Comhairle Contae an Chláir
Clare County Council

Limerick City Council
Comhairle Cathrach Luimnigh

Limerick Northern Distributor Road

Supplementary Constraints Information

Draft Work In Progress - April 2012

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

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Limerick Northern Distributor Road

Supplementary Constraints Information

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1.0 INTRODUCTION

'The initial step in the Route Selection Process is to identify the nature and extent of significant constraints within a defined Study Area. These constraints shall be documented and mapped so that feasible route options can be designed to avoid such constraints where possible'.
Source: National Roads Authority '2010 Project Management Guidelines' January 2010.

A Constraints Study was undertaken for the Limerick Northern Distributor Road (Phase 2) during the Autumn of 2010, and these constraints were documented and mapped in January 2011. The following documents refer:

- Volume 1: Draft Constraints Study – Text
- Volume 2: Draft Constraints Study – Figures

The feasible route options developed in the Spring of 2011 and displayed at Public Consultation No.1 (PC1) in June 2011 sought to recognise the constraints identified in the above study.

During PC1 and the subsequent detailed assessments of the route options, and taking account of submissions received from members of the public during PC1, further clarification in relation to the constraints identified in the vicinity of each of the route options was sought and collated. This supplementary document summarises additional constraints information which has been gathered since January 2011 and, together with the earlier draft study, has been considered in the studies which led to the identification of the emerging Preferred Route Corridor. This includes for additional areas which have been considered as part of the process of development of the route options which formed the basis of PC1.

The identified emerging Preferred Route Corridor is currently the subject of an ongoing public consultation procedure which aims to ensure that all constraints which might influence the final stages of the route selection process are identified, together with any information relevant to the further development of the route, should its selection be confirmed.

This document should be read in association with the aforementioned Draft Constraints Study – Volumes 1 and 2.

2.0 LOWER RIVER SHANNON SPECIAL AREA OF CONSERVATION

2.1 Introduction

As previously outlined in Chapter 9 of the Constraints Study (Volume 1), the Lower River Shannon Special Area of Conservation (SAC) is a significant feature of the study area.

The area has been selected as an SAC for a range of habitats listed on Annex I and a range of species listed on Annex II of the EU Habitats Directive.

2.2 Consultation with National Parks and Wildlife Service

A consultation meeting was held with the National Parks and Wildlife Service (*NPWS*) on the 12th April 2011 to discuss designated sites and protected species within the study area and specific survey requirements in relation to qualifying interests (both habitats and species).

Following the initial surveys of the route alignments and detailed mapping of the vegetation in the vicinity of the Lower River Shannon Special Area of Conservation at *Knockalisheen* and along the river at Plassey, a second meeting was held to discuss the results on the 18th October 2011. As a result of queries raised during this meeting relating to the conformity of specific vegetation types to Annex listed habitats under the EU Habitats Directive, a site meeting was held with NPWS staff to review riparian woodland habitats along the River Shannon. A summary of this visit was presented to the NPWS Scientific Officer responsible for woodlands to confirm the classification of riparian woodland habitats.

2.3 Habitats within the Lower River Shannon SAC

The route options cross the Lower River Shannon SAC at two locations:

a) **Plassey:** where the routes cross the River Shannon upstream and downstream of the University of Limerick.
b) **Knockalisheen:** where the routes cross the Knockalisheen Stream and adjacent wetland area.

The habitats within the SAC are illustrated on **Figures SCI-02, SCI-03 and SCI-04, Appendix 1.**

2.3.1 Habitats Directive Annex 1 Habitats

The following Habitats Directive Annex 1 habitats were documented and mapped:

- **Alluvial forests (91E0)**

  All of the woodland habitat within the SAC crossed by the proposed routes corresponds to the priority Annex I habitat *'Alluvial forests (91EO)'*, a qualifying interest for the Lower River Shannon SAC.

- ***Hydrophilous tall herb fringe communities (6430)***

  The marsh along the floodplain of both the River Shannon and Knockalisheen Stream includes some areas of the Annex I habitat '***Hydrophilous tall herb fringe communities' (6430)***. This habitat is not a qualifying interest for the Lower River Shannon SAC.

