038], Wigeon *(Anas penelope*) [A050], Corncrake (*Crex crex*) [A122], Golden Plover (*Pluvialis apricaria*) [A140], Lapwing (*Vanellus vanellus*) [A142], Black-tailed Godwit (*Limosa limosa*) [A156], Black-headed Gull (*Chroicocephalus ridibundus*) [A179], Wetland [A999] **NPWS (2022) Conservation Objectives: *Middle Shannon Callows SPA 004096*. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage**To restore the favourable conservation condition of wigeon in Middle Shannon Callows SPA, which are defined by the following list of attributes and targets:			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Winter population trend / Percentage change in number of individuals / Long term winter population trend is stable or increasing	Possible indirect impacts if water quality affected	The mitigation measures described in Section 6.2 to protect water quality in the receiving environment will ensure that surface water quality in Middle Shannon Callows SPA is protected during construction and operation of the Proposed Development.	
Winter spatial distribution / Hectares, time and intensity of use / Sufficient number of locations, area, and availability (in terms of timing and intensity of use) of suitable habitat to support the population target			
Disturbance at wintering site / Intensity, frequency, timing and duration / The intensity, frequency, timing and duration of disturbance occurs at levels that do not significantly impact the achievement of targets for population trend and spatial distribution			
Barriers to connectivity and site use / Number, location, shape and hectares / The number, location, shape and area of barriers do not significantly impact the wintering population's access to the SPA or other ecologically important sites outside the SPA			
Forage spatial distribution, extent and abundance / Location and area, and available forage biomass / Sufficient number of locations, area of suitable habitat and available forage biomass to support the population target			

Roost spatial distribution and extent / Location and hectares of roosting habitat / Sufficient number of locations, area and availability of suitable roosting habitat to support the population target			
Supporting habitat: area and quality / Hectares and quality / Sufficient area of utilisable habitat available in ecologically important sites outside the SPA			
Wetlands [A999] To maintain the favourable conservation condition of wetlands in Middle Shannon Callows SPA, which is defined by the following list of attributes and targets:			
Conservation Objectives **Attribute/Measure/Target**	**Potential Impacts**	**Mitigation measures**	**Residual Impacts**
Wetland habitat area / Hectares / No significant loss to wetland habitat within the SPA, other than that occurring from natural patterns of variation	Possible indirect impacts if water quality affected	The mitigation measures described in Section 6.2 to protect water quality in the receiving environment will ensure that surface water quality in Middle Shannon Callows SPA is protected during construction and operation of the Proposed Development.	
Wetland habitat quality and functioning / Quality and function of the wetland habitat / No significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation			

6.1 Mitigation Measures

This section presents the mitigation measures that will be implemented during construction and operation to avoid or reduce the potential impacts of the Proposed Development on Shannon Callows SAC and Middle Shannon SPA. All of the mitigation measures will be implemented in full and are best practice, and tried and tested, effective control measures to protect the receiving environment.

6.2 Measures to Protect Water Quality during Construction

An **Ecological Clerk of Works (ECoW)** will be engaged to oversee the implementation of the proposed mitigation measures for the construction phase. The ECoW will provide a briefing / toolbox talk to highlight the areas of ecological sensitivity to site operatives, and ensure that all staff are made aware of the possible on-the-ground impacts of works and the advised mitigation approaches for each.

- NPWS will be notified in advance of site clearance and construction works;

The protection from pollution of water courses by construction works will be achieved through implementing avoidance measures:

- Site clearing, involving topsoil stripping progressed along with the groundworks and will not be
- carried over large areas ahead of groundworks.
- The excavated material will be deposited in material deposition areas. These areas are specifically chosen to avoid sediment entering adjacent water courses and minimise water quality impacts on water bodies.
- Suitable site management practices will always be implemented, and personnel made aware of the importance of the freshwater environment.
- The storage of oils, fuels, chemicals and hydraulic fluids are to be in secure areas within the site compound and at least 20m away from watercourses. Storage tanks are to have secondary containment provided by means of an above ground bund to capture any leaks.
- Foul drainage from all site welfare facilities will be either temporarily connected directly to existing foul drainage networks or tankered off site by a licenced contractor.
- Where construction works are to be carried out alongside streams and river channels, protection from silt load is to be implemented. This will be principally achieved through use of retaining grass buffer zones between the works and the water course. Where a minimum of 10m distance is not achievable silt fences will be employed as detailed below.
- No water is to be abstracted from the watercourses for use on the construction site, to prevent impact on any wildlife.
- The use of concrete close to watercourses will be carefully controlled to avoid spillage. Washout of mixing trucks and plant is to be carried out in designated contained impermeable areas.
- All topsoil stripping close to sensitive areas will be scheduled to be carried out during dry weather and all stockpiling will be kept as far away as possible from the open water courses.
- Silt fencing to be provided as a measure of protection of stockpiles.
- Wheel wash facilities are to be provided at all entrances/exits for the site for use of all construction vehicles leaving site.
- A road sweeper to be made available as and when required. Site management will undertake a survey of the local roads twice a day to inspect for detritus.
- Runoff from the construction areas of the main site is to be routed through temporary sediment ponds.
- A buffer area will be delineated by sediment trap fencing, along the edge of the stream to avoid machinery encroaching in the vicinity of the stream. Erect signs warning of no access to the area;
- Silt traps should be installed between any excavation and running water course.

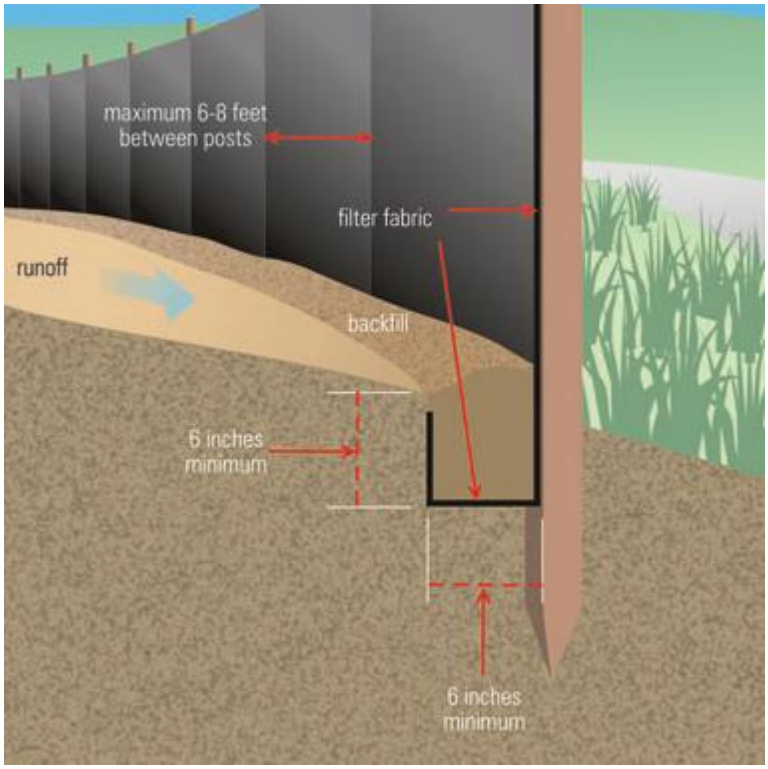

Figure 6.1. Schematic of silt fencing arrangement to contain sediment

An Outline Surface Water Management Plan is included in **Appendix F** of this report. A final Construction Environmental Management Plan (CEMP) will be submitted to the local authority prior to commencement of works.

6.2.1 *Adherence to Best Practice Guidance*

The activities of the project for the construction phase shall remain within the boundary of the proposed site. Within this area, the mitigation measures outlined above shall be implemented.

The works will also strictly adhere to best practice environmental guidance including but not limited to the following:

CIRIA Guidance C532 Control of water pollution from construction sites. Guidance for consultants and contractors. (CIRIA, 2019 - www.ciria.org);

CIRIA Guidance C741: *Environmental good practice on site guide* (Charles & Edwards, 2015; CIRIA, 2019 - www.ciria.org);

CIRIA Guidance C750D: *Groundwater control: design and practice* (Preene *et al.*, 2016; CIRIA, 2019 - www.ciria.org);

Inland Fisheries Ireland 2016 *Guidance on Protection of Fisheries During Construction Works In and Adjacent to Waters;*

Construction method statements will be submitted to Westmeath County Council for agreement prior to site works commencing.

6.3 Measures to protect Water Quality during Operation

All storm water run-off from hard paved surfaces will be collected via trapped gullies, thereby ensuring removal of detritus and floating contaminates.

As part of the SuDS design, there will be an attenuation system incorporated into the proposed stormwater drainage design. The CIE drainage will pass through an attenuation storage tank and a petrol Interceptor. The interceptors will be subject to regular maintenance / cleaning to ensure suitable operation is maintained long term. A hydrobrake provided downstream of the attenuation system will limit forward flow to existing run-off rates as per the Development Plan requirements.

6.4 Habitat Creation

It is proposed to facilitate creation of a wetland area in the Southwest corner of the site to retain some of the wetland species and features which are destined for culverting/ removal as part of the proposed development. This will be achieved through directing water from the existing drain coming from St Francis Terrace under the road and into the wetlands where it can then overflow into the outlet under the Coosan Point Road. Figure 6.2 below presents a schematic of the proposed wetland area.

6.5 In-Combination Effects

In addition to a review of current planning applications in progress or granted in the general area of the proposed development, the environmental protective policies and objectives set out in the Westmeath County Development Plan 2021-2027 were reviewed. The policies found to align with the proposed development in the context of this NIS included measures on the protection of European sites (CPO 12.4 to 12.12) on Proteted sites (CPO12.13 – 12.22), its Transport Policies (CPO 10.1 – 10.8 and CPO 10.26 to 10.35) and the protection of County Westmeath's Surface waters and Groundwaters (CPO10.83 to 10.92).

