

CHAPTER 6 FLORA AND FAUNA

- Appendix 6.5 Breeding Bird Survey

DRAFT



North South 400kV Interconnection Development

Breeding Bird Survey (2014)

November 2014

TOBIN CONSULTING ENGINEERS



REPORT

PROJECT:

**North South 400kV Interconnection
Development**

Breeding Bird Survey (2014)

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DOCUMENT AMENDMENT RECORD

Client:	EIRGRID
Project:	North South 400kV Interconnection Development
Title:	Breeding Bird Survey (2014)

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TOBIN Consulting Engineers							

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1 INTRODUCTION

TOBIN Consulting Engineers were commissioned by EirGrid to undertake a breeding bird survey within the preferred route corridor for the proposed North South 400kV Interconnection Project. This report details the findings of this survey carried out during the bird breeding season (April – June 2014).

The 2014 survey updates breeding bird surveys conducted within the same study area (preferred route corridor) in spring/summer 2009, 2012 and 2013.

Progress on the project has led to the identification of the preferred line route within the preferred route corridor which considered a range of criteria including landscape, settlements, archaeology and ecology/ birds. The descriptions of bird species and sites identified are presented in relation (distance) to the preferred line route location (October 2014).

The route design followed a precautionary approach to minimise potential impacts to breeding birds based on the survey works to date. This approach includes avoidance of wetland areas (lakes and ponds), bog and woodland and minimising impacts to hedgerows and more mature treelines.

The study area contains one Special Protection Areas for Birds; River Boyne and Blackwater SPA (Site Code: 004232). This river site is designated for protection of breeding Kingfisher (*Alcedo atthis*). The preferred line route crosses this site at two locations (River Boyne and River Blackwater).

1.1 STUDY AREA

The preferred line route starts at the existing electricity substation at Woodland near Dunshaughlin Co. Meath. It then extends north through the flat intensively managed mixed farming (arable and livestock) landscape (with dense hedgerow field boundaries) of Co. Meath. In north Co. Meath it passes through a drumlin landscape. It proceeds through a small section of Co. Cavan before passing through Co. Monaghan before ending at the border with Co. Tyrone. Counties Cavan and Monaghan consist of a drumlin landscape dominated by improved grazing pasture. There are also numerous small lakes and inter-drumlin wetlands (consisting of wet grassland, marsh, degraded bog and scrub/ bog woodland) in the drumlin hollows. All these habitats influence the species of breeding bird recorded.

For descriptive purposes the survey area is divided into two sections as follows:

1. Woodland to Kingscourt – Meath Study Area (MSA); and
2. Kingscourt to Northern Ireland Border – Cavan / Monaghan Study Area (CMSA).

The wider study area, including specific areas subject to bird survey is detailed in Figures 1.1 to 1.4 (MSA – Co Meath Study Area) and Figures 1.5 to 1.7 (CMSA - Cavan Monaghan Study Area).

The focus of the study was the preferred line route and approximately 500m either side. In addition lakes/ponds and other potential sites of significance were surveyed beyond this distance (generally within 2km of preferred line route), so as to consider potential sensitive species (to the development)

which may fly between lakes in particular. These birds (typically waterfowl) tend to be species most at risk from collision with a new transmission line.

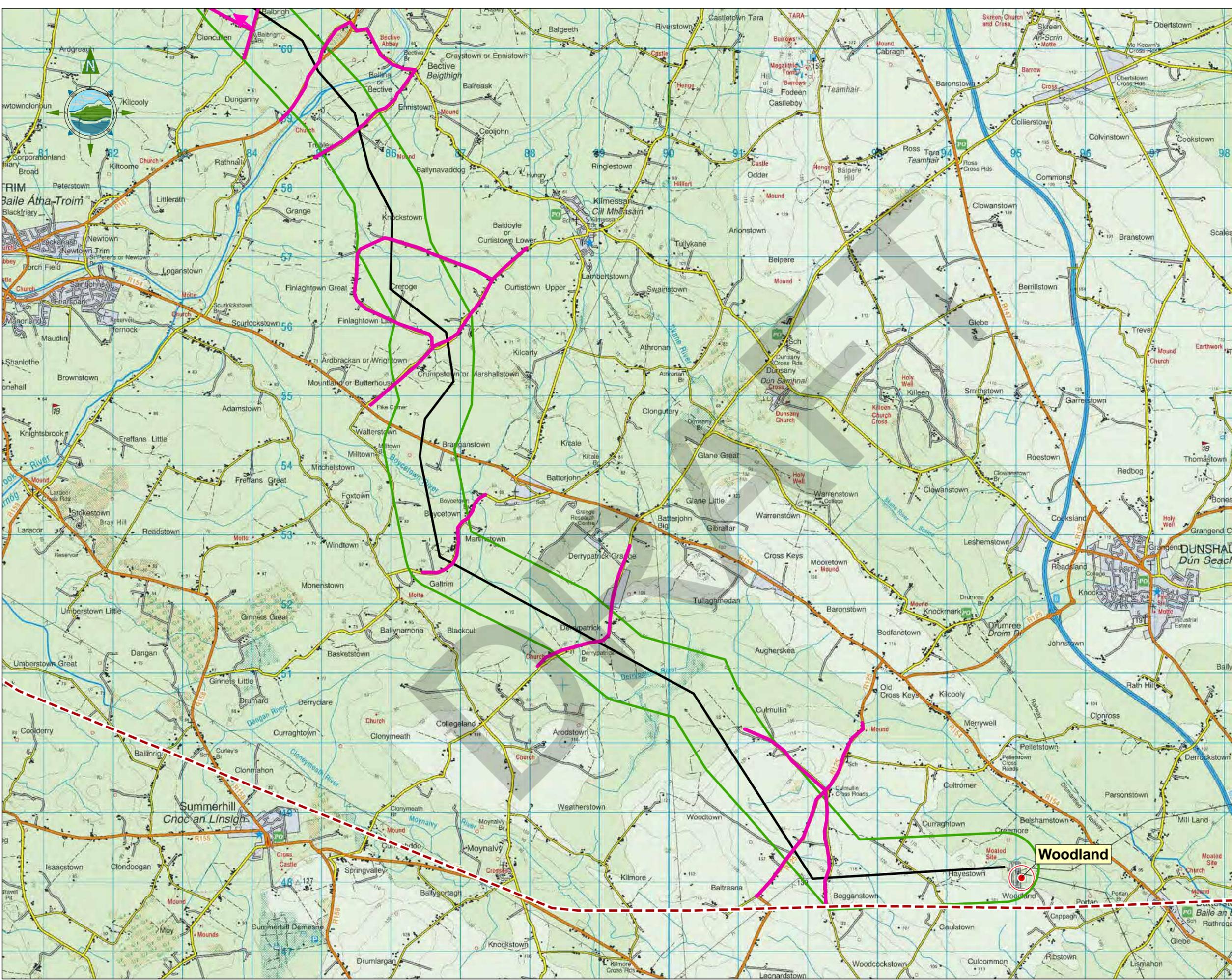
The surveys focused on breeding bird species listed on Annex I of the EU Birds Directive (79/409/EEC)¹ and birds listed as being of high (Red listed) and medium (Amber listed) conservation concern (as identified by BirdWatch Ireland²). In addition, commoner species (Green listed) potentially sensitive to the development were also recorded.

The surveys were conducted by experienced ornithologists/bird surveyors from TOBIN Consulting Engineers.

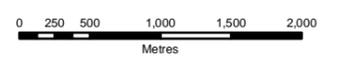
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¹ The species listed in Annex I of the EU Birds Directive are those in danger of extinction, rare, vulnerable to specific changes in their habitat requiring particular attention for reasons of the specific nature of their habitat.