- ***Molinia* Meadows**

  Some of the grassland at Knockalisheen conforms to the Annex I habitat ***Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion Caerulea) (6140).*** This habitat is a qualifying interest of the Lower River Shannon SAC.

2.3.2 Habitat Types

The Habitat types within the SAC are described in more detail below:

Swamp (FS1)

The swamp along the banks of the River Shannon is mainly dominated by reed canary grass (*Phalaris arundinacea*) with localised areas of common reed

(*Phragmites australis*), reedmace (*Typha latifolia*), and (*Glyceria maxima*). It forms a fringe along the water's edge and adjoining low river bank. It varies in width from 2m wide to approximately 15m wide, but is mostly a narrow band of less than 5m.

At Knockalisheen, at the northern end of the site there is an extensive area of reedmace swamp dominated by (*Typha latifolia*) and horsetail (*Equisetum fluviatile*) on floodplain adjacent to the Knockalisheen Stream.

Marsh (GM1)

The swamp vegetation along the River Shannon grades into marsh higher up the river bank. This vegetation is still subject to flooding though less frequently than the swamp. Reed canary grass is still frequent with the occurrence of a diversity of other herbaceous species including occasional water dropwort (*Oenanthe crocata*), meadow sweet (*Filipendula ulmaria*), willowherb (*Epilobium hirsutum*), Iris (*iris pseudacorus*), nettle (*Urtica dioica*), wild turnip (*Brassica rapa*) and (*Poa trivialis*). The invasive alien plants Canadian balsam (*Impatiens glandulifera*) is frequently dominant within this habitat along with locally abundant giant hogweed (*Heracleum mantegazzianum*). The substrate is alluvial silty, sandy loam and is moist. This habitat becomes colonised with sapling woody species; willows (*Salix spp*.) and alder (*Alnus glutinosa*) over time.

There are three locations of tall herbaceous marsh vegetation dominated by meadowsweet with some of the above species and also horsetail (*Equisetum arvense*), bindweed (*Calystegia sepium*) and purple loosestrife (*Lythrum salicaria*) which correspond to the Annex I habitat ***Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430),*** as listed in the EU Habitats Directive and described in the *Irish Semi-natural Grassland Survey* (O'Neill et al. 2009). It includes the diagnostic and differential species listed in the Filipendulion vegetation alliance (White and Doyle, 1982). This habitat is not listed as a qualifying interest of the SAC.

Riparian Woodland (WN5)

The woodland growing on alluvial substrate along the low-lying river banks of the River Shannon and the Knockalisheen Stream has a canopy dominated by alder and willow species (which include *Salix alba, S. fragilis, S. cinerea* and *S. viminalis* and likely hybrids of the latter). The ground flora includes many of the marsh species listed above. On the landward side of this habitat where the substrate is somewhat drier other species such as angelica (*Angelica sylvestris*), meadowsweet, remote sedge (*Carex remota*), cleavers (*Galium aparine*), bramble (*Rubus fruticosus aggr*.) and giant hogweed are found as well. Where the canopy is fairly open, there is a greater extent of marsh vegetation beneath. Trees are up to 15m high, and are mainly semi-mature to mature (15–30cm diameter at breast height), though there is considerable variation at different locations.

This habitat is described in *The Classification of Native Woodlands in Ireland* (Cross 2010) under sub-type ***Salix-Urtica*** **(SU)** and corresponds to the Priority Annex I habitat ***Alluvial Forest with Alnus Glutinosa and Fraxinus excelsior (Alno-padion, Alnion incanae, Salicion albae) (91E0)***, as listed in the EU Habitats Directive and described in the Interpretation Manual of European Union Habitats (2007).