Potential sources of cumulative impacts were identified based on the ecology of valued ecological features. Potential sources of cumulative impacts were sought within ranges, territories or catchments where there is the potential for a significant impact on a site or species. The following plans were identified as potential sources of cumulative impacts:

- Westmeath County Development Plan 2021-2027
- Athlone 2040 – A Vision for Athlone
- EMRA Regional Spatial and Economic Strategy

Planning Applications:

- Planning app 99813901 on Southern Station Road. New bus station to consist of 2 stories of public and staff facilities and a double height concourse situated directly to the east of Athlone Train Station. Bus Eireann (Granted January 2024)
- Planning app 2191 Wineport, Ballykeeran, Athlone. Development which will consist of demolition of the existing dwelling and construction of a one and a half-story dwelling in lieu of the existing house including new garage, new site entrance, new driveway, together with all ancillary site works. A Natura Impact Statement has been prepared in respect of this planning application (Conditional Granted 21/02/2024)
- Planning app 22172 on Grace Road, Athlone. The development will consist of the following: (i) Proposed change of use from a Tile Centre to a Gymnasium, Gymnasium will include an indoor Astro Turf Pitch, dressing rooms and toilet facilities (ii)

alterations to selected elevations (iii) external signage (iv) and all associated internal, external and site works (Grant Date 30/6/2022)

- Planning app *20473* Vitabond Ltd Enterprise Road, Grace Road, Diskin Enterprise Centre. Permission for construction of a new ESB substation to the south of the existing factory and elevational change involving relocation of an existing door on the south elevation including all ancillary site works (Grant Date 28/06/2021).

On examination of the associated AA and NIS reports of each of the above list projects, an assessment of the with likely impact pathways and potential significant cumulative effects remained in the context of this project was undertaken. No significant cumulative or in-combination effects are anticipated.

No additional impact will occur as a result of the Proposed Development, which is in itself predicted to have no impacts which may affect the integrity of any nearby European sites. Therefore, it is the author's professional opinion that there will be no impact or interaction between the Proposed Development and other proposed plans or projects.

Therefore, no In-Combination effects are predicted.

6.6 Conclusion of In Combination Assessment

As the proposed development itself will not have any effects on the conservation objectives of any European sites, and considering the protective environmental policies and objectives in the Westmeath County Development Plan 2021 – 2027 and more widely across other land use plans that seek to protect European Sites, Natural Heritage and surface water quality in the catchments that drain to the reservoir, there is no potential for any other plan or project to adversely affect the integrity of any European sites in combination with the proposed development.

6.7 Residual Impacts

With the implementation of the mitigation measures outlined in Sections 6.2 to Section 6.5, the Proposed Development poses no significant risk of affecting the conservation objectives, or the favourable conservation condition, of the qualifying interests of Shannon Callows SAC, Middle Shannon SPA, and Lough Ree SPA and there are therefore, no residual direct or indirect impacts associated with the Proposed Development that could adversely affect the integrity those European sites.

7 Conclusion of Assessment

Following an examination, analysis and evaluation in light of best scientific knowledge, of all relevant information in respect of the qualifying interests of the two European sites within the Zone of Influence namely Shannon Callows SAC, Middle Shannon SPA, and Lough Ree SPA, the potential impacts, the proposed mitigation measures, and whether or not the predicted impacts would affect the conservation objectives that support the conservation condition of the qualifying interests, it has been concluded that the Proposed Development does not pose a risk of adversely affecting (either directly or indirectly) the integrity of Shannon Callows SAC, Middle Shannon SPA, and Lough Ree SPA, *and there is no reasonable scientific doubt in this conclusion.*

Indeed, following the examination of existing environmental conditions, the proposed project and analysis of the conservation objectives of and pressures and threats on the Shannon Callows SAC, Middle Shannon SPA, and Lough Ree SPA as set out in this NIS , together with the implementation of best practice and the recommended mitigation measures as also set out in this NIS and an assessment and evaluation of any potential effect of the Project that in fact not only is there not any adverse impact on the integrity of the Shannon Callows SAC, Middle Shannon SPA, and Lough Ree SPA but it is also the considered view of the authors that that the Project will in fact not have any likely significant effects at all on the Shannon Callows SAC, Middle Shannon SPA, and Lough Ree SPA.

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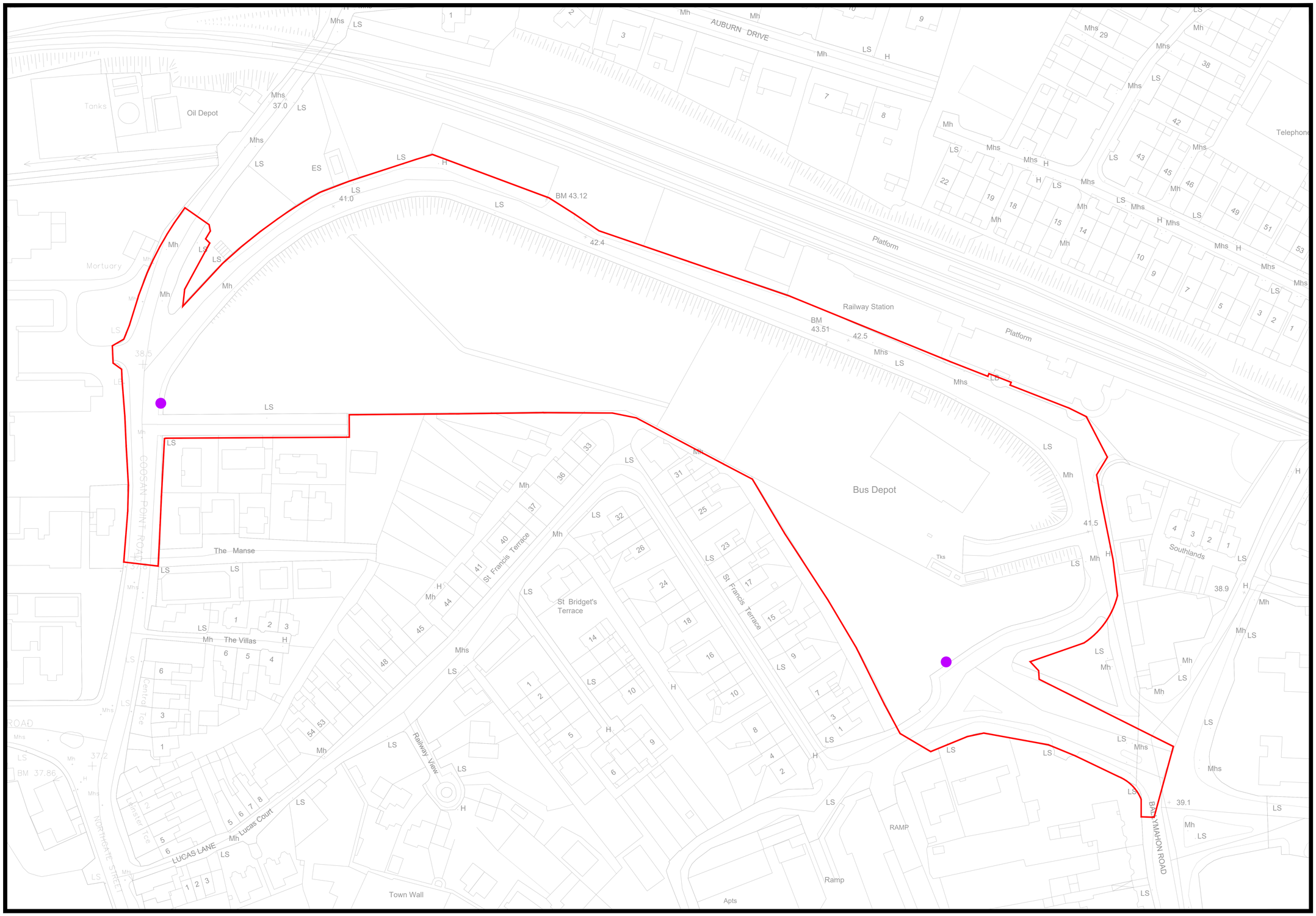
Appendix A Habitat Map

Appendix B Site Location and Site Layout Plans



KEY:

- SITE BOUNDARY
- SITE NOTICE LOCATION

REV.	AMENDMENT	BY	DATE
PL2	CHANGE OF TITLEBLOCK TEMPLATE	SMD	30.06.25
PL1	WCC COMMENTS	KL	26.02.25

DRAWN:	KL	TECH. CHECK:	KF
SCALE @ A0:	1:500	ENG. CHECK:	SS
DATE:	09.06.21	APPROVED:	FF
STAGE:	PLANNING		

JOB TITLE: ATHLONE LINK ROAD

DRAWING TITLE: SITE LOCATION MAP

CLIENT: WESTMEATH COUNTY COUNCIL

DRAWING No: 120278-001

REV: PL2

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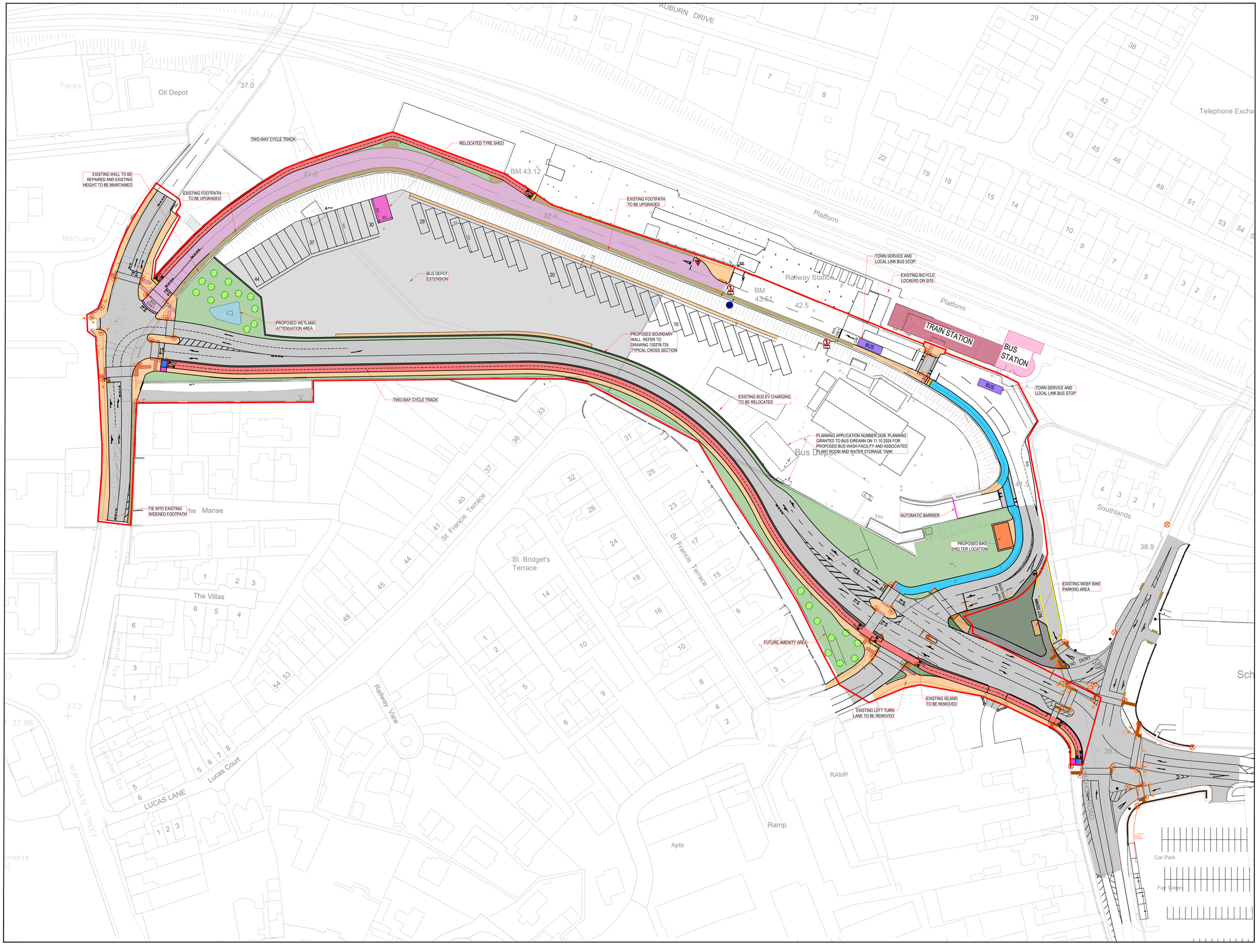

KEY:

- SITE BOUNDARY
- PROPOSED CYCLE TRACK
- PROPOSED SHARED PATH/CYCLE PATH
- PROPOSED FOOTPATH
- EXISTING FOOTPATH
- CARRIAGEWAY
- BUS DEPOT EXTENSION
- BUS LANE

REV.	AMENDMENT	BY	DATE
PL4	RSA Comments Implemented - Titleblock Update	KF	01.07.25
PL3	Bush Wash Application added	KL	23.05.25
PL2	Minor Amendments to Cycle Path	KL	08.05.25
PL1	WCC Comments	KL	26.02.25

DRAWN:	KL	TECH. CHECK:	KF
SCALE @ A0:	1:500	ENG. CHECK:	SS
DATE:	09.06.21	APPROVED:	FF
STAGE:	PLANNING		

JOB TITLE: ATHLONE LINK ROAD

DRAWING TITLE: SITE LAYOUT

CLIENT: WESTMEATH COUNTY COUNCIL

DRAWING No: 120278-4001

REV: PL4

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Appendix C PUNCH/CST Group List of Drawings

PUNCH / CST Group Consulting Engineers Drawings List

120278-001 PL2 Site Location Map

120278-002 PL1 Existing Layout

120278-501 PL1 Drainage Layout

120278-705 PL1 Proposed Road Longsections

120278-725 PL2 Typical Cross Section

120278-750 PL1 Standard Details

120278-4001 PL4 Site Layout

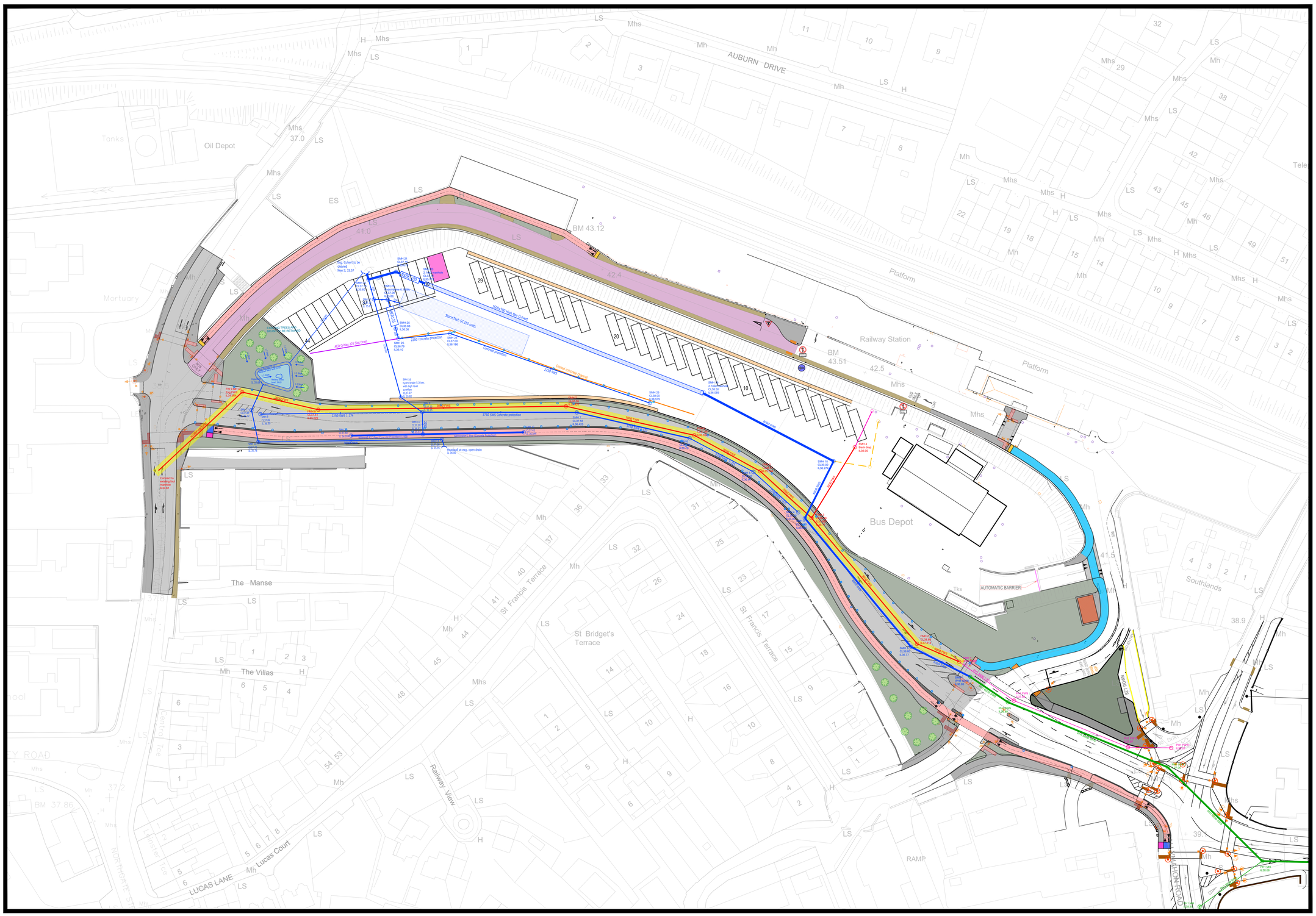
120278-4501 PL2 Athlone Active Travel Scheme

120278-5001 PL1 Vegetation to be Removed

120278-9001 PL1 Proposed Bike Shelter Details

120278-SK-500 PL1 Storm Drainage Catchment Areas

Appendix D Drainage Plan



KEY:

- PROPOSED STORM SEWER
- PROPOSED FOUL SEWER
- PROPOSED ROAD GULLY
- PROPOSED SLOT CHANNEL
- PROPOSED DISHED CONCRETE CHANNEL
- PROPOSED STORM & FOUL PCC MANHOLE D400 COVER
- UISCE EIREANN EASEMENT
- EXISTING STORM SEWER
- EXISTING PHASE1 STORM SEWER
- EXISTING FOUL SEWER

REV.	AMENDMENT	BY	DATE
P1.1	CHANGE OF TITLEBLOCK TEMPLATE	SMD	30.06.25

DRAWN:	KL	TECH. CHECK:	KF
SCALE @ A0:	1:500	ENG. CHECK:	SS
DATE:	09.06.21	APPROVED:	FF
STAGE:	PLANNING		

JOB TITLE: ATHLONE LINK ROAD

DRAWING TITLE: DRAINAGE LAYOUT

CLIENT: WESTMEATH COUNTY COUNCIL

DRAWING No: 120278-501

REV: PL1

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Appendix E Hydrology Report

Drainage Design Report

Athlone Link Road Phase 2 - Coosan Point to The Cresence

On behalf of **Westmeath County Council**

Prepared by

CST GROUP / PUNCH Consulting Engineers
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July 2025

Civil
Structural
Traffic

Table of Contents:

Appendices:

DOCUMENT CONTROL

Revision History:	R0	R1	R2					
Purpose of Issue: P=Preliminary C=Comment I=Information FC=Fire Cert PL=Planning T=Tender CT=Contract CN=Construction	I	I	PL					
Date:	11 07 23	20 01 25	02 07 25					
Originator:	SS	PB	PB					
Checked By:	FF	FF	FF					
Approved By:	FF	FF	FF					

Report By: .....

Stuart Summerfield

Date 02/07/2025

Approved By: .....

Francis Fidgeon

Chartered Engineer

Date 02/07/2025

1. INTRODUCTION

PUNCH Consulting Engineers / CST Group were appointed by Westmeath County Council to provide detailed designs for the provision of Phase 2 of a new link road from Coosan Point to The Crescent, Athlone. The provision of the new link road will also provide additional parking areas within the CIE bus depot. The works will result in increased hard paved areas and increased surface water run-off to the storm water drainage network. This report outlines the storm and foul water drainage design for the proposals.

2. SURFACE WATER MANAGEEMENT

2.1 Existing Surface Water Drainage Regime

The site comprises of the existing CIE bus depot and undeveloped, greenfield land which gently slopes generally from east to west. There are a number of shallow open channels flowing across the lands towards a culvert on the western side of the lands. This culvert crosses under the Southern Station Road and connects with an open drain to the south of the Corrib Oil depot. This open drain is understood to ultimately discharge to the River Shannon nearby. It is likely the surface water run-off from the existing CIE depot and the housing development to the south of the subject land discharges to this drainage network.