² <http://www.birdwatchireland.ie/Default.aspx?tabid=178>



- LEGEND**
- Approximate Route Study Area
 - Existing Substation Location
 - Proposed Line Route
 - 1km Corridor
 - General areas surveyed from public roads
 - Specific wetlands/ lakes/ rivers/ ponds and other noteworthy habitats surveyed



Client:

Project: **NORTH-SOUTH 400 kV INTERCONNECTION DEVELOPMENT**

Title: **MSA Breeding Bird Survey 2014**

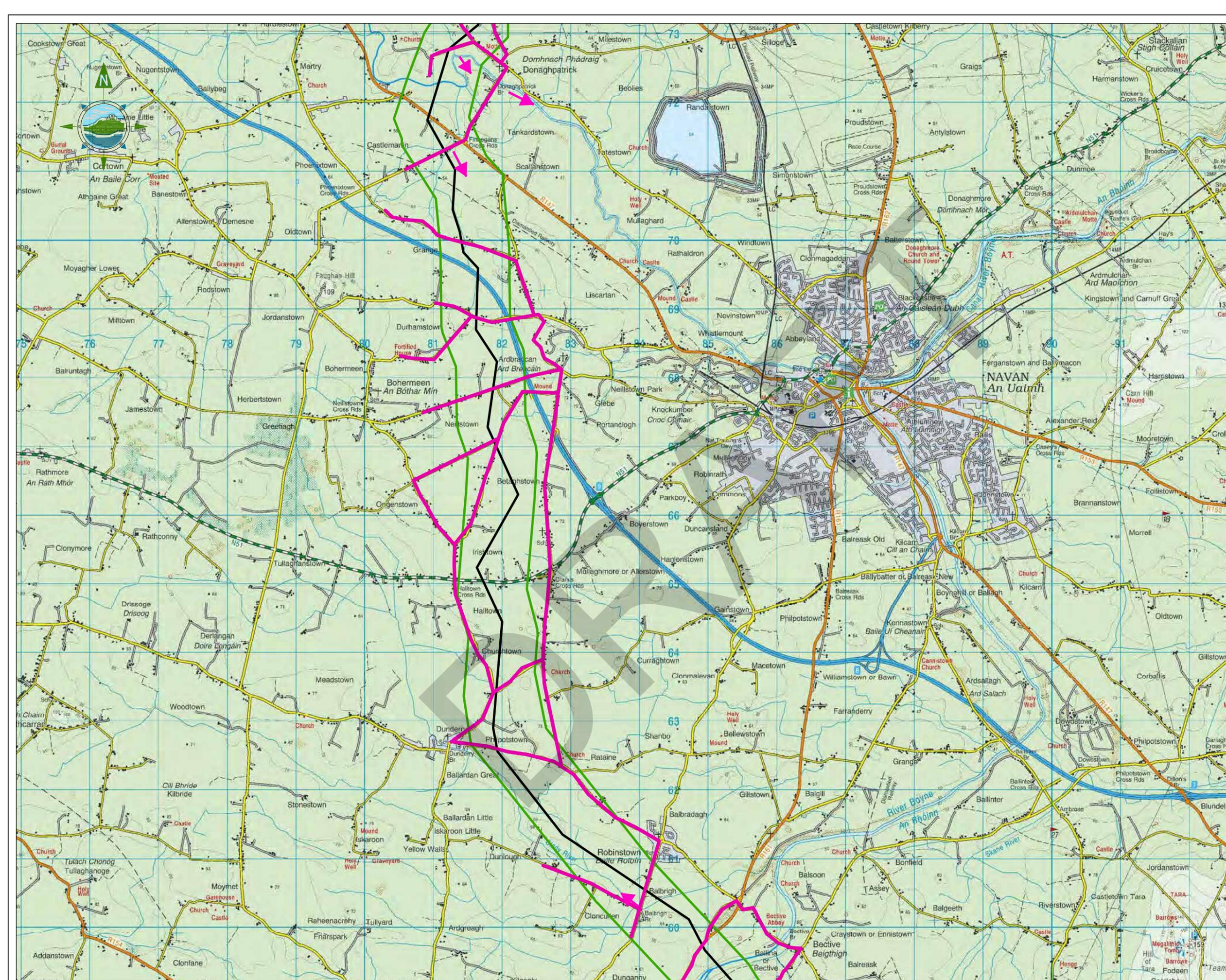
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Project Director: D.Grehan

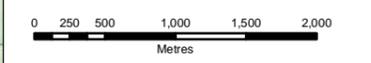
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Issue: **FIGURE 1.1 (MSA) A**



LEGEND

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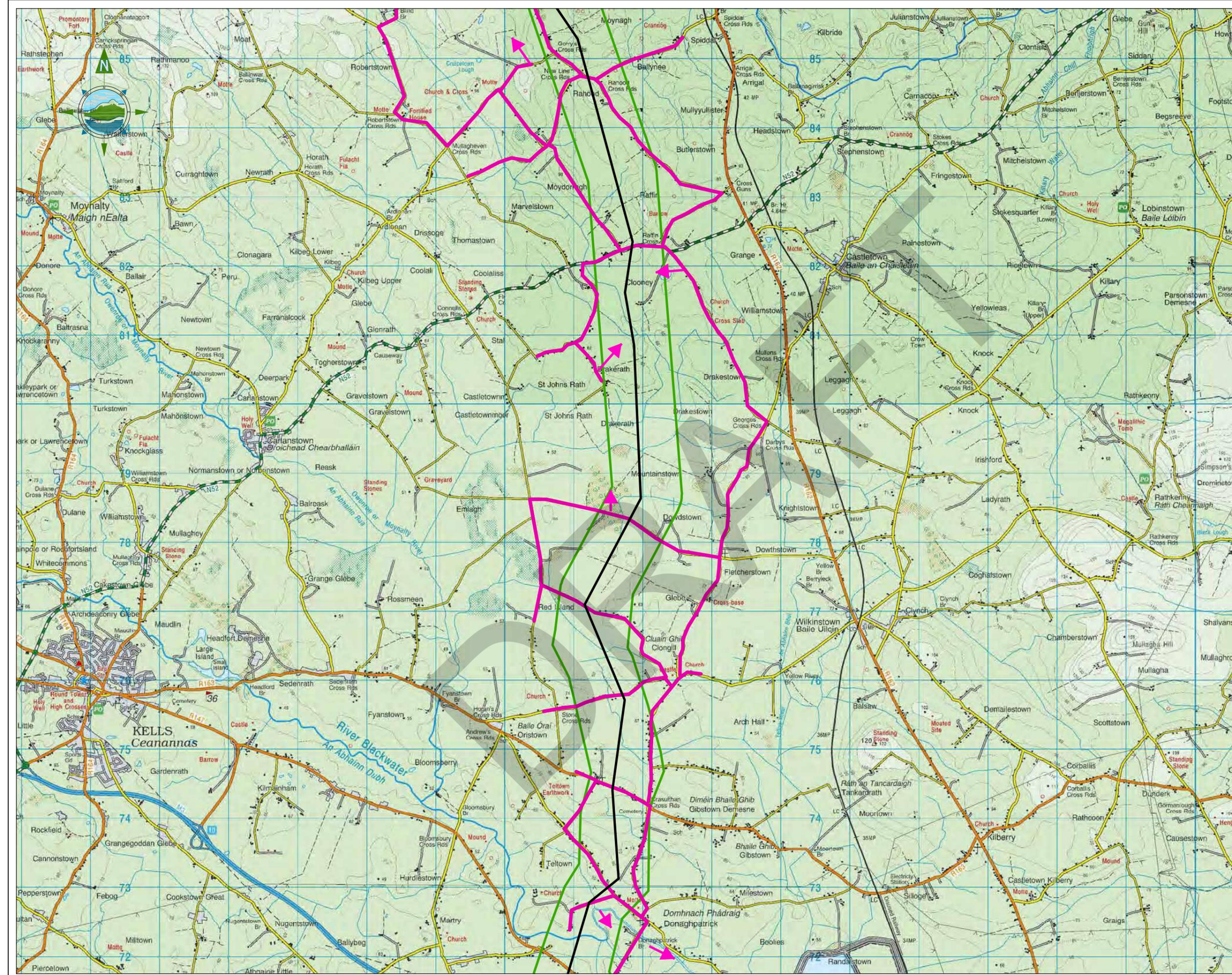
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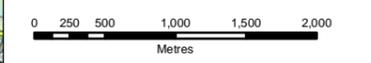
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FIGURE 1.2 (MSA) A