Wet grassland (GS4)

At Knockalisheen, the grassland west of Knockalisheen Stream occurs on poorly drained soil which slopes to the north towards the stream. It is generally very

species rich with a good diversity of grasses, rushes, sedges and herbs including sweet vernal grass, red fescue Yorkshire fog *(Holcus lanatus),* rough meadow grass *(Poa trivialis},* creeping bent grass (*Agrostis stolonifera)*. Rushes (*Juncus acutiflorus)* are locally frequent as well as occasional soft rush (*J. Effusus)* and heath wood rush *(Luzula multiflora)*. Among the sedges are *Carex flacca, C. panacea, C. hirta, C. ovalis* and *C. nigra* with occasional pale sedge *Carex pallescens*. There is a good diversity of herbs including ragged robin (*Lychnis floscuculi*) and rarely marsh orchid (*Dactylorhiza maculata*). Also greater bird's foot trefoil, meadow buttercup, self-heal *(Prunella vulgaris),* silverweed *(Potentilla anserina),* lady's smock *(Cardamine pratensis),*marsh bedstraw *(Galium palustre),* meadowsweet, sorrel *(Rumex acetosa),* meadow vetchling *(Lathyrus pratensis),* and red clover *(Trifolium pratense)*. Yellow rattle (*Rhinanthus minor)* and fleabane *(Pulicaria dysinterica)* are local. The moss cover is locally frequent and includes mainly *Calliergonella cuspidata* with occasional *Rhytidiadelphus squarrosus* and *Brachythecium rutabulum*.

While purple moor grass (*Molinia caerulea)* does not occur within the grassland, localised areas have enough positive indicator species as identified by O'Neill et al. (2009) to correspond to the Annex I habitat ***Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion Caerulea) (6140)***. Those areas that do not support a sufficient number of indicator species are classified as Wet Grassland (GS4).

On the steeper slopes at Knockalisheen, the grassland community is comprised of drier species, with a reduction in the abundance of rushes and many of the sedges and an increase in the cover of grasses including crested dogs-tail (*Cynosurus cristatus),* and sweet vernal grass, along with ribwort plantain *(Plantago lanceolata)* and cat's ear (*Hypochaeris radicata)*.

2.4 Consideration of European Sites

European sites warrant additional consideration over and above other designated conservations areas. The Habitats Directive requires an 'appropriate assessment' to be carried out where a development is likely to have a significant impact on an SAC or SPA. On that basis it is important to note that 'significant impact' relates to the impacts on the site selection features (the qualifying interests) and their associated conservation objectives. Any impact on these is likely to result in a negative finding in the appropriate assessment, which in turn requires the examination of alternative solutions, or, in the absence of alternative solutions, the identification of 'imperative reasons of over-riding public interest'.

The National Roads Authority *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (Revision 2, 1st June 2009) provides guidance on this aspect of the Habitats Directive (refer Chapter 5).

2.5 References

Anon. (2007). *Interpretation manual of European Union habitats*. EUR 27. European Commission, DG Environment

Cross, J, Perrin P., Little, D. (2010) *The Classification of Native Woodlands in Ireland and its application to Native Woodland Management*. Woodlands of Ireland.

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NRA (2009). *Guidelines for Assessment of Ecological Impacts of National Road Schemes*. National Roads Authority.

O'Neil, F, Martin, J, Perrin, P., Delaney, A. Mc Nutt, K, Devaney, F. (2009) *BEC Consultants Irish Semi-natural grasslands survey. Annual Report No. 2 Counties Cavan, Leitrim, Longford and Monaghan.*

White, J. & Doyle, G. (1982). The vegetation of Ireland: a catalogue raisonné. *Journal of Life Sciences*, *Royal Dublin Society* 3**,** 289-368

3.0 HYDROGEOLOGICAL CONSTRAINTS ASSOCIATED WITH ARDNACRUSHA HEADRACE CANAL

In response to the route options public consultation ESB highlighted the hydrogeological sensitivity of the area immediately south of the headrace canal, in the vicinity of the most northerly route options.

The headrace canal is formed by 'Category A' earthen embankment dams. This categorisation is one where a breach of the structure could lead to loss of life downstream. This constraint had previously been recognised as a restriction on the construction of routes that cross the headrace, but had not previously been understood to constrain route options south of the canal.