Local knowledge suggests the lands are subject to occasional flooding. Reference to the OPW Floodmaps indicates historic flood events are recorded at the Railway Bridge on Coosan Point Road but no recordings are found for these subject lands.

Figure 1: OPW Floodmaps Extract

PH McCarthy Consulting Engineers produced designs for the Athlone Main Drainage Scheme in 2006. Part of the PH McCarthy proposals is to provide upgraded storm drainage networks for the lands to the north of the subject site. These upgraded sewers are routed through the CIE lands and discharge to the same storm water culvert under the Southern Station Road.

2.2 Surface Water Drainage Discharge Options

The following options have been considered for storm water drainage of these lands.

Option 1 – Infiltrate to Groundwater
Infiltration tests have not been undertaken on the site, however from inspection of trial pits and local knowledge suggests the use of soak-aways on this site are not viable.

Option 2 – Discharge into the Existing Storm Water drain to the west.
The open drain / culvert to the western side of the lands currently receives the storm water for the subject lands, the housing development to the south and the lands to the north. The development lands generally fall from the east to the west in the direction of this open drain. In order to ensure downstream flooding does not result from the increased run-off rate from the increased hard paved surfacing, any discharge to this ditch should be controlled to pre-development run-off rates.

In view of the assessment of these options it was decided in order to best replicate the existing drainage path and the goals of SuDS best management practises to discharge the storm water run-off to the existing open drain to the west. In order to replicate existing run-off rates on-site attenuation should be provided together with a restrictor on the drainage train prior to the outfall to ensure run-off is controlled to pre-development or local authority dictated run-off rates.
The PH McCarthy proposals should remain unaffected by the current link road and CIE bus depot expansion works.
The drainage attenuation system should be sized sufficient to accommodate all storm durations and intensities up to the 1:30 year storm without surface water leaving the site.
The green field predevelopment run-off from the lands should be no greater that outlined in the Flood Studies Report. The areas of additional hard paved impermeable surface are shown in **Appendix A** and the estimated run-off from these lands are shown in **Appendix B.**
The post development run-off should be no greater than this figure.

2.3 Surface Water Drainage Strategy

A surface water drainage strategy has been prepared in accordance with the general design principles set out below and in general compliance with TII standard DN-DNG-03066 'Design of Earthworks, Drainage, Network Drainage, Attenuation & Pollution Control' and also the Irish Water document 'Code of Practice for Wastewater Infrastructure'. The strategy has been prepared based on the catchment areas/boundaries as defined by existing site topography.

The strategy comprises a conventional, gravity piped drainage system that will collect and convey surface water run-off arising from the catchment. The design levels and drainage layout are such that the designed system will discharge via gravity to the outfall location.

The works consist of two distinctly separate areas. One being the link road, that will remain in Local Authority ownership, and the other being the CIE bus depot as shown in **Appendix A**.

Due to the requirement to control the outflow of water from the site to no greater than pre-development levels, the storm network will discharge via underground attenuation tanks in advance of the discharge point. The discharge will be controlled by a Hydro-brake to limit flows equivalent to green field run-off. As the two separate development areas will have two difference owners, the attenuation and flow controls will be separate and located within the ownership boundary of the developments.

The lagoons will be sized to accommodate surface water run-off arising from the new hard paved surface areas of the two separate development sections for up to and including the 1-in-30 year rainfall event, plus an allowance for climate change (20%). Exceptional events in excess of the 1:30 year storm may overtop the discharge control (Hydrobrake) and result in short term uncontrolled flows towards the culvert. This however will not impact the surrounding residential dwellings.

2.4 Design Parameters

This section sets out the design parameters that have been used in the design of the surface water drainage pipe network and surface water balancing measures serving the proposed development.

2.4.1 Limiting/Allowable Discharge Rate

The greenfield run-off rates from the lands to be developed have been calculated utilising the Institute of Hydrology Report 124 (IoH124) 'Flood Estimation for Small Catchments (1994)' methodology and catchment specific rainfall parameters derived from the Flood Estimation Handbook (FEH) – see **Appendix A** for Greenfield Run-off Rate Estimation. In order to determine run-off rates the permeability of the soil should first be determined. The flood studies report (NERC 1975) divides soil types into 5 categories:

- SOIL Type 1 = SPR 0.1 (sandy highly permeable material);
- SOIL Type 2 = SPR 0.3;
- SOIL Type 3 = SPR 0.37;
- SOIL Type 4 = SPR 0.47 (heavy clay);
- SOIL Type 5 = SPR 0.53 (which is rarely applied) is exposed rock.

The default soil type for the site, as used by the HR Wallingford software, which is derived from the Irish SuDS map, is Type 4. The existing lands for locating the link road are known to be boggy and often submerged and therefore have zero capacity for soakage. Therefore, it is considered more appropriate to use and index of 5 for these lands. SOIL type 4 is considered appropriate for the CIE element of the development. Calculations are provided in **Appendix B**.

Return Period	Greenfield Run-off Rate i/sec/Ha	Greenfield Run-off Rate – Link Road Catchment Area 0.534Ha (i/sec)
Q_{bar}	10.00	5.34
Q_{30}	16.50	8.81
Q_{100}	19.51	10.42

Table 1. Greenfield Run-off for Link Road Lands

Return Period	Greenfield Run-off Rate i/sec/Ha	Greenfield Run-off Rate – Link Road Catchment Area 0.534Ha (i/sec)
Q_{bar}	7.71	6.09
Q_{30}	12.72	10.05
Q_{100}	15.02	11.87

Table 2. Greenfield Run-off for Additional CIE Lands

The surface water drainage strategy for developments generally assume that surface water outflows are limited to the mean annual run-off rate (Qbar) for all storm events up to and including the 1:30-year return period and therefore providing betterment to the downstream receiving network.

Discharge from both development parcels to the open drain / culvert will be controlled by way of a Hydrobake located on the two drainage trains, adjacent to the attenuation tanks. Surplus flow will back-up in the tanks for temporary storage.

2.4.2 Volumetric Run-off Coefficient for Design of the Attenuation Provision

An onerous volumetric runoff coefficient (Cv) of 0.9 has been utilized in the sizing of the surface water pipes and simulated for the 1:30 year storm using a Cv of 1.0.

2.4.3 Impermeable Areas

The proposed impermeable areas associated with the development proposals have been taken from the site layout plan for the development as shown in **Appendix A**. It has been assumed that 100% of the new paved area will be impermeable and the run-off from this area will be routed via an underground pipe network to the outfall. The total areas contributing to the storm drainage network comprise impermeable areas such as roads and hard standing.

2.4.4 Piped Surface Water Drainage System

The proposed surface water drainage system will comprise a network of pipes which will be designed and constructed in accordance with the requirements of Irish Water, the Department of the Environment and Local Government's 'Recommendations for Site Development Works for Housing Areas' and/or the TII 'Specification for Road Works' and also subject to the approval of Westmeath County Council.

2.4.5 Modified Rational Method

The Modified Rational Method has been used for the design of the drainage network by use of the 'MicroDrainage' software. Calculations for the surface water drainage catchment are included in **Appendix B**. These set out catchment and impermeable areas. The calculations also outline the maximum and minimum pipe velocities.

2.4.6 Pipe Flows and Discharge Rates

Calculations for the pipe flows and discharge rates are shown in **Appendix C** for the two systems. Analysis found the critical storm for the Link Road occurs during the 120-minute duration storm and the 480-minute duration storm for the CIE lands. These events have been assessed for the 1:30 year return period storm. Details of the general arrangement/configuration of the surface water drainage infrastructure is shown on drawing number 120278-501 in **Appendix D**.

2.5 Contaminates

2.5.1 Hydrocarbons

Removal of hydrocarbons from the surface water drainage network will be achieved by use of trapped road gullies on the road network and a by-pass interceptor for the CIE lands, where there is greater risk of hydrocarbons from parked vehicles. The proposed interceptor is a Kingspan NSFA125 – see **Appendix E** for details. This has been sized to accommodate surface water flows from all additional hard paved areas within the CIE development.

2.6 Maintenance

2.6.1 Detritus and Silts

The storm water drainage network utilises conventional road gullies. Detritus and silts can gather in the gullies and other inlets to the underground drainage network. The proposed Hydrobrake restrictors incorporates a small-bore orifice that may restrict passage of larger elements of detritus. Without regular maintenance this small bore may become blocked. Storm water would then back-up into the attenuation tanks and eventually overtop the underground network.

It will be the responsibility of the local authority and CIE to undertake regular inspections of the Hydrobrake chamber and clear any gathering detritus.

3. FOUL WATER MANAGEMENT

3.1 Existing Foul Water Drainage Regime

There is an existing foul water sewer running through the CIE lands. These lands are proposed to be used for long term parking of CIE vehicles.

3.2 Foul Water Drainage Proposals

The provision of the link road adjacent and to the south of the CIE lands creates opportunity to divert the existing foul water sewer into local authority owned lands.

The proposed works divert the existing sewer to be within the link road. The new diversion connects to the existing foul sewer to the west of the land, near Coosan Point Road.

Calculations are provided in **Appendix E**.

4. CONCLUSION

4.1 Existing Undeveloped Lands

The existing lands incorporate the existing CIE bus depot and undeveloped green field lands. There is an existing storm sewer within the CIE depot that discharges to an open drain that runs through the undeveloped lands towards a culvert under Southern Station Road and ultimately discharges to the River Shannon.
Some of the undeveloped lands are known to be boggy and parts are sometimes underwater.
PH McCarthy Consulting Engineers have developed a Main Drainage design for improvements to the storm drainage network to the north of the subject lands.
There is an existing foul sewer crossing the CIE lands to a manhole adjacent to Coosan Point Road.