LEGEND

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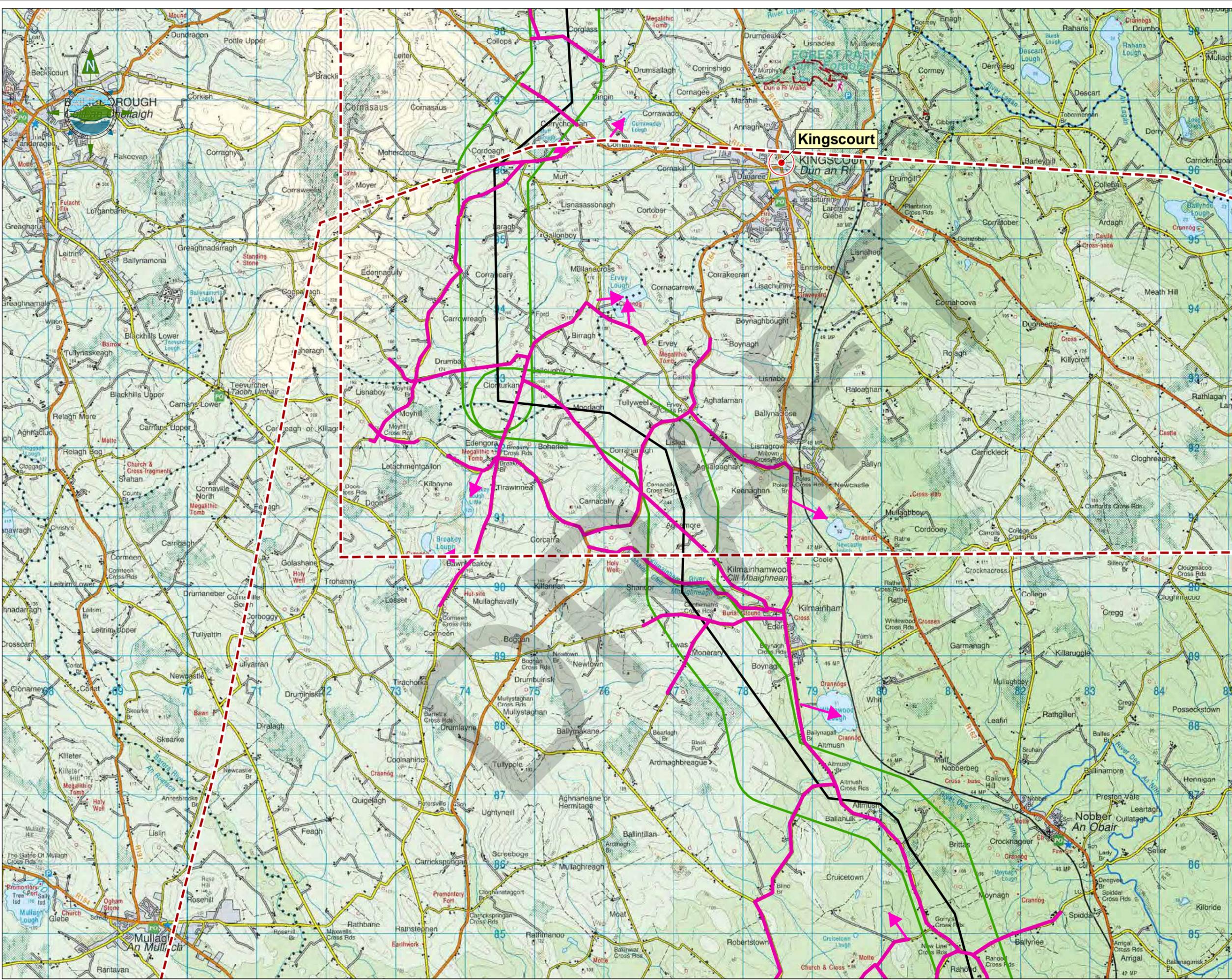
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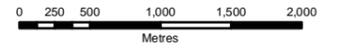
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FIGURE 1.3 (MSA) A



- LEGEND**
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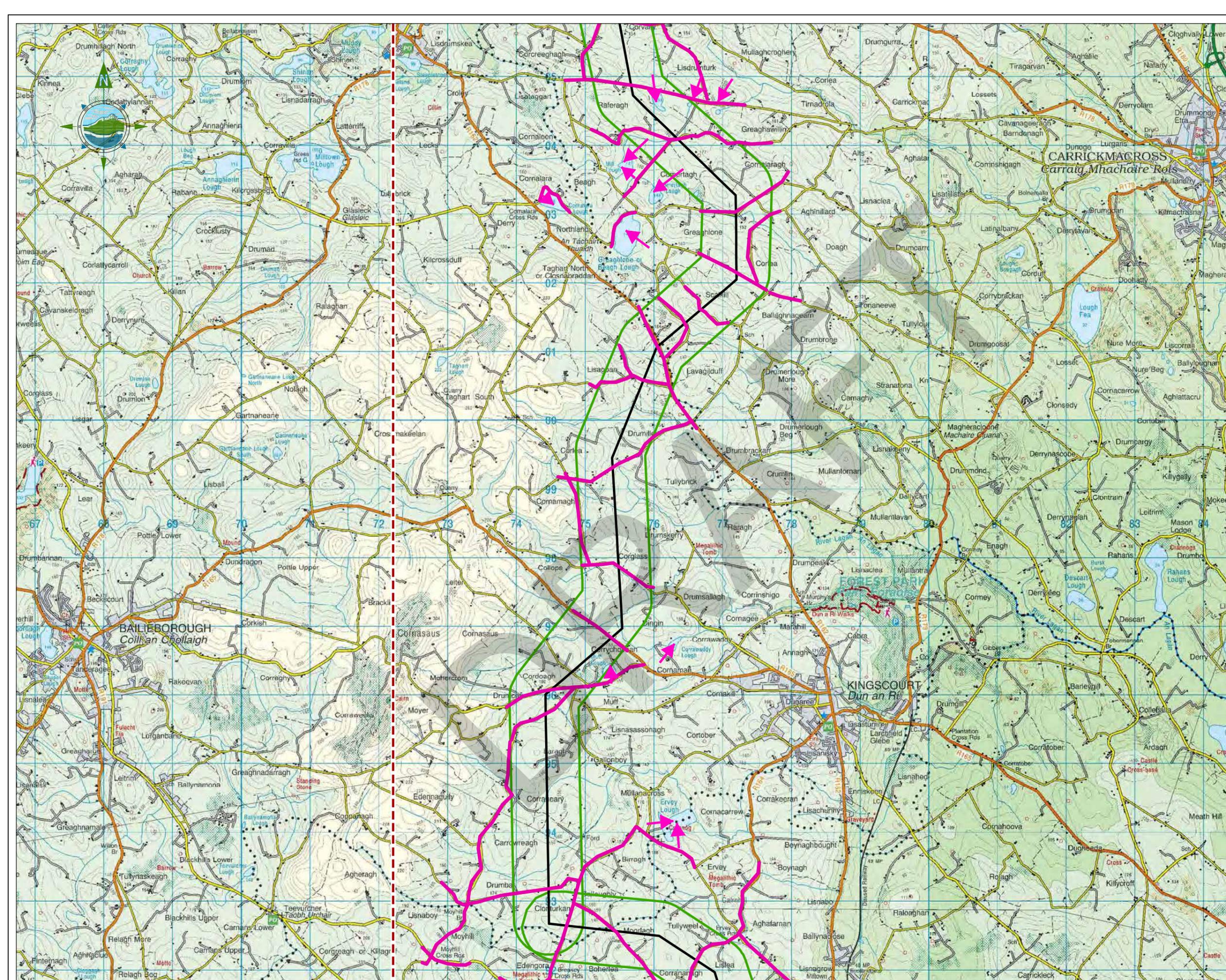
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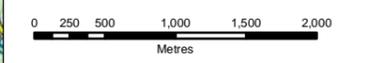
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Issue: **FIGURE 1.4 (MSA) A**



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Client:

Project:

NORTH-SOUTH 400 kV INTERCONNECTION DEVELOPMENT

Title:

CMSA Breeding Bird Survey 2014

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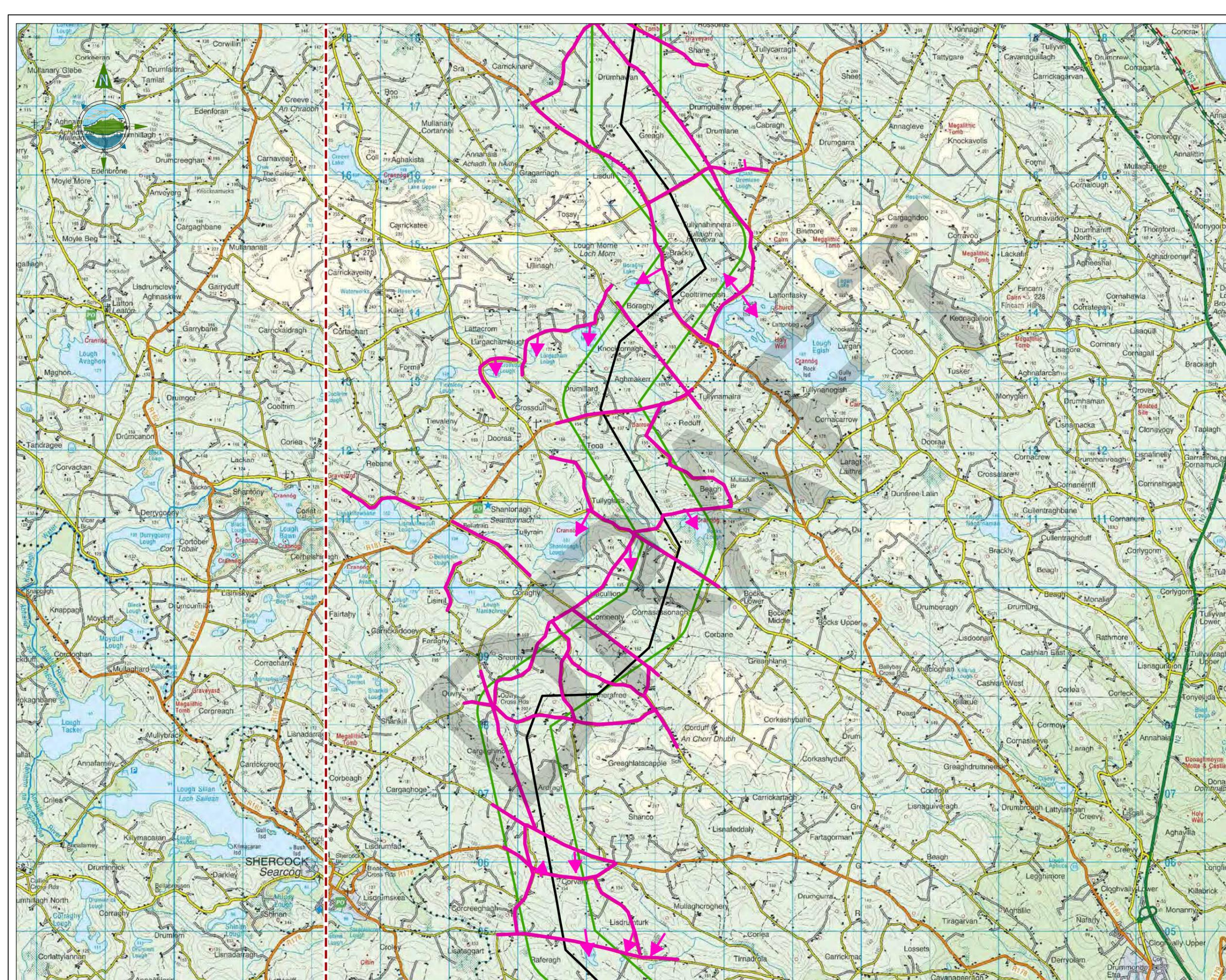
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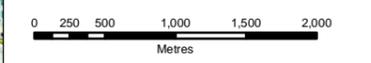
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FIGURE 1.5 (CMSA) A



LEGEND

- Approximate Route Study Area
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Client:

Project:

**NORTH-SOUTH 400 kV
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Title:

**CMSA
Breeding Bird Survey 2014**

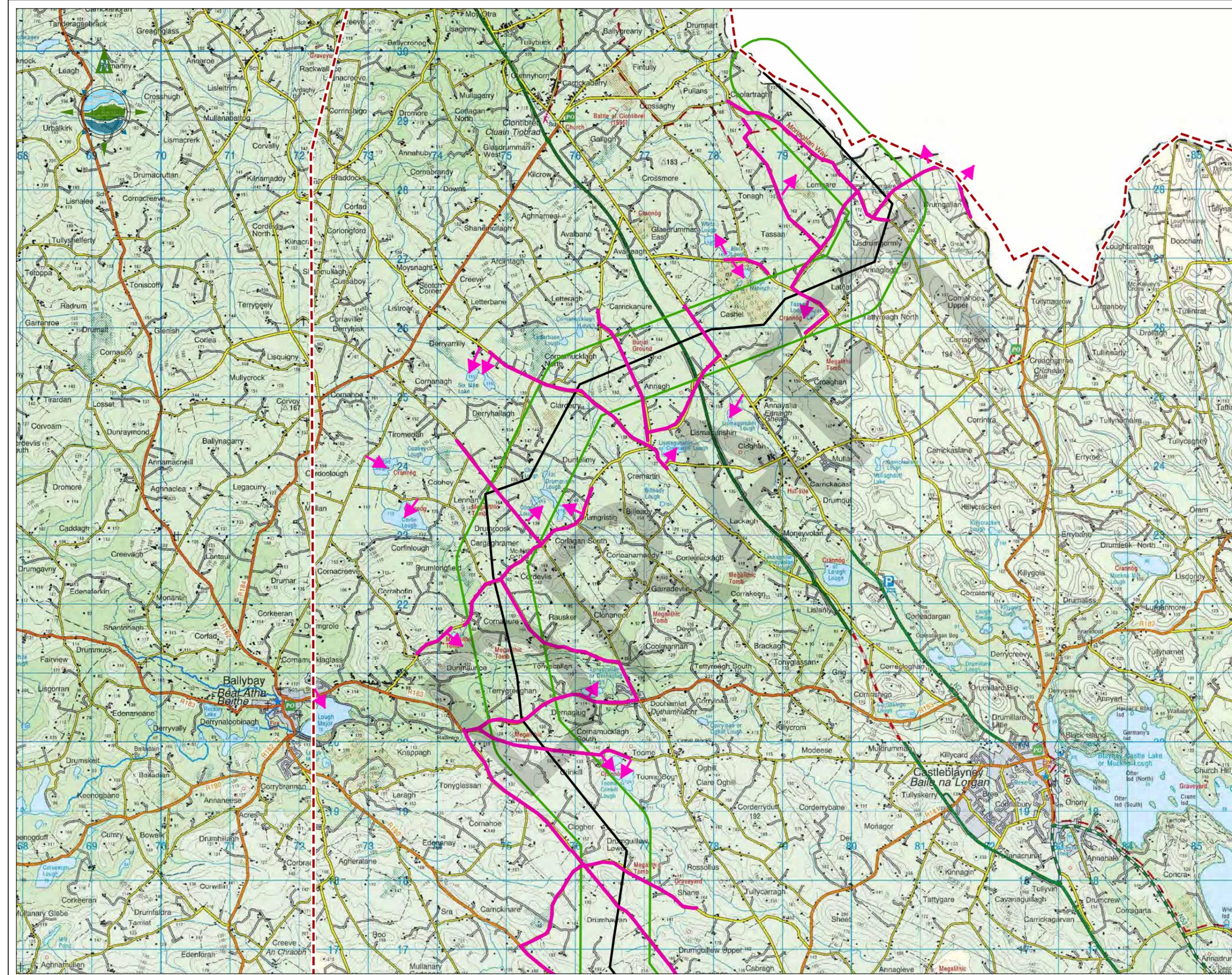
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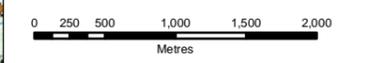
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FIGURE 1.6 (CMSA) **A**



LEGEND

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FIGURE 1.7 (CMSA) **A**

2 METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken prior to the field study in order to gather existing information regarding breeding birds in the study area. The desk study included:

- Review of previous breeding bird studies (2009, 2012 and 2013) undertaken for the project and other bird records noted during limited field survey access (2011) and winter bird surveys (2007 to 2014 inclusive);
- Identification of all sites designated for nature conservation, in particular Special Protection Areas within 20km of the survey area and a review of site synopses as relevant to breeding birds;
- Review of Biodiversity Ireland website and bird species listed as previously recorded in 10km squares traversed by the preferred line route including H72, H73, H71, H76, N79, N88, N87, N86, N85, N94 and N95. This provided information regarding expected species of conservation concern in the area to focus survey on.
- A review of detailed aerial ortho-photography (based on LIDAR remote sensing techniques) in order to determine typical habitats that occur within the study area and areas with potential for species of conservation concern/ species possibly sensitive to a transmission line development;
- A review of other ecological studies undertaken to date for the project;
- A review of other relevant books, reports and literature; and
- A review NPWS internet map viewer³.

Reference is made to the latest Birds of Conservation Concern in Ireland publication (Colhoun & Cummins (2013)⁴. The latest version of this list includes additional breeding species on the red and amber list since the previous assessment (Lynas *et al.*, 2007)⁵. These include red-listed Tufted Duck, Meadow Pipit and Grey Wagtail; and amber-listed Robin, Mistle Thrush, Goldcrest, Greenfinch and Stonechat.

2.2 FIELD STUDY

The focus of the study was on key habitats with significant potential for breeding bird species of conservation concern within or close to the route corridor. In addition, lakes/ ponds and other potential sites of interest were surveyed beyond this distance (generally within 2km of preferred line route), so as to identify species which may fly between lakes in particular.