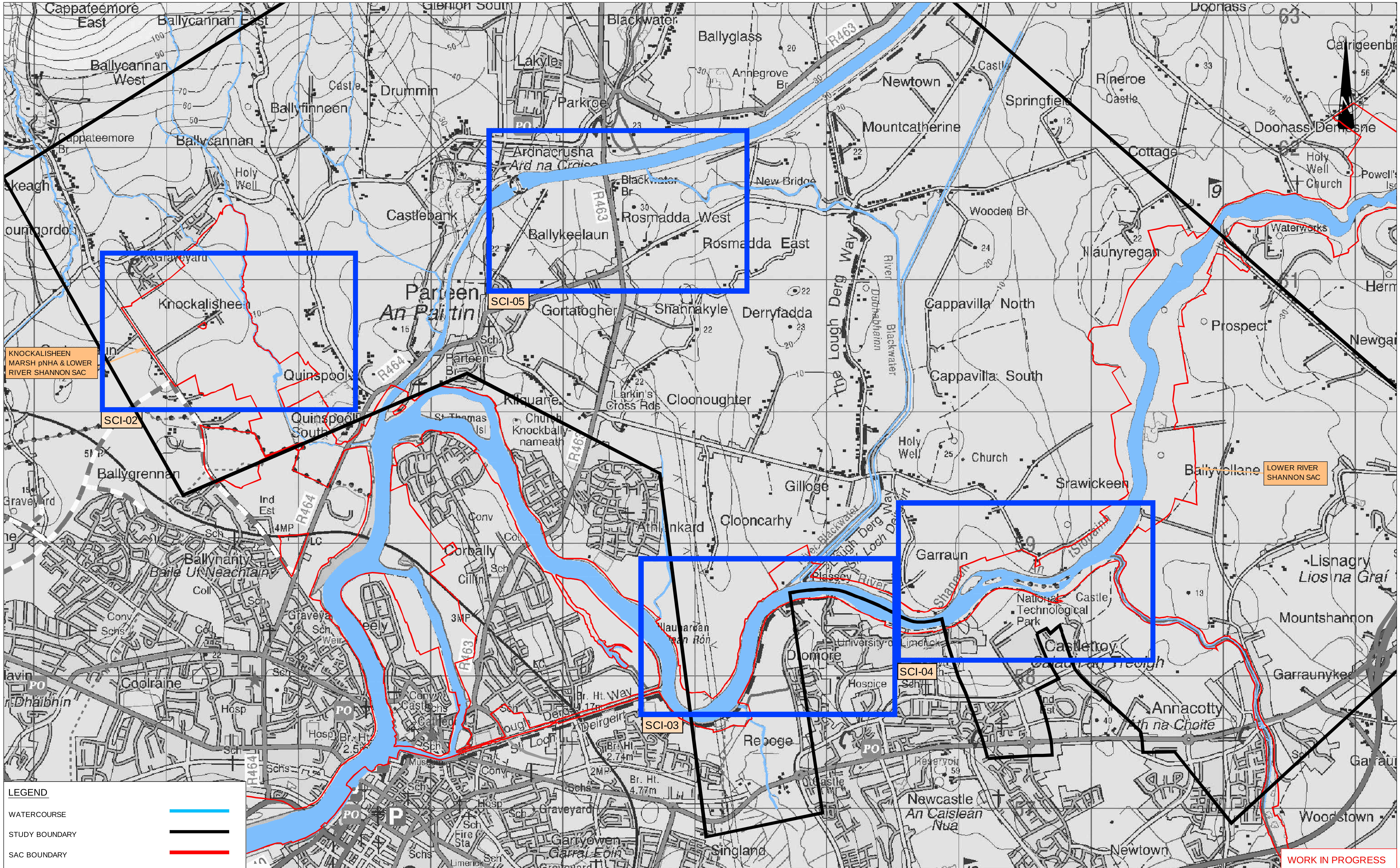
Further clarifications received from the ESB have advised that over the years incidents have occurred relating to drainage, mainly minor in nature, that were deemed to have a connection to the headrace canal. These incidents were detected by ESB as part of its routine monitoring of the headrace and were dealt with without any adverse impact on the headrace. However these incidents indicate that route route options to the north traverse ground with very poor drainage qualities. Excavation and construction work on the scale required to deliver these routes could alter the groundwater flow patterns in the area, with potential adverse consequences for the stability of the headrace. The locations of previous incidents and ESB monitoring points in the vicinity of the route options are shown on **Figure SCI-05, Appendix 1**.