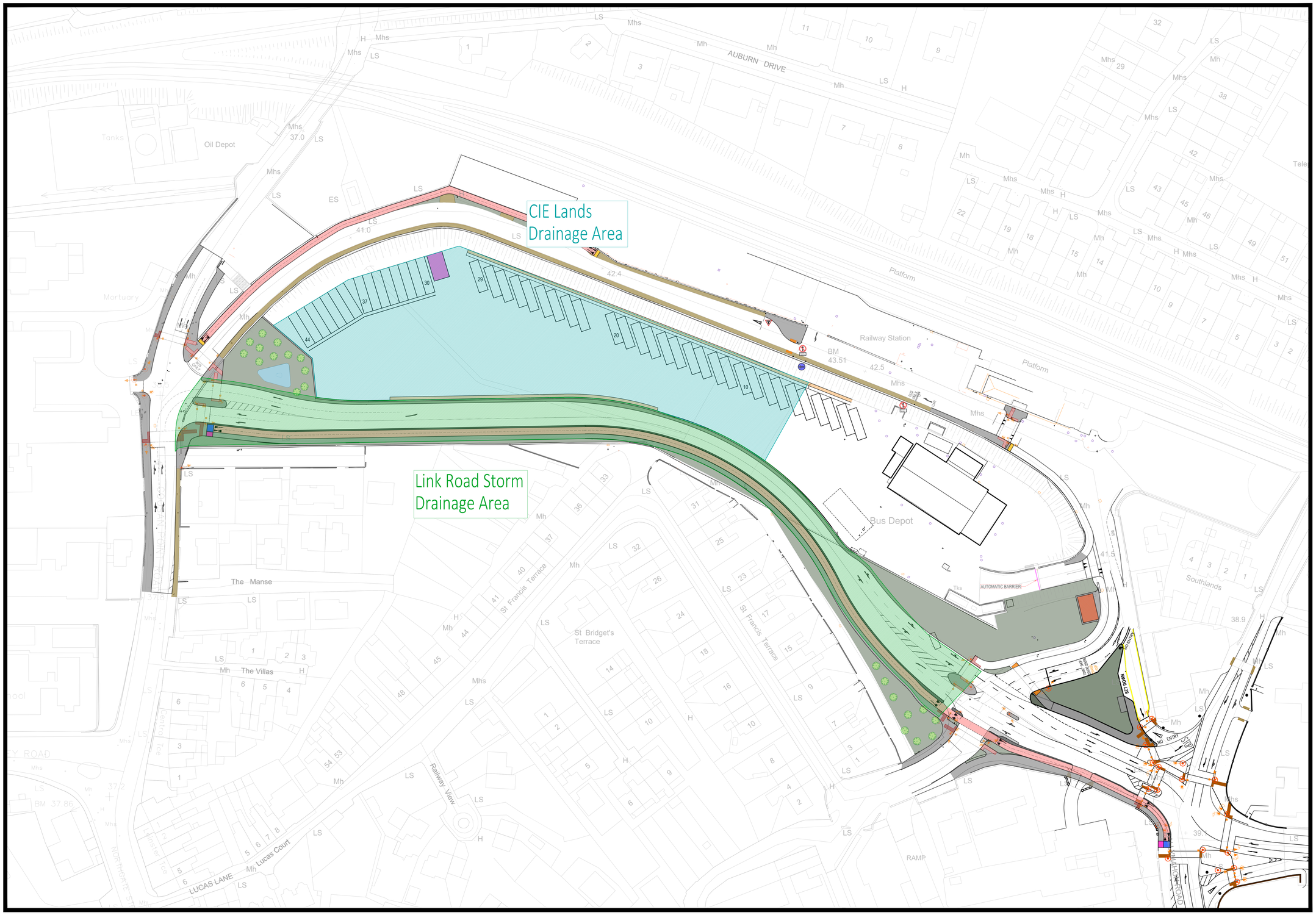
4.2 Post Development

To provide an impact-neutral drainage strategy for the storm water from any additional hard paved surfaces resultant from this development the surface water run-off will be routed to the existing outfall at the culvert under the Southern Station Road. Surface water run-off from the development will be controlled to rates equivalent green-field run-off rates.

All storms up to and including the 1:30 year return period storm will be attenuated and contained within underground attenuation tanks.

The PH McCarthy proposals will remain separate to the drainage network proposed for this development.
In order to locate as much of the foul sewer within local authority as possible, the works will divert the foul sewer to be located within the proposed link road.

APPENDIX A
Storm Drainage Catchment Areas



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REV.	AMENDMENT	BY	DATE
PL1	CHANGE OF TITLEBLOCK TEMPLATE	SMD	30.06.25

DRAWN:	KL	TECH. CHECK:	KF
SCALE @ A0:	1:500	ENG. CHECK:	SS
DATE:	09.06.21	APPROVED:	FF
STAGE:	PLANNING		

JOB TITLE: ATHLONE LINK ROAD

DRAWING TITLE: STORM DRAINAGE CATCHMENT AREAS

CLIENT: WESTMEATH COUNTY COUNCIL

DRAWING No: 120278-SK-500

REV: PL1

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Appendix B1
Greenfield Run-off Estimation – Link Road

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Stuart summerfield
Site name:	120278 Athlone Link Road
Site location:	Athlone

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.42693° N
Longitude:	7.93882° W
Reference:	1971078906
Date:	Nov 27 2020 15:00

Runoff estimation approach

IH124

Site characteristics

Total site area (ha): .534

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	5
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.53

Hydrological characteristics

	Default	Edited
SAAR (mm):	1044	1044
Hydrological region:	13	13
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	1.65	1.65
Growth curve factor 100 years:	1.95	1.95
Growth curve factor 200 years:	2.15	2.15

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	4.12	5.34
1 in 1 year (l/s):	3.5	4.54
1 in 30 years (l/s):	6.79	8.81
1 in 100 year (l/s):	8.02	10.42
1 in 200 years (l/s):	8.85	11.48

Appendix B2
Greenfield Run-off Estimation – CIE Lands

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Stuart summerfield
Site name:	CIE Depot
Site location:	Athlone Town |Centre

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.42693° N
Longitude:	7.93901° W
Reference:	1564424785
Date:	Jul 29 2021 09:18

Runoff estimation approach

IH124

Site characteristics

Total site area (ha): 0.79

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	1044	1044
Hydrological region:	13	13
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	1.65	1.65
Growth curve factor 100 years:	1.95	1.95
Growth curve factor 200 years:	2.15	2.15

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	6.09	6.09
1 in 1 year (l/s):	5.18	5.18
1 in 30 years (l/s):	10.05	10.05
1 in 100 year (l/s):	11.87	11.87
1 in 200 years (l/s):	13.09	13.09

APPENDIX C1
Network Analysis – Storm Network – Link Road

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 120278 LINK ROAD STORM 2020 11 27.SWS

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - Scotland and Ireland

Return Period (years)	2	Add Flow / Climate Change (%)	20
M5-60 (mm)	18.000	Minimum Backdrop Height (m)	0.200
Ratio R	0.300	Maximum Backdrop Height (m)	0.000
Maximum Rainfall (mm/hr)	50	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Volumetric Runoff Coeff.	0.900	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for 120278 LINK ROAD STORM 2020 11 27.SWS

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	T.E. (mins)	DWF (l/s)	k (mm)	HYD SECT	DIA (mm)
1.000	52.007	0.260	200.0	0.091	5.00	0.0	0.600	o	225
1.001	36.145	0.181	200.0	0.067	0.00	0.0	0.600	o	225
1.002	51.581	0.258	200.0	0.065	0.00	0.0	0.600	o	300
1.003	64.402	0.322	200.0	0.181	0.00	0.0	0.600	o	300
2.000	48.884	0.244	200.3	0.130	5.00	0.0	0.600	o	225
1.004	51.936	0.260	200.0	0.000	0.00	0.0	0.600	o	375

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ Area (ha)	Σ DWF (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.94	37.900	0.091	0.0	0.0	3.0	0.92	36.6	17.7
1.001	50.00	6.60	37.640	0.158	0.0	0.0	5.1	0.92	36.6	30.8
1.002	48.21	7.37	37.384	0.223	0.0	0.0	7.0	1.11	78.3	41.9
1.003	45.59	8.34	37.126	0.404	0.0	0.0	12.0	1.11	78.3	71.8
2.000	50.00	5.89	36.700	0.130	0.0	0.0	4.2	0.92	36.6	25.3
1.004	43.95	9.02	36.306	0.534	0.0	0.0	15.3	1.28	141.1	91.5

Free Flowing Outfall Details for 120278 LINK ROAD STORM 2020 11 27.SWS

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.004	6	36.850	36.046	36.065	0	0

1 O'Connell St Sligo F91 W7YV	120278 Link Road Drainage Athlone
Date 05 10 2021 File 120278 LInk Road ... Elstree Computing Ltd	Designed By SS Checked By Network W.12.4

Simulation Criteria for 120278 LINK ROAD STORM 2020 11 27.SWS

Volumetric Runoff Coeff	0.900	Foul Sewage per hectare (l/s)	0.000
PIMP (% impervious)	100	Additional Flow - % of Total Flow	20.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Run Time (mins)	240
Hot Start Level (mm)	0	Output Interval (mins)	4
Manhole Headloss Coeff (Global)	0.500		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0		

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.900
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	120
Ratio R	0.300		

Online Controls for 120278 LINK ROAD STORM 2020 11 27.SWS

Hydro-Brake® Manhole: 5, DS/PN: 1.004, Volume (m³): 9.3

Design Head (m)	0.900	Diameter (mm)	99
Design Flow (l/s)	5.3	Invert Level (m)	36.306
Hydro-Brake® Type	Md6 SW Only		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.0	1.200	6.1	3.000	9.7	7.000	14.8
0.200	4.6	1.400	6.6	3.500	10.5	7.500	15.3
0.300	4.5	1.600	7.1	4.000	11.2	8.000	15.8
0.400	4.3	1.800	7.5	4.500	11.9	8.500	16.3
0.500	4.3	2.000	7.9	5.000	12.5	9.000	16.8
0.600	4.5	2.200	8.3	5.500	13.1	9.500	17.2
0.800	5.0	2.400	8.7	6.000	13.7		
1.000	5.6	2.600	9.0	6.500	14.3		

Storage Structures for 120278 LINK ROAD STORM 2020 11 27.SWS

Tank or Pond Manhole: 5, DS/PN: 1.004

Invert Level (m) 36.306

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	80.0	0.750	80.0

Summary of Results for 120 minute 30 year Summer (120278 LINK ROAD STORM 2020 11 27.SWS)

Margin for Flood Risk Warning (mm)	300.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	ON
Inertia Status	OFF