Breeding birds were surveyed using appropriate standard survey methods⁶ for habitat type and potential bird species. The methodology broadly followed BirdWatch Ireland Countryside Breeding Bird Survey methodologies whereby a section of road/track was walked and all birds recorded by visual observation and/or song.

³ <http://webgis.npws.ie/npwsviewer/>

⁴ Colhoun, K & Cummins, S. (2013) Birds of Conservation Concern in Ireland 2014-2019. Irish Birds 9: 523-544.

⁵ Lynas P., Newton S.F. & Robinson J.A. 2007. The status of birds in Ireland: an analysis of conservation concern 2008-2013. Irish Birds 8:149-166.

⁶ Bibby, C.J., Burgess, N.D., Hill, D.A., and Mustoe, S.H. (2000). *Bird Census Techniques*, 2nd ed. Academic Press, London.

The survey was carried out during the recommended period for conducting breeding bird surveys (CIRIA C691 Optimal Ecological Survey Guidelines⁷). The main survey was conducted early to mid morning (between 5.30am and 12pm). Further surveys were conducted for birds of prey during the afternoon period. Ecologists carrying out bat surveys at night were trained in the identification of signs/calls of species such as woodcock and barn owl that are typically active at this time, however targeted barn owl surveys were not carried out.

Areas either side of all public roads crossed by the preferred route were surveyed using binoculars and telescope as required. In addition bird song allowed bird identification within acoustic range beyond the roadside. Based on habitat suitability and known distribution; the likelihood of occurrence of certain species of conservation concern (informed by Biodiversity Ireland⁸) could be assessed where survey work (land access) was not possible.

Features of ecological interest for breeding birds e.g. hedgerows, less-improved farmland, woodlands, scrub, cutaway bog, wetlands, rivers (e.g. Rivers Boyne and Blackwater) and lakes (e.g. Toome or Crinkill Lough) were surveyed for water fowl, waders and passerines as relevant. Particular attention was paid to lakes and ponds where species prone to collision including Mute swan, Great Crested Grebe, Coot, Grey Heron and Cormorant may potentially breed. Where access allowed, larger lakes (e.g. Lough Egish), were surveyed from more than one point to maximise survey coverage of potential species.

The survey included a minimum of two visits at least one month apart to all road crossings and other potential breeding bird sites identified in Figures 1.1 to 1.7 inclusive. Dates and weather when surveys were conducted are listed in Table 2.1 below. The weather on all dates was suitable for surveying.

Table 2-1: Site survey dates, weather conditions and survey methods

Date	Season	Weather	Survey Type	
			Countryside Breeding Bird Survey	Counts at wetland bird sites
03/04/2014	Breeding	Mild, >2Kms, 13°	Yes	Yes
11/04/2014	Breeding	Calm, bright, 10°	Yes	Yes
23/04/2014	Breeding	Bright, calm, clear, F2-3	Yes	
07/05/2014	Breeding	Warm & bright	Yes	Yes
28/05/2014	Breeding	Warm & bright	Yes	
17/06/2014	Breeding	Hot, dry, calm	Yes	
19/06/2014	Breeding	Dry, sunny, 17°	Yes	Yes
20/06/2014	Breeding	Dry, warm, no breeze	Yes	Yes
24/06/2014	Breeding	Warm, overcast, dry, 20°	Yes	Yes

⁷ Newton et al 2011. Working with wildlife: Guidance for the construction industry. 2nd Edition. CIRIA C691.

⁸ <http://maps.biodiversityireland.ie/#/Map>

18/07/2014	Breeding	Dry	Yes	Yes
25/07/2014	Breeding	Dry, warm, 18-23°	Yes	Yes

A list of bird species was detailed on field sheets and maps for each location and signs of breeding activity were recorded. Based on the findings of the early and late season survey; a summary of each breeding bird species of conservation significance is detailed for both the MSA and the CMSA herein. More common species potentially prone to disturbance/ collision impacts noted in 2014 are also detailed.

Based on the summary findings bird breeding status at specific locations was categorised as follows based on British Trust of Ornithology (BTO) breeding status codes ¹¹:

- Confirmed breeding
- Probably breeding
- No breeding evidence though possibly breeding
- Non breeder i.e. wintering, passage migrant or habitat unsuitable.

2.3 SITE EVALUATION CRITERIA

Key sites identified in the MSA and CMSA were evaluated using a range of criteria adopted from NRA (2009), refer to Table 2- 2 below.

This evaluation was informed by available information including; previous surveys conservation status, consultation and an extensive desk study.

2.4 SURVEY CONSTRAINTS

Due to access constraints, it was not possible to carry out a walkover survey of the entire preferred line route. However it is considered that the majority of all key habitats, and all lake and river sites, with potential for sensitive species were surveyed at least twice over 2014 and in 2009, 2012 and 2013. In addition the vast majority of the study area is highly managed farmland with limited suitability for the many species of conservation concern breeding in Ireland. In summary the survey allowed:

- Detection of, and potential for, rarer species;
- Identification of likelihood for nocturnal and difficult to detect species; and
- Identification of sensitive locations and species in the vicinity of the preferred line route.

Table 2-2 Bird Site Evaluation Criteria

Internationally Important	Sites designated (or qualifying for designation) as an SAC or SPA under the EU Habitats or Birds Directives; Features essential to maintaining the coherence of the Natura 2000 network.
---------------------------	---

¹¹ <http://www.bto.org/sites/default/files/u36/downloads/breedingcodes.pdf>

Nationally Important	<p>Sites or waters designated or proposed as an NHA; Statutory Nature Reserve; Refuge for fauna and flora protected under the Wildlife Acts; National Park; Resident or regularly occurring populations (assessed to be important at the national level) of species protected under the Wildlife Acts and/or species listed on the relevant Red Data list.</p>
Regional Importance	<p>Resident or regularly occurring populations (assessed to be important at the County level) of species of birds listed in Annex I of the Birds Directive, species listed in Annex II and/or IV of the Habitats Directive, species protected under the Wildlife Acts and/or species listed on the relevant Red Data list; County important populations of species, or viable area of semi-natural habitats or natural heritage features identified in the National or local BAP; Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.</p>
Local Importance	<p>Locally important populations of priority species or habitats or natural heritage features identified in the Local Biodiversity Action Plan (BAP); Resident or regularly occurring populations (assessed to be important at the Local level) of species of birds listed in Annex I of the Birds Directive, species listed in Annex II and/or IV of the Habitats Directive, species protected under the Wildlife Acts and/or species listed in the relevant Red Data list.</p>

Source: Extracted from Guidelines for Assessment of Ecological Impacts in National Road Schemes (NRA, 2009).

3 RESULTS

Key important breeding bird locations identified in the vicinity of the preferred line route are detailed in Figures 3.1 to 3.4 (inclusive for MSA) and 3.5 to 3.7 (inclusive for CMSA).

Bird species of conservation concern recorded in 2014 are summarised below based on conservation status. Key areas (townlands) are highlighted in the vicinity of the preferred line route. Observations from previous year's studies are also highlighted, particularly for species of high conservation concern.

3.1 SPECIES LISTED ON ANNEX I OF EU BIRDS DIRECTIVE

Kingfisher (also Amber listed)

This species is strongly associated with river and riparian habitats. It is relatively common in the study area where these habitats occur. Although it was not recorded in the 2014, surveys it has been noted regularly in the MSA at the Rivers Boyne and Blackwater in previous years. These rivers are crossed by the preferred line route. The main river channel of the Rivers Boyne and Blackwater are designated as a Special Protection Area (River Boyne and River Blackwater SPA – site code 004232) specifically for breeding Kingfisher.

Individual Kingfishers were also noted at Whitewood Lough in 2012 and again during 2013 surveys (ca. 600m from preferred line route). No Kingfishers have been noted in the CMSA though they are likely to breed/ forage around lakes and rivers.