4.0 CONCLUSION

In accordance with the NRA Project Management Guidelines the contents of both the January 2011 Draft Constraints Study and the above Draft Supplementary Constraints Information, together with any additional constraints information gathered during the ongoing public consultation process, will be compiled into the formal report on the route selection once the process is complete.

APPENDIX 1:

FIGURES



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Designed: LF	Checked: MC	Approved: JET	Status: WORK IN PROGRESS

Project Title
LIMERICK NORTHERN DISTRIBUTOR ROAD

Drawing Title
SUPPLEMENTARY CONSTRAINTS INFORMATION
KEY PLAN

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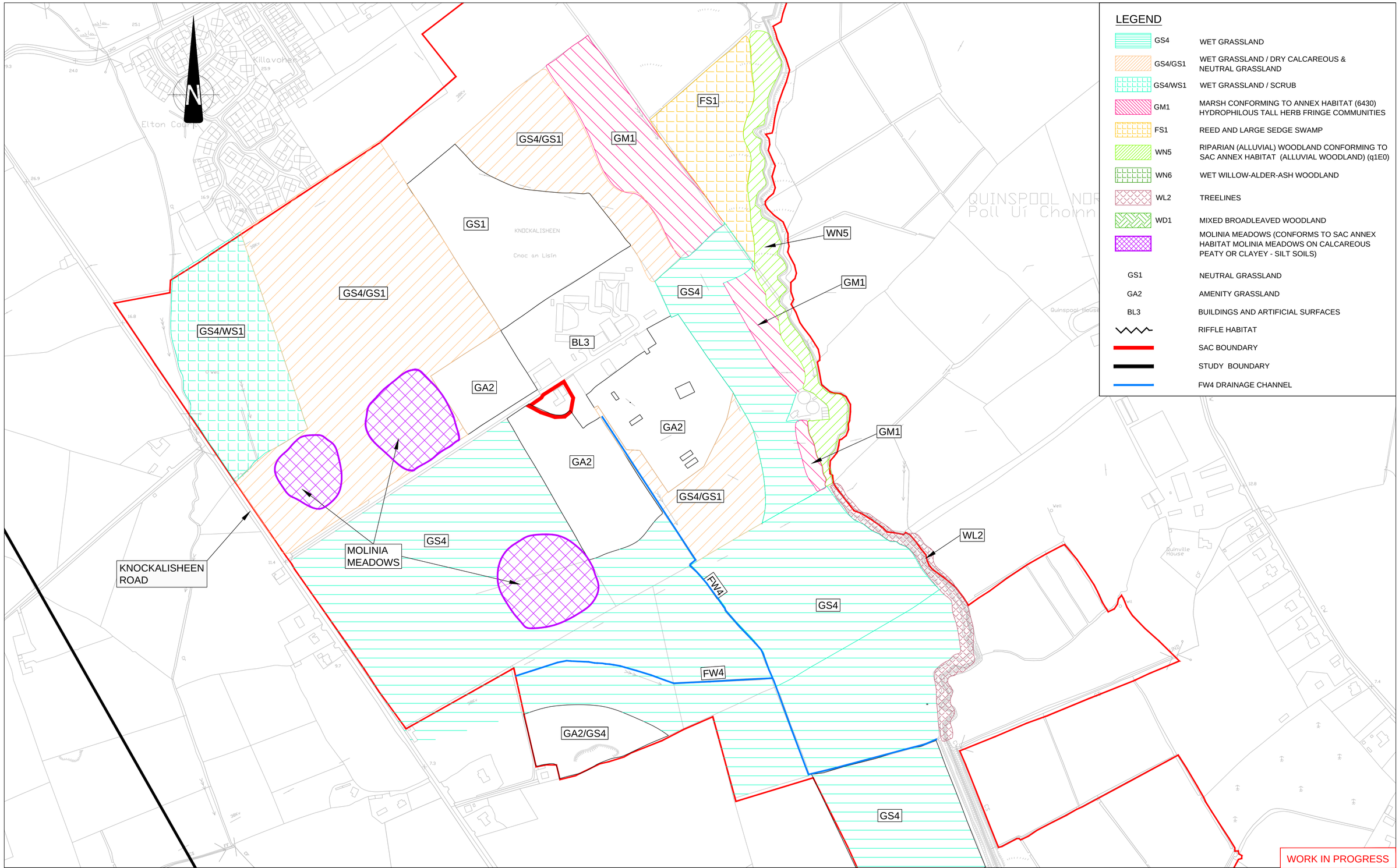