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	1	38.008	-0.117	0.000	0.46	0.0	16.1	OK
1.001	2	38.003	0.138	0.000	0.81	0.0	27.9	SURCHARGED
1.002	3	37.996	0.311	0.000	0.52	0.0	38.8	SURCHARGED
1.003	4	37.990	0.564	0.000	0.84	0.0	62.5	SURCHARGED
2.000	7	37.986	1.061	0.000	0.58	0.0	20.4	FLOOD RISK
1.004	5	37.979	1.298	0.000	0.06	0.0	7.2	SURCHARGED

APPENDIX C2
Network Analysis – Storm Network – CIE Lands

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - Scotland and Ireland

Return Period (years)	2	Add Flow / Climate Change (%)	20
M5-60 (mm)	14.500	Minimum Backdrop Height (m)	0.750
Ratio R	0.300	Maximum Backdrop Height (m)	1.500
Maximum Rainfall (mm/hr)	50	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.00	Min Vel for Auto Design only (m/s)	0.75
Volumetric Runoff Coeff.	0.900	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	T.E. (mins)	DWF (l/s)	k (mm)	HYD SECT	DIA (mm)
1.000	120.000	0.800	150.0	0.500	5.00	0.0	0.600	o	300
1.001	30.500	0.819	37.2	0.100	0.00	0.0	0.600	o	300
2.000	46.000	0.844	54.5	0.190	5.00	0.0	0.600	o	300
1.002	26.000	0.173	150.0	0.000	0.00	0.0	0.600	o	375
1.003	2.000	0.013	150.0	0.000	0.00	0.0	0.600	o	375

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ Area (ha)	Σ DWF (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	40.86	6.56	38.500	0.500	0.0	0.0	13.3	1.28	90.6	79.7
1.001	40.34	6.76	37.700	0.600	0.0	0.0	15.7	2.58	182.7	94.4
2.000	44.38	5.36	37.800	0.190	0.0	0.0	5.5	2.13	150.9	32.9
1.002	39.61	7.05	36.806	0.790	0.0	0.0	20.3	1.48	163.1	122.0
1.003	39.55	7.07	36.633	0.790	0.0	0.0	20.3	1.48	163.1	122.0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.003		38.100	36.619	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.900	Foul Sewage per hectare (l/s)	0.000
PIMP (% impervious)	100	Additional Flow - % of Total Flow	20.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Run Time (mins)	960
Hot Start Level (mm)	0	Output Interval (mins)	8
Manhole Headloss Coeff (Global)	0.500		

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0		

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	30	Cv (Summer)	0.900
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	14.500	Storm Duration (mins)	480
Ratio R	0.300		

Online Controls for Storm

Hydro-Brake® Manhole: 5, DS/PN: 1.003, Volume (m³): 4.0

Design Head (m)	0.450	Diameter (mm)	118
Design Flow (l/s)	6.1	Invert Level (m)	36.633
Hydro-Brake® Type	Md5 SW Only		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.7	1.200	9.2	3.000	14.5	7.000	22.2
0.200	5.9	1.400	9.9	3.500	15.7	7.500	22.9
0.300	6.0	1.600	10.6	4.000	16.8	8.000	23.7
0.400	5.9	1.800	11.2	4.500	17.8	8.500	24.4
0.500	6.2	2.000	11.9	5.000	18.7	9.000	25.1
0.600	6.6	2.200	12.4	5.500	19.7	9.500	25.8
0.800	7.5	2.400	13.0	6.000	20.5		
1.000	8.4	2.600	13.5	6.500	21.4		

Storage Structures for Storm

Tank or Pond Manhole: 5, DS/PN: 1.003

Invert Level (m) 36.633

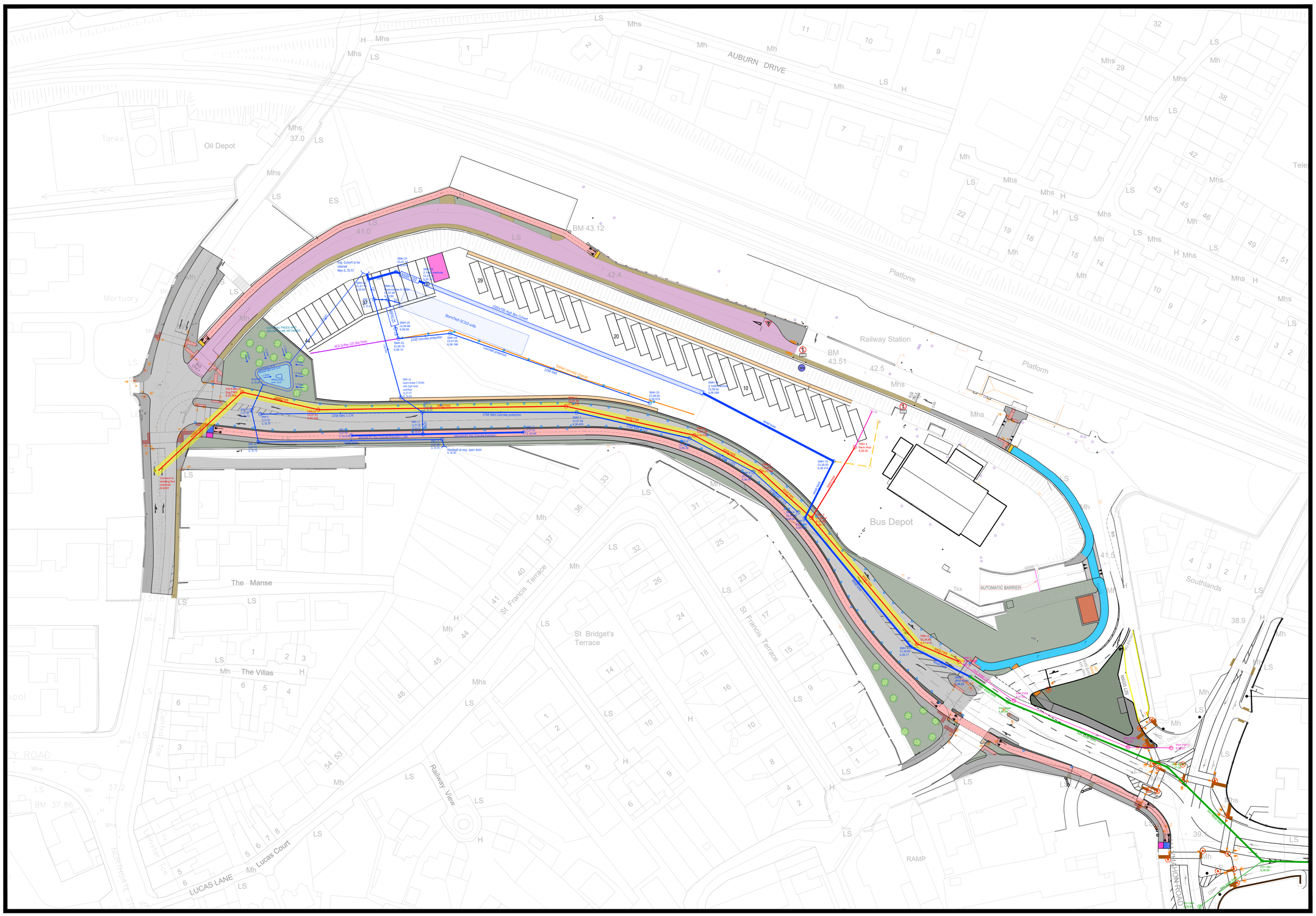
Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	360.0	0.450	360.0

Summary of Results for 480 minute 30 year Summer (Storm)

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
Analysis Timestep Fine Inertia Status OFF
DTS Status ON

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	1	38.620	-0.180	0.000	0.34	0.0	30.1	FLOOD RISK
1.001	2	37.794	-0.206	0.000	0.22	0.0	36.1	OK
2.000	3	37.857	-0.243	0.000	0.08	0.0	11.4	FLOOD RISK
1.002	4	37.297	0.116	0.000	0.33	0.0	47.0	FLOOD RISK
1.003	5	37.292	0.285	0.000	0.08	0.0	6.8	FLOOD RISK

APPENDIX D
Storm Drainage Network Drawing



KEY:

- PROPOSED STORM SEWER
- PROPOSED FOUL SEWER
- PROPOSED ROAD GULLY
- PROPOSED SLOT CHANNEL
- PROPOSED DISHED CONCRETE CHANNEL
- PROPOSED STORM & FOUL PCC MANHOLE D400 COVER
- UISCE EIREANN EASEMENT
- EXISTING STORM SEWER
- EXISTING PHASE1 STORM SEWER
- EXISTING FOUL SEWER

REV.	AMENDMENT	BY	DATE
P1.1	CHANGE OF TITLEBLOCK TEMPLATE	SMD	30.06.25

DRAWN:	KL	TECH. CHECK:	KF
SCALE @ A0:	1:500	ENG. CHECK:	SS
DATE:	09.06.21	APPROVED:	FF
STAGE:	PLANNING		

JOB TITLE: ATHLONE LINK ROAD

DRAWING TITLE: DRAINAGE LAYOUT

CLIENT: WESTMEATH COUNTY COUNCIL

DRAWING No: 120278-501

REV: PL1

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Civil
Structural
Traffic

Appendix F Outline Surface Water Management Plan

Outline Plan Surface Water Management Plan

Athlone Link Road Phase 2 - Coosan Point to The Cresence

On behalf of **Westmeath County Council**

Prepared by

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July 2025

Civil
Structural
Traffic

Table of Contents:

DOCUMENT CONTROL

Revision History:	R0	R1						
Purpose of Issue: P=Preliminary C=Comment I=Information FC=Fire Cert PL=Planning T=Tender CT=Contract CN=Construction	I	PL						
Date:	04 12 23	02 07 25						
Originator:	SS	SS						
Checked By:	FF	FF						
Approved By:	FF	FF						

Report By: .....
Stuart Summerfield

Date 02/07/2025

Approved By: .....
Francis Fidgeon
Chartered Engineer

Date 02/07/2025

1. INTRODUCTION

PUNCH / CST Group Consulting Engineers were appointed by Westmeath County Council to provide detailed designs for the provision of Phase 2 of a new link road from Coosan Point to The Crescent, Athlone. The provision of the new link road will also provide additional parking areas within the CIE bus depot. The works will result in increased hard paved areas and increased surface water run-off to the storm water drainage network.