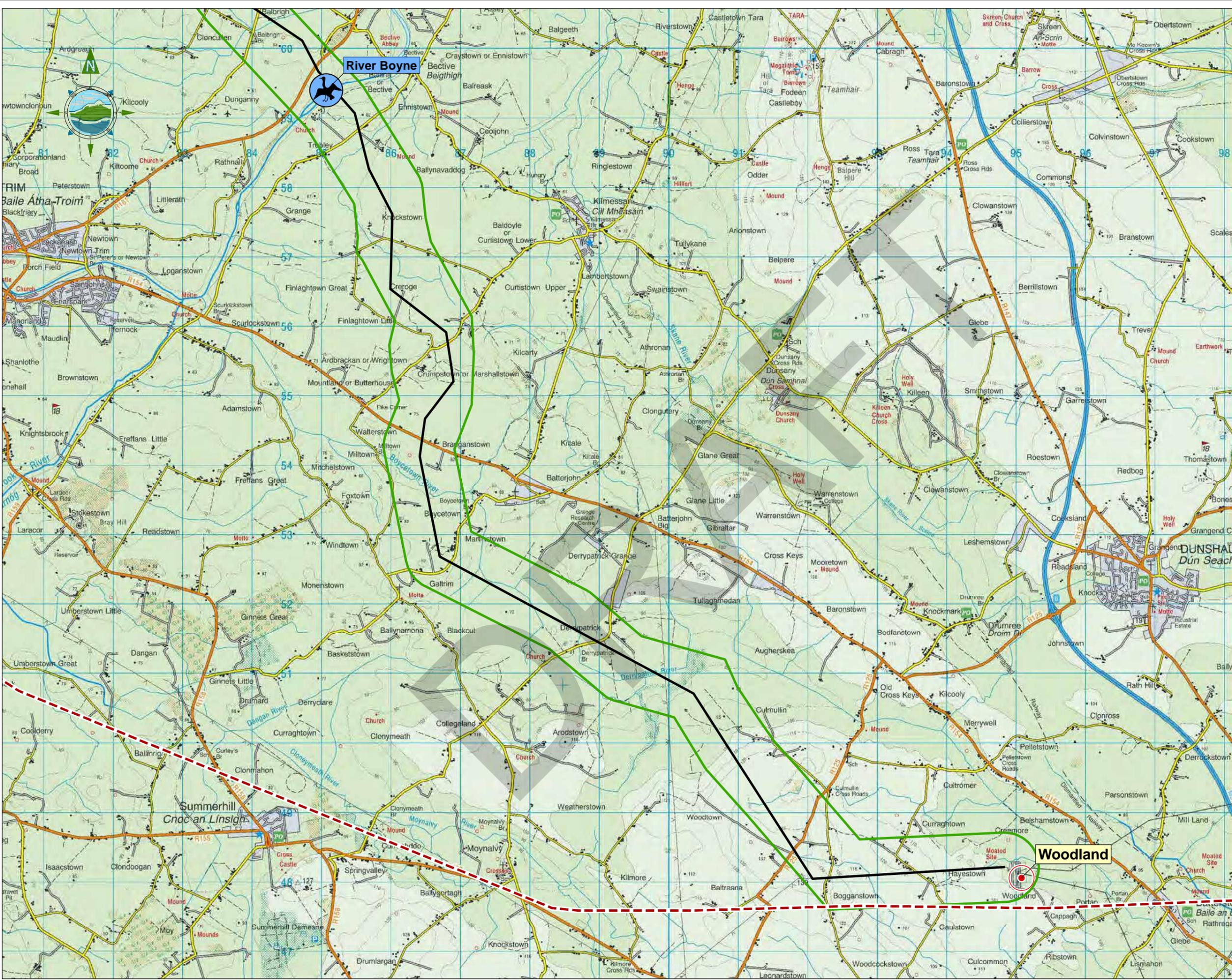
This species is not considered a sensitive species to the development as it is not a collision prone species and is not considered at risk of displacement. Possible localised disturbance risks during the construction phase require consideration such as disturbance associated with woody vegetation cutting at rivers.

Hen Harrier (also Amber listed)

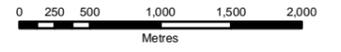
This species does not breed in the study area but may potentially use specific locations in the area during the late summer into winter period, as a foraging / winter roost locations, given that a nationally important breeding site (Slieve Beagh SPA uplands) exists relatively close by (approximately 20km at the nearest point).

No Hen Harriers have been recorded to date during winter and breeding bird surveys conducted.

This species is not considered sensitive to this development because no significant populations occur in the study area, and based on the literature, it is not a particularly sensitive species to this type of development.



- LEGEND**
- Approximate Route Study Area
 - Existing Substation Location
 - Proposed Line Route
 - 1km Corridor
 - Locally Important Breeding Bird Site



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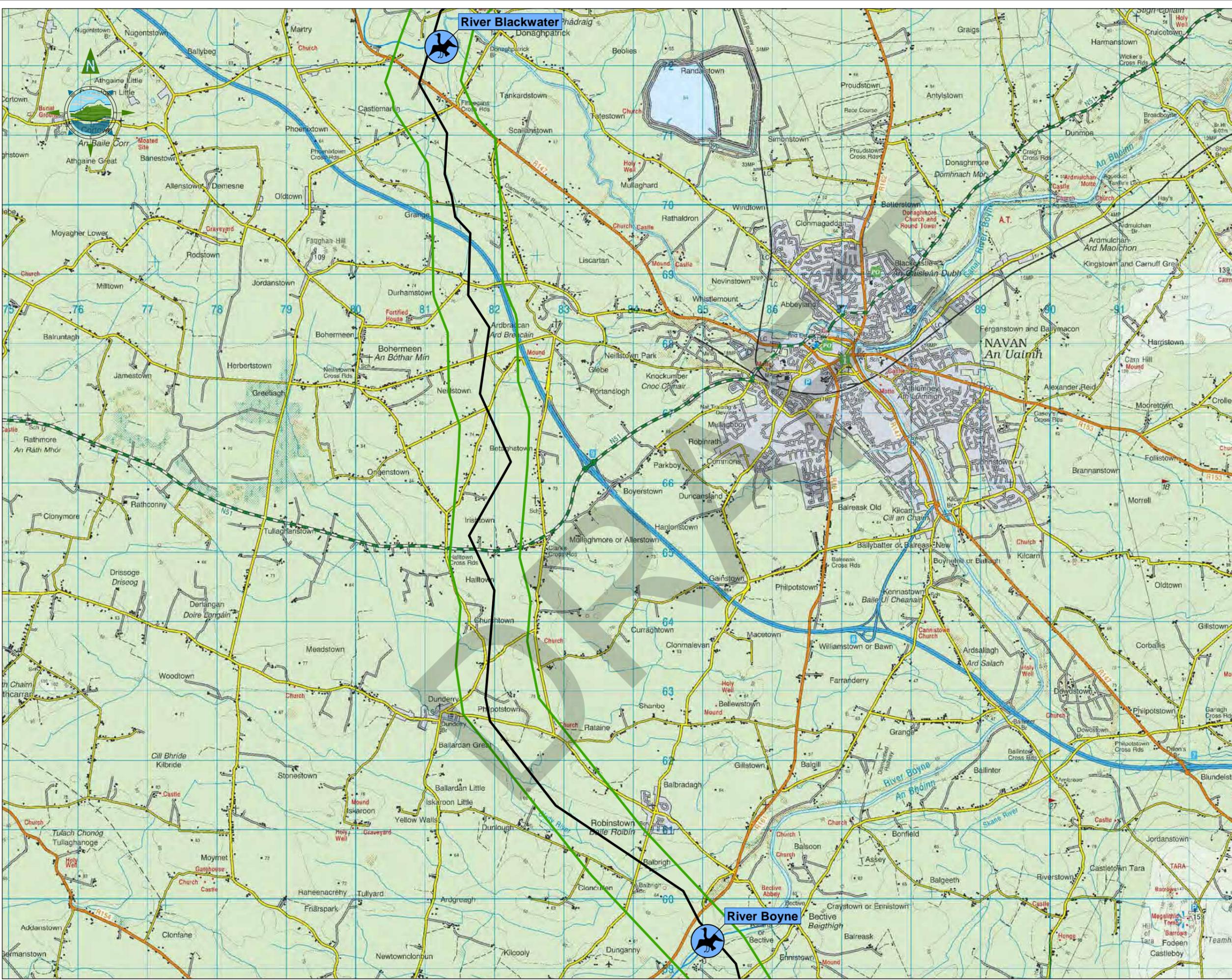
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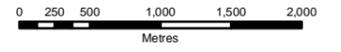
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Issue: **FIGURE 3.1 (MSA) A**



LEGEND

-  Approximate Route Study Area
-  Existing Substation Location
-  Proposed Line Route
-  1km Corridor
-  Locally Important Breeding Bird Site