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Project Title: LIMERICK NORTHERN DISTRIBUTOR ROAD

Drawing Title: SAC HABITAT SHEET 1 OF 3

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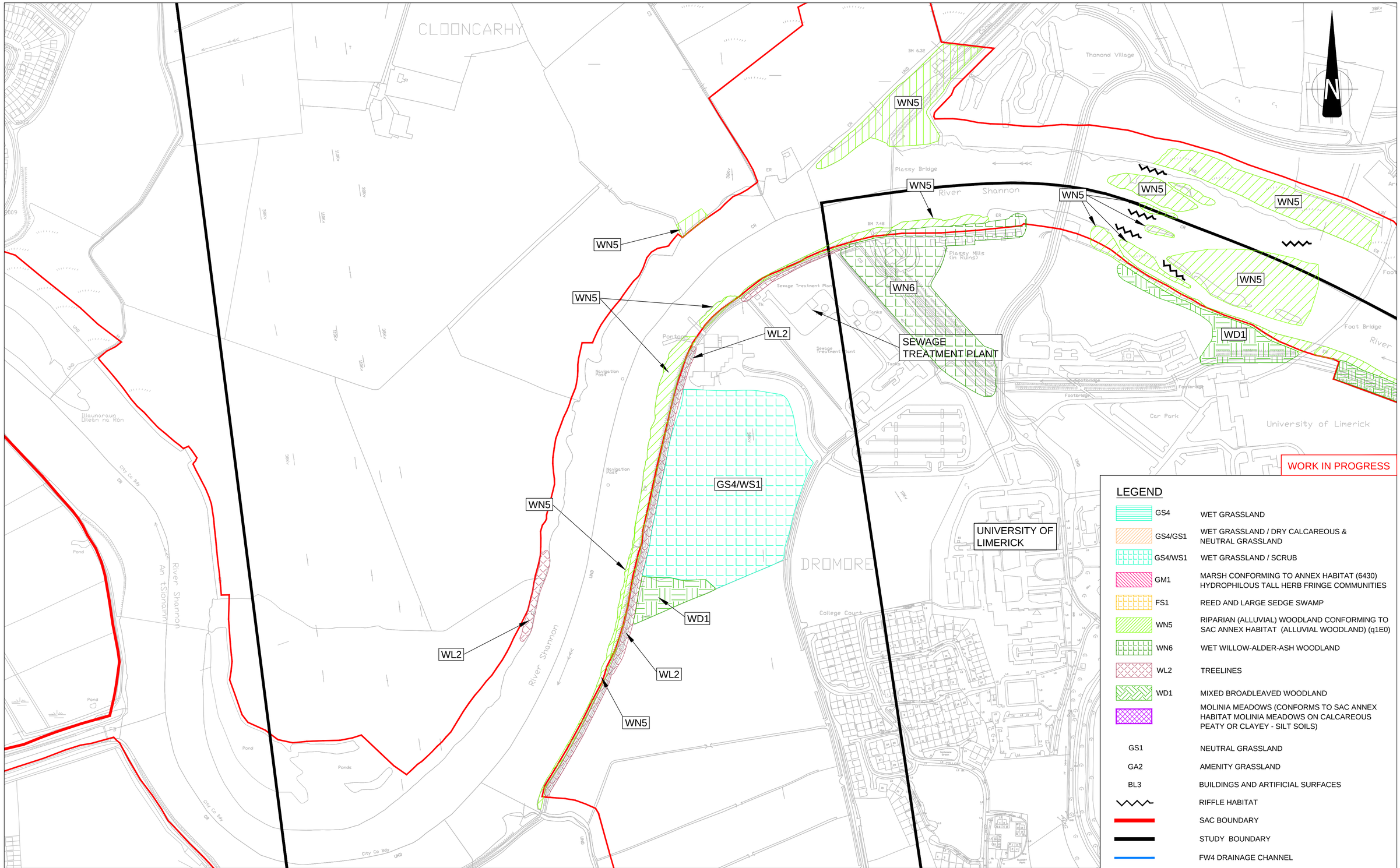