This Surface Water Management Plan has been prepared by PUNCH/CST Group Consulting Engineers to the environmental impact report.

The site location is shown in Figure 1.1. The purpose of this Surface Water Management Plan is to describe the methodology and control measures to be used in controlling surface water run-off from the construction site and associated works.

Given the scale of the proposed development, the duration of the construction stage and the proximity to the River Shannon to the west of the site, surface water runoff during the construction stage requires careful management and treatment to protect the river and surrounding environment from harmful substances and sediment arising during the construction of the development. The proposed measures are outlined in this report.

The Main Contractor will be required to prepare a detailed construction management plan for the project, taking into account this outline plan.

1.1 Site Description

1.1.1 Project Background

The majority of the site is currently undeveloped scrub land. There is a small portion of the site to the north-east that is currently used for bus servicing and parking. Phase 1 of the link road works were completed to the east of the site some years ago. The Athlone train station and car park is located to the north of the lands.

The lands generally fall from east to west. There are a number of shallow streams crossing through the lands. All of the streams converge and discharge via a stone culvert under Southern Station Road to the west of the works area.

Figure 1.1 shows the location of the proposed development.

1.1.2 Proposed Development

The proposed development will include the construction of Phase 2 of the link road from Coosan Point to The Crescent, provision of additional bus parking within the CIE lands, alterations to the signalised junction at Coosan Point and alterations to the alignment of the existing foul sewer that currently is within the area of the future bus parking.

The proposed works are outlined in a series of engineering drawings by PUNCH/CST Group Consulting Engineers.

Figure 1.1: Location of the proposed development (copyright Google)

2. INDICATIVE CONSTRUCTION PROGRAMME

It is estimated that the construction programme for the entire works associated with the proposed works will last approximately 12 months from the date of commencement. This estimation is based on the typical construction programmes for other similar developments that are currently underway. The Main Contractor will be required to prepare a detailed construction programme as part of their tender proposal.

3. SITE SETUP AND SECURITY

It is envisaged the works will be undertaken in two consecutive but separate projects. The link road will be constructed initially and immediately followed by the CIE bus parking. It is also envisaged that a single contractor will be appointed for both elements of the project.

The Main Contractor will be required to submit a site layout plan that will detail the proposed location of the site compound and associated welfare facilities. The site compound is likely to be located on lands to the west of The Crescent / Southern Station Road with direct vehicular access off Phase 1 of the Link Road project. The Main Contractor will ensure that the site compound will be serviced as required and will be secured with appropriate fencing/hoarding. The site compound will be used as the primary location for the storage of materials, plant and equipment, site offices and worker welfare facilities. As Project Supervisor Construction Stage (PSCS), the Main Contractor will be responsible for site security, and they shall ensure that the site and site compound are adequately secured at all times.

As with the other construction activities that are being carried out within the area, activities associated with the construction of compounds will be subject to restrictions to the nature and timing of operations so that they do not cause undue disturbance to neighbouring areas and communities.

The contractor's site layout plan will also include the site perimeter and the proposed detail with regards the hoarding and gate system.

4. SITE ACCESS

The Main Contractor will be responsible for site access/works activity and must ensure mud/debris is not allowed onto the adjacent public roadways. It is proposed that construction vehicles will access the Main Site via the N55 / R915 from the north of the lands. Please refer to Figure 4.1 Below

The Contractor must submit a detailed Construction Traffic Management Plan to the Local Authority for approval. Construction traffic movements will be fully coordinated to comply with the requirements of the agreed plan. Specifically, in relation to surface water management the Contractor will be required to provide wheel cleaning facilities, and regular cleaning of the main access road.

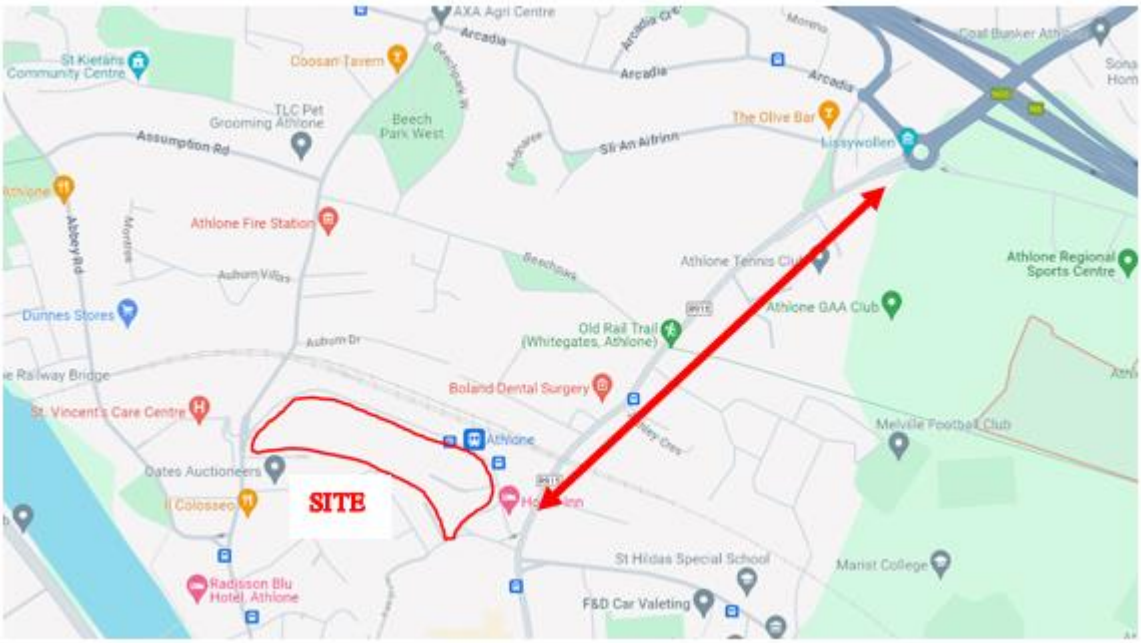

Figure 4.1 – Construction vehicle Access Route

5. MATERIAL STORAGE AND DELIVERY

The Main Contractor will ensure that all materials are adequately stored and secured in their Main Site compound to prevent spillage/leakage.

The Contractor will ensure the roads adjacent to the Main Site area are kept clean and free of debris.

6. EMERGENCY RESPONSE PLAN

The Main Contractor will prepare an Emergency Response Plan detailing the procedures to be undertaken in the event of a spill of chemical, fuel or other hazardous wastes, a fire, or non-compliance incident with any permit of license issues.

For management of emergencies occurring close to existing watercourses refer to Section 7.6 Site Management Control Measures.

7. SURFACE WATER MANAGEMENT ON SITE

This section of the report outlines the proposed measures to be implemented across the site in order to manage the surface water runoff. There are several proposed ways that surface water will be managed on site and each have their own specific uses and requirements which are detailed below. It is important that maintenance is carried out as frequently as is required so that these measures continue to be effective in the protection of the River Shannon during the full construction period of approximately 12 months.

7.1 Control of Sediment and Soil Erosion

The principle objectives in relation to sediment and erosion control during construction phase are:

- To keep exposed surfaces to an absolute minimum.
- To minimise the amount of runoff from the site.
- To plan the work so that it progresses from the low point towards the high point within each area of the works.
- To have efficient groundwork operations to ensure that fill is replaced as the soil material is removed.
- To ensure that any unacceptable material is removed and placed in controlled material deposition areas in an efficient manner.

7.2 Protection of Watercourses

The protection from pollution of water courses by construction works will be achieved through implementing avoidance measures:

- Site clearing, involving topsoil stripping progressed along with the groundworks and will not be carried over large areas ahead of groundworks.
- The excavated material will be deposited in material deposition areas. These areas are specifically chosen to avoid sediment entering adjacent water courses and minimise water quality impacts on water bodies.
- Suitable site management practices will always be implemented, and personnel made aware of the importance of the freshwater environment.
- The storage of oils, fuels, chemicals and hydraulic fluids are to be in secure areas within the site compound and at least 20m away from watercourses. Storage tanks are to have secondary containment provided by means of an above ground bund to capture any leaks.
- Foul drainage from all site welfare facilities will be either temporarily connected directly to existing foul drainage networks or tankered off site by a licenced contractor.
- Where construction works are to be carried out alongside streams and river channels, protection from silt load is to be implemented. This will be principally achieved through use of retaining grass buffer zones between the works and the water course. Where a minimum of 10m distance is not achievable silt fences will be employed as detailed below.
- No water is to be abstracted from the water courses for use on the construction site, to prevent impact on any wildlife.

- The use of concrete close to watercourses will be carefully controlled to avoid spillage. Washout of mixing trucks and plant is to be carried out in designated contained impermeable areas.
- All topsoil stripping close to sensitive areas will be scheduled to be carried out during dry weather and all stockpiling will be kept as far away as possible from the open water courses.

7.3 Silt Fencing

An effective measure in the control of silts and sediment leaving the site via the construction site's surface water runoff is the use of silt fencing strategically positioned downstream of the site. Silt fences are to be installed on the outer perimeter of construction material stockpiles and in all areas within 10m to any watercourse during the construction phase, to prevent runoff during heavy rainfall. This will include the erection of a robust silt fencing comprising of a woven polyethylene fabric fixed to posts in all areas within 10m of the any watercourse/stream adjacent to the works. This barrier coupled with some clean aggregate in front of the fence will prevent the egress of silt or toxic material towards the River Shannon, while allowing filtered surface water to pass through. A typical detail of this arrangement is shown in Figure 7.1 below. These silt barriers are to be installed in accordance with the manufacturers requirements and are to be assessed and maintained throughout the construction period. As flow paths of surface water may change throughout the phasing of the development, the positioning of the barriers will then have to be modified to ensure no runoff is permitted to leave the site without passing through this filtering system.