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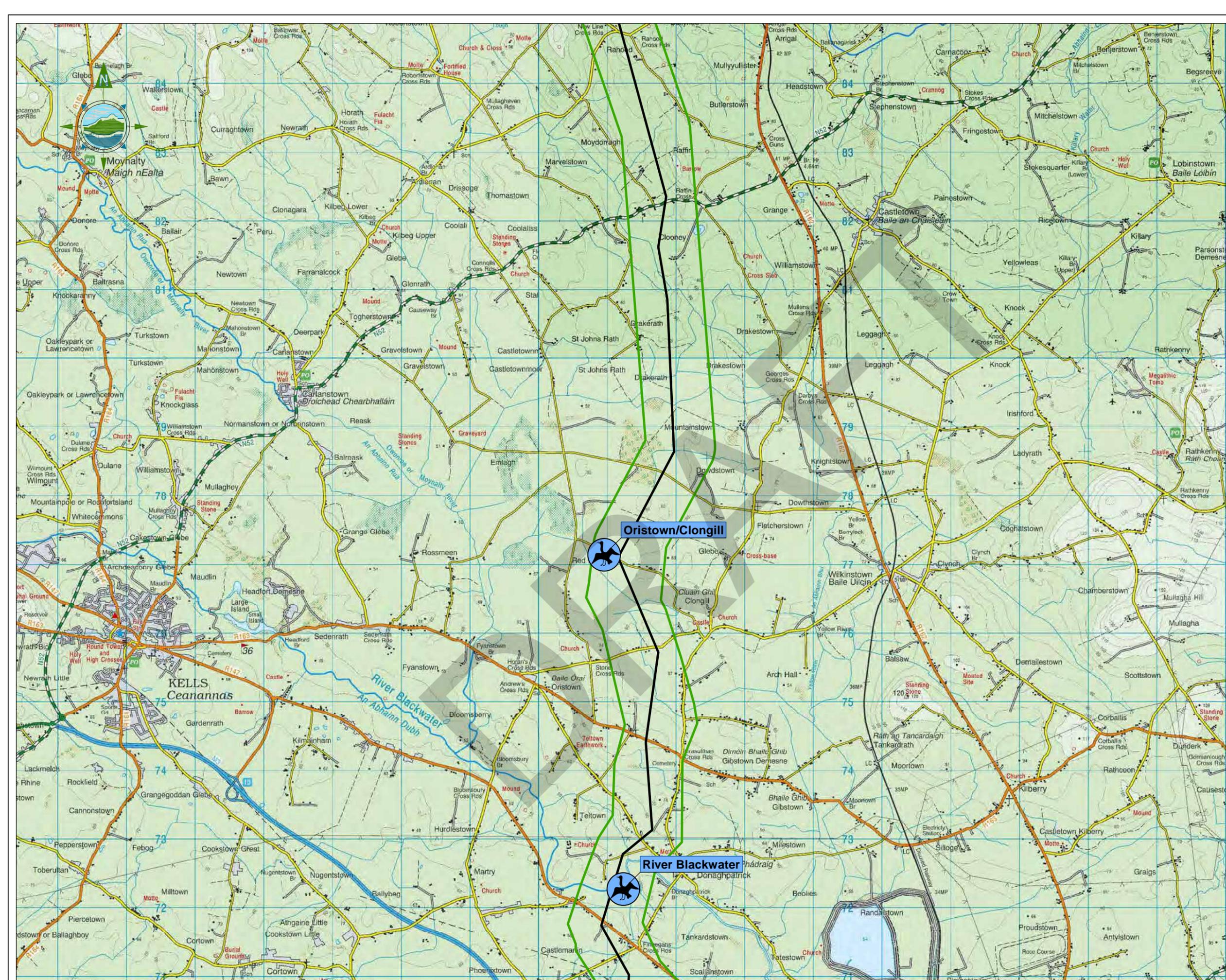
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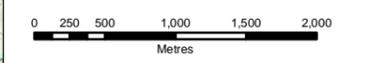

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Issue: **FIGURE 3.2 (MSA) A**



LEGEND

- Approximate Route Study Area
- Existing Substation Location
- Proposed Line Route
- 1km Corridor
- Locally Important Breeding Bird Site



Client:

Project: **NORTH-SOUTH 400 kV INTERCONNECTION DEVELOPMENT**

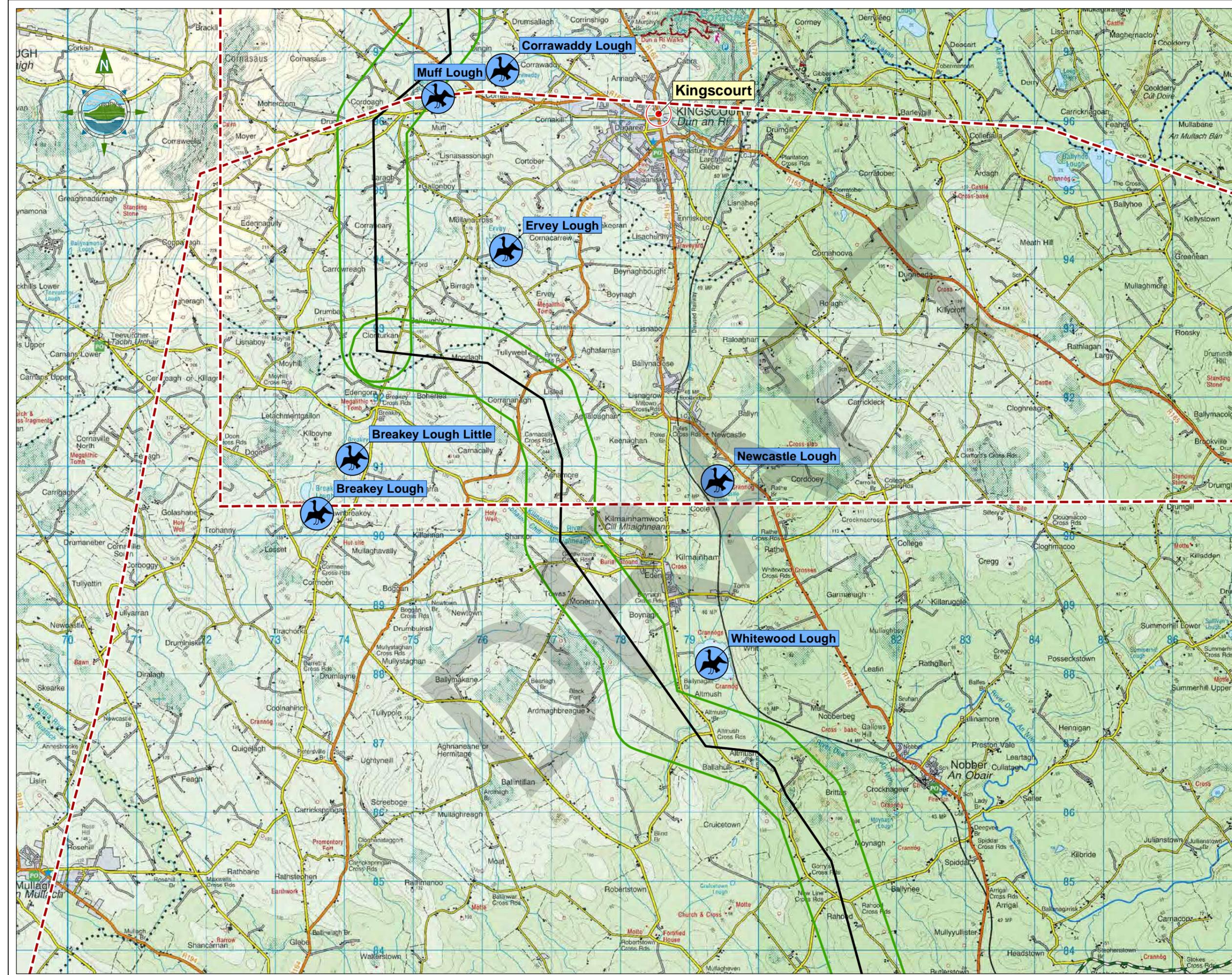
Title: **MSA Breeding Bird Survey 2014**

Scale @ A3: **1 : 50 000**

Prepared by: G.Fil Checked: R.MacN. Date: October 2014
Project Director: D.Grehan

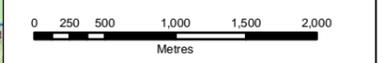
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Issue: **FIGURE 3.3 (MSA) A**



LEGEND

- Approximate Route Study Area
- Existing Substation Location
- Proposed Line Route
- 1km Corridor
- Locally Important Breeding Bird Site



Client:

Project:

NORTH-SOUTH 400 kV INTERCONNECTION DEVELOPMENT

Title:

MSA Breeding Bird Survey 2014

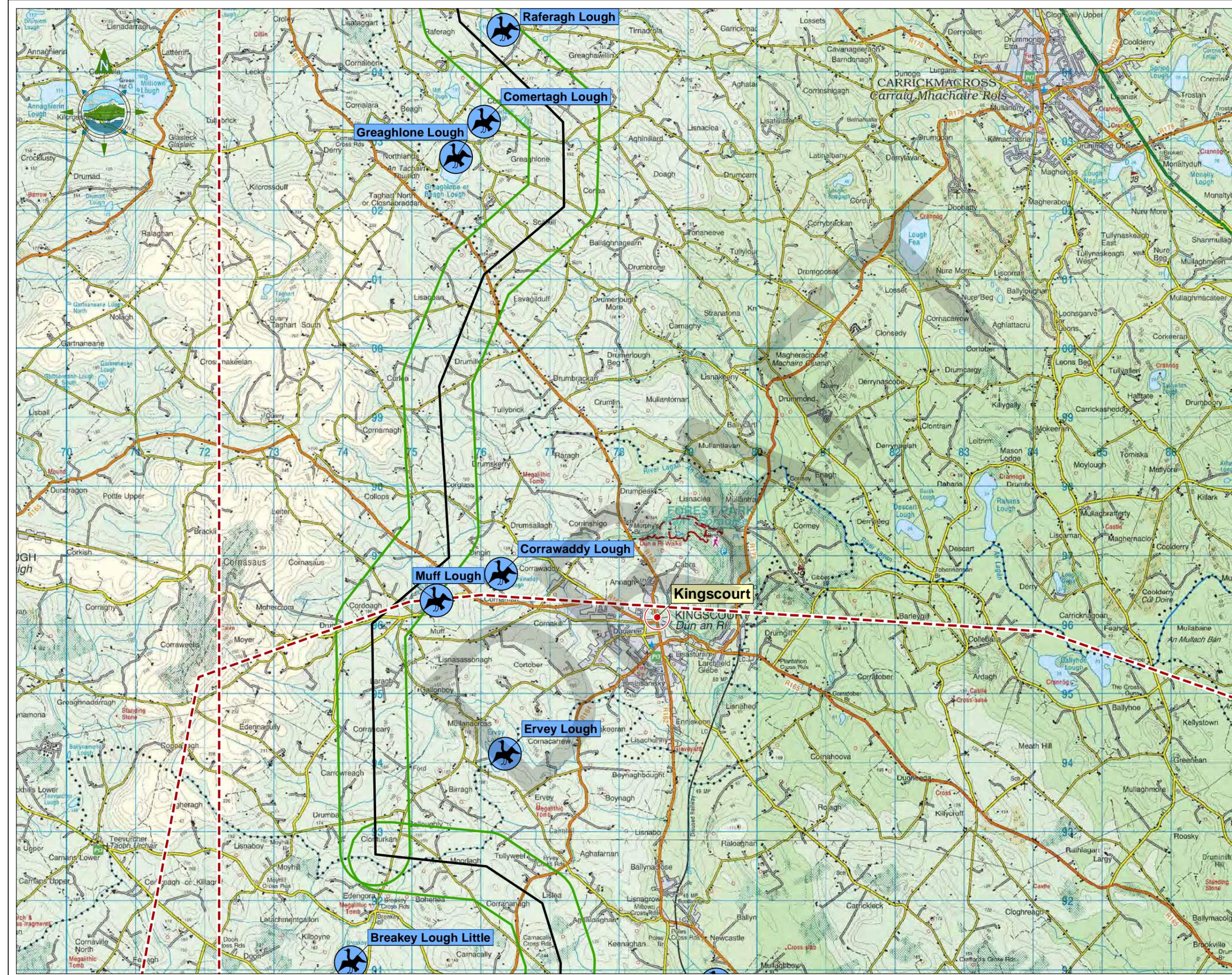
Scale @ A3: **1 : 50 000**

Prepared by: G.Fil Checked: R.MacN. Date: October 2014

Project Director: D.Grehan

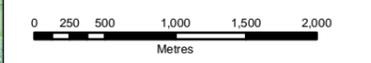
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FIGURE 3.4 (MSA) A



LEGEND

- Approximate Route Study Area
- Existing Substation Location
- Proposed Line Route
- 1km Corridor
- Locally Important Breeding Bird Site



Client:

Project:

NORTH-SOUTH 400 kV INTERCONNECTION DEVELOPMENT

Title:

CMSA Breeding Bird Survey 2014

Scale @ A3: **1 : 50 000**

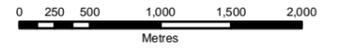
Prepared by: G.Fil
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Date: October 2014

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FIGURE 3.5 (CMSA) A

- LEGEND**
-  Approximate Route Study Area
 -  Existing Substation Location
 -  Proposed Line Route
 -  1km Corridor
 -  Locally Important Breeding Bird Site



Project:

NORTH-SOUTH 400 kV INTERCONNECTION DEVELOPMENT

Title:

CMSA Breeding Bird Survey 2014

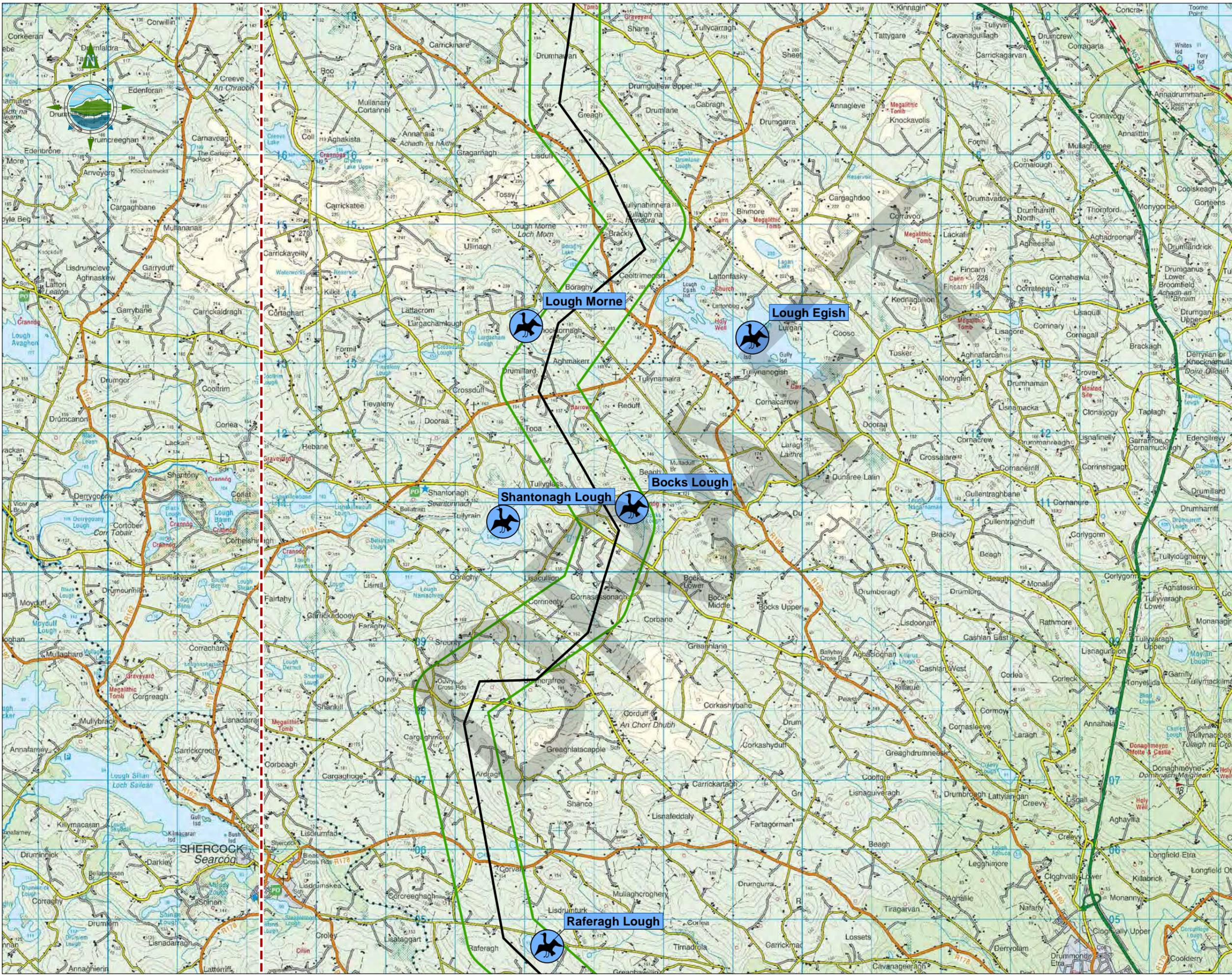
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