WORK IN PROGRESS

LEGEND

GS4	WET GRASSLAND
GS4/GS1	WET GRASSLAND / DRY CALCAREOUS & NEUTRAL GRASSLAND
GS4/WS1	WET GRASSLAND / SCRUB
GM1	MARSH CONFORMING TO ANNEX HABITAT (6430) HYDROPHILOUS TALL HERB FRINGE COMMUNITIES
FS1	REED AND LARGE SEDGE SWAMP
WN5	RIPARIAN (ALLUVIAL) WOODLAND CONFORMING TO SAC ANNEX HABITAT (ALLUVIAL WOODLAND) (q1E0)
WN6	WET WILLOW-ALDER-ASH WOODLAND
WL2	TREELINES
WD1	MIXED BROADLEAVED WOODLAND
	MOLINIA MEADOWS (CONFORMS TO SAC ANNEX HABITAT MOLINIA MEADOWS ON CALCAREOUS PEATY OR CLAYEY - SILT SOILS)
GS1	NEUTRAL GRASSLAND
GA2	AMENITY GRASSLAND
BL3	BUILDINGS AND ARTIFICIAL SURFACES
	RIFFLE HABITAT
	SAC BOUNDARY
	STUDY BOUNDARY
	FW4 DRAINAGE CHANNEL

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Project Title: LIMERICK NORTHERN DISTRIBUTOR ROAD

Drawing Title: SAC HABITAT SHEET 2 OF 3

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LEGEND

GS4	WET GRASSLAND
GS4/GS1	WET GRASSLAND / DRY CALCAREOUS & NEUTRAL GRASSLAND
GS4/WS1	WET GRASSLAND / SCRUB
GM1	MARSH CONFORMING TO ANNEX HABITAT (6430) HYDROPHILOUS TALL HERB FRINGE COMMUNITIES
FS1	REED AND LARGE SEDGE SWAMP
WN5	RIPARIAN (ALLUVIAL) WOODLAND CONFORMING TO SAC ANNEX HABITAT (ALLUVIAL WOODLAND) (q1E0)
WN6	WET WILLOW-ALDER-ASH WOODLAND
WL2	TREELINES
WD1	MIXED BROADLEAVED WOODLAND
	MOLINIA MEADOWS (CONFORMS TO SAC ANNEX HABITAT MOLINIA MEADOWS ON CALCAREOUS PEATY OR CLAYEY - SILT SOILS)
GS1	NEUTRAL GRASSLAND
GA2	AMENITY GRASSLAND
BL3	BUILDINGS AND ARTIFICIAL SURFACES
	RIFFLE HABITAT
	SAC BOUNDARY
	STUDY BOUNDARY
	FW4 DRAINAGE CHANNEL

SRAWICKEEN

River Shannon

Cappavilla Village

Area under construction

Castle Troy (in ruins)

Castle Troy

CASTLETROY

UNIVERSITY OF LIMERICK

CASTLETROY BUSINESS PARK

Riffle Habitat

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Project Title: LIMERICK NORTHERN DISTRIBUTOR ROAD