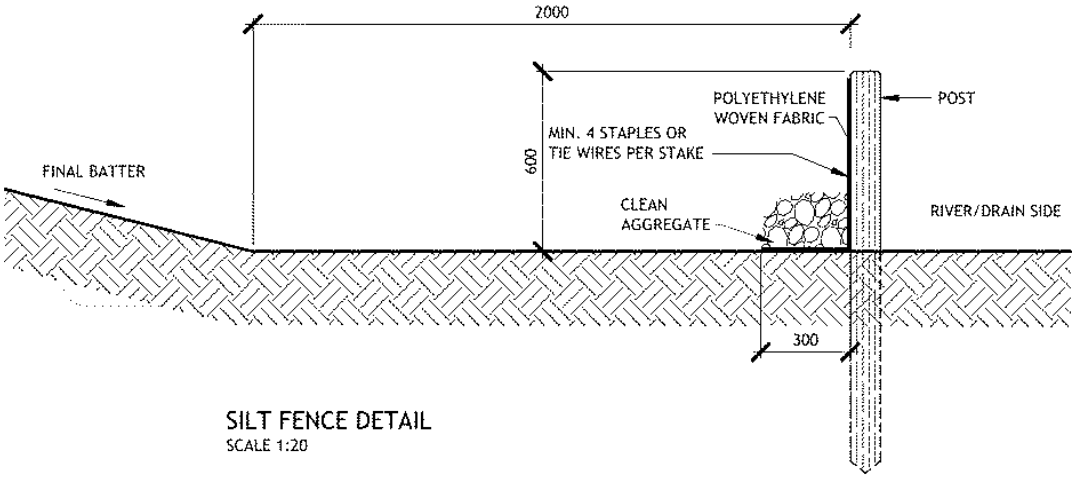

Figure 7.1: Typical Silt Fencing Detail

7.4 Wheel Wash Facilities

Wheel wash facilities are to be provided at all entrances/exits for the site. All construction vehicles leaving site will be required to drive through these wheel wash areas. A road sweeper will be made available as and when required. Site management will undertake a survey of the local roads twice a day to inspect for detritus. The surface water used in the washing process shall be collected at low points and recycled for further washing. Collection points for this runoff will include sumps for silt collection which are to be regularly monitored and cleared of silt. Water residue from the wheel wash at the main site access will be fed through a settlement pond, interceptor and then discharge to vegetation.

7.5 Surface Water Settlement Ponds

As an additional precaution soiled runoff from the construction areas of the main site is to be passed through temporary sediment ponds. These ponds will collect the construction site storm water runoff during rain events, allowing the sediment particles to settle within the basin, preventing it from entering watercourses. The ponds allow treated water discharge from the pond at high level. The flow of surface water from the pond will be limited to allow for longer settlement periods within the ponds and to also protect the construction site from being affected from periods of heavy rainfall by containing the increased volume of surface water. Refer to Figure 7.2 for a typical Settlement Pond detail. Sump units to be provided which will convey surface water runoff via a combination of gravity drains and pumped rising mains to proposed surface water settlement ponds.

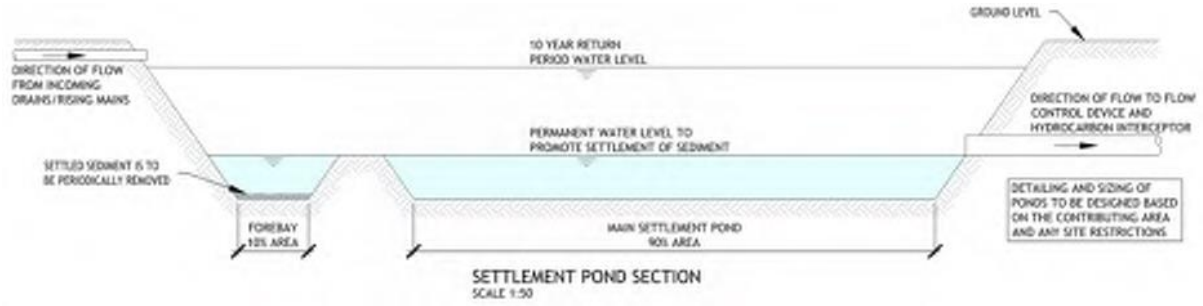

Figure 7.2: Typical Settlement Pond Detail

7.6 Site Management Control Measures

Any materials stored on site shall be done so in a safe manner. Any hazardous construction materials shall be stored appropriately. Any fuels or chemicals on site will be stored within double sealed tanks with bunds to prevent any seepage of same into the groundwater or towards the River Shannon. A fuel filling point shall be set-up on site with all plant to be brought to this point for filling. All fuels and chemicals required to be stored on site shall be clearly marked.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, shall take place in a designated area (or where possible off the site) which will be away from surface water gullies or drains. An adequate supply of spill kits and hydrocarbon adsorbent packs shall be stored in this area. All relevant personnel shall be fully trained in the use of this equipment. Guidelines such as 'Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001) shall be complied with. Emergency contact numbers for the Local Authority Environment Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident. Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same. The site manager will be responsible for the implementation of these measures.

Other measures to mitigate surface water impacts during construction will include:

- Progressive re-vegetation of landscape areas to minimise exposed areas of runoff.
- Construction activities will be confined within the necessary construction area(s) of each phase.

- Mulching, retention of vegetation, and topsoil for final site landscaping works.
- Regular inspection and maintenance of silt fences and settlement ponds. They will be inspected on at least a daily basis for the duration of works, and a record of these inspections will be maintained. Following rainfall events inspection of erosion control measures and removal of collected material shall be undertaken. Replacement of any damaged equipment shall be performed immediately.
- Monitoring of water quality from settlement ponds as appropriate.

7.7 Surface Water Drainage following Construction

Following the completion of construction works in each phase, the operational stage stormwater drainage measures will come into effect.

For the operational phase of the development, it is proposed to outfall to an existing drain located to the west of the CIE expanded bus parking area. A new surface water sewer network shall be provided for the proposed development which will be entirely separated from the foul water sewer network. All surface water run-off from existing roof areas and hardstanding areas are to be collected by a gravity pipe network.

All storm water run-off from hard paved surfaces will be collected via trapped gullies, thereby ensuring removal of detritus and floating contaminates.

As part of the SuDS design there will be an attenuation system incorporated into the proposed stormwater drainage design. The CIE drainage will pass through an attenuation storage tank and a petrol Interceptor. The interceptors will be subject to regular maintenance / cleaning to ensure suitable operation is maintained long term. A hydrobrake provided downstream of the attenuation system will limit forward flow to existing run-off rates as per the Development Plan requirements.

Please refer to PUNCH/CST Group Drainage Layout 120278-501 for further information.

8. AREA SPECIFIC METHOD STATEMENTS FOR THE WORKS

PUNCH / CST Group Consulting Engineers were appointed by Westmeath County Council to provide detailed designs for the provision of Phase 2 of a new link road from Coosan Point to The Crescent, Athlone. The provision of the new link road will also provide additional parking areas within the CIE bus depot. The works will result in increased hard paved areas and increased surface water run-off to the storm water drainage network.

8.1 Site Description

During this time the greatest risk to surface water quality is generated from run-off from open excavations early on in the construction process, prior to the operation of the piped surface water networks constructed for the development. The lands generally fall towards the existing surface water outfall to the west of the lands.

To minimise risk of contamination of this outfall and downstream network the works will commence from the proposed access off The Cresent. Only minimal areas will be stripped of soil in any single operations. Upon achieving formation level each area will be immediately covered in clean stone. This will ensure rainfall does not wash silts off the site and construction vehicles have a clean surface to track over. A single spoil heap will be formed for the temporary storage of excavated material from the site. Surplus excavated material will be removed off site to resister tip sites as soon as possible in order to further limit the need for onsite storage of excavated material. The lands between the construction site and the outfall location will be undisturbed with the existing vegetation remaining in place. All pumped rainfall that enters the excavations will be dealt with as per the procedure above. Any overland flows resulting from extreme unforeseen rainfall will passage the grassed/vegetation areas. The vegetation will slow overland flows and separate suspended silts prior to rainfall arrival at the outfall culvert.

The completion of the internal drainage and roads will be prioritised, thereby achieving a sealed road surface and trapped drainage network as early in the operation as possible. The drainage network incorporates storm water attenuation with the intention of achieving zero increase in discharge flows on the receiving water course.

8.2 CIE Bus Station and Parking

The construction of the Bus parking area is envisaged to take approximately 2-3 month to complete. During this time the greatest risk to surface water quality is generated from run-off from open excavations for the attenuation system early on in the construction process and wider paved surface area as the project progresses. The final connection of gullies to the piped surface water networks will not be achieved until completion of the project here. The lands generally fall towards the existing surface water outfall to the west of the lands. Only minimal areas will be stripped of soil in any single operations, commencing with excavations for the attention system. Upon achieving formation level each area will be immediately covered in clean stone. This will ensure rainfall does not wash silts off the site and construction vehicles have a clean surface to track over. All excavated material in this area will be removed off site to registered tip locations. Excavated material will be removed off site to tip as soon as possible in order to limit the need for onsite storage of excavated material. The works will be programmed such that the existing vegetation between the ongoing works area and the outfall will remain in place. All pumped rainfall that enters the excavations will

be dealt with as per the procedure above. Any overland flows resulting from extreme unforeseen rainfall will passage the grassed/vegetation areas. The vegetation will slow overland flows and separate suspended silts prior to rainfall arrival at the outfall culvert.

The drainage network incorporates storm water attenuation and vortex flow control with the intention of achieving zero increase in discharge flows on the receiving water course. Additionally trapped road gullies and hydrocarbon interceptors are to be installed to ensure no hydrocarbons are permitted to depart the site and enter the streams that ultimately lead to the River Shannon.

8.3 Risk Mitigation

The following Construction Industry Research and Information Association (CIRIA) best practice guidance will be adhered to:

- CIRIA C648 – Control of Water Pollution from Linear Construction Projects: Technical Guidance
- CIRIA C649 – Control of Water Pollution from Linear Construction Projects: Site Guide
- CIRIA C753 – The SUDS Manual.
- CIRIA C698 – Site handbook for the construction of SUDS
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters Inland Fisheries;
- (2005). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes.

9. CONCLUSION

This report has set out the outline management techniques to be provided by the contractor to manage surface water at the proposed developments for the full duration of the phased construction stage. The Main Contractor will be required to prepare a detailed construction management plan for the project, taking into account this Surface Water Management Plan.

No residual impact to the River Shannon or its tributaries will result.

Note:
In the event of the need for a deviation from the Surface Water Management Plan, no further work will be done until agreement has been reached and recorded in writing between the client and the contractor on the method of work to be followed in the new circumstances.

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