Drawing Title: SAC HABITAT SHEET 3 OF 3

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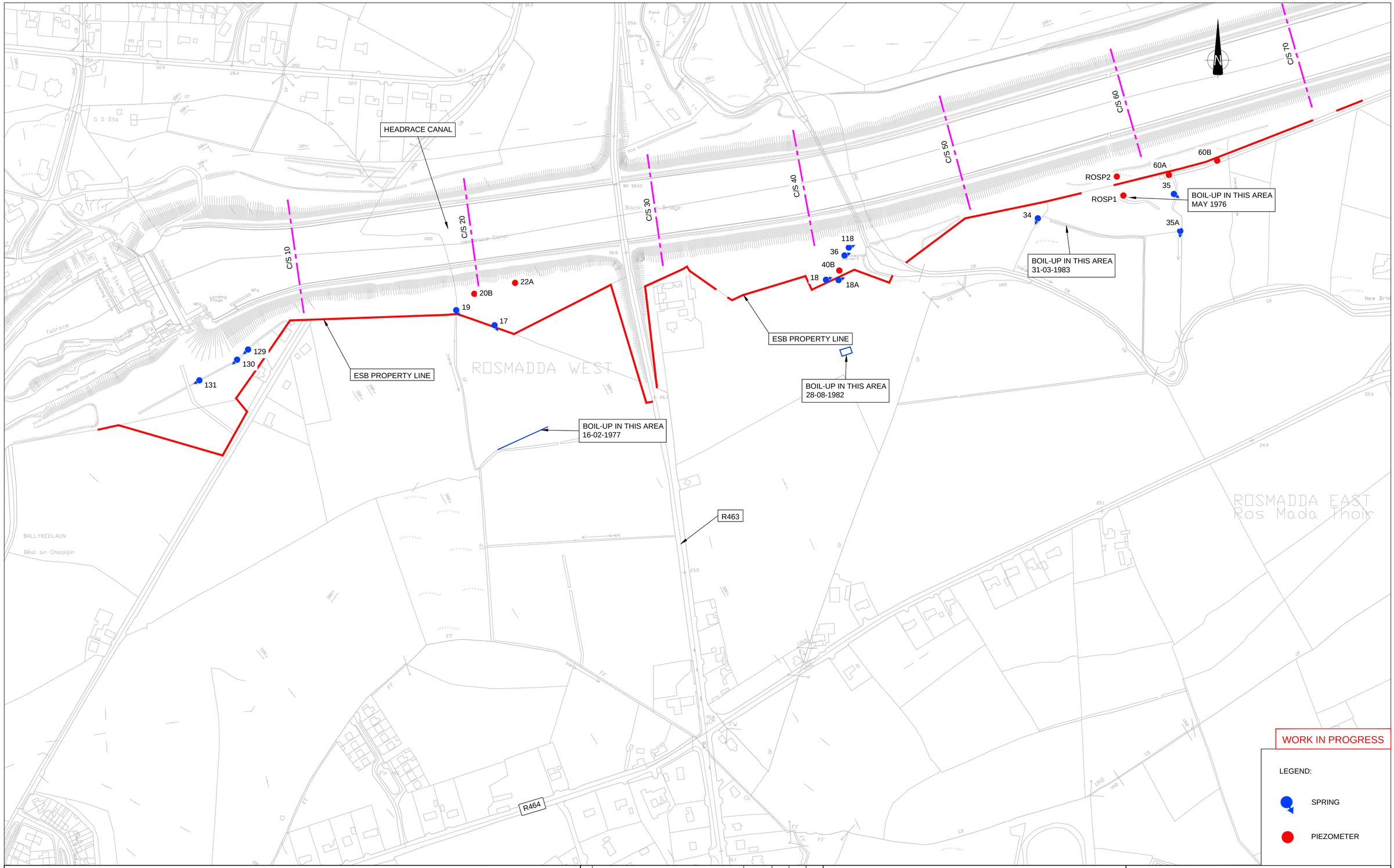

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LEGEND:

SPRING

PIEZOMETER

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Project Title: LIMERICK NORTHERN DISTRIBUTOR ROAD

Drawing Title: ESB MAPPING OF HYDROGEOLOGICAL CONSTRAINTS ASSOCIATED WITH IMPOUNDMENT DAMS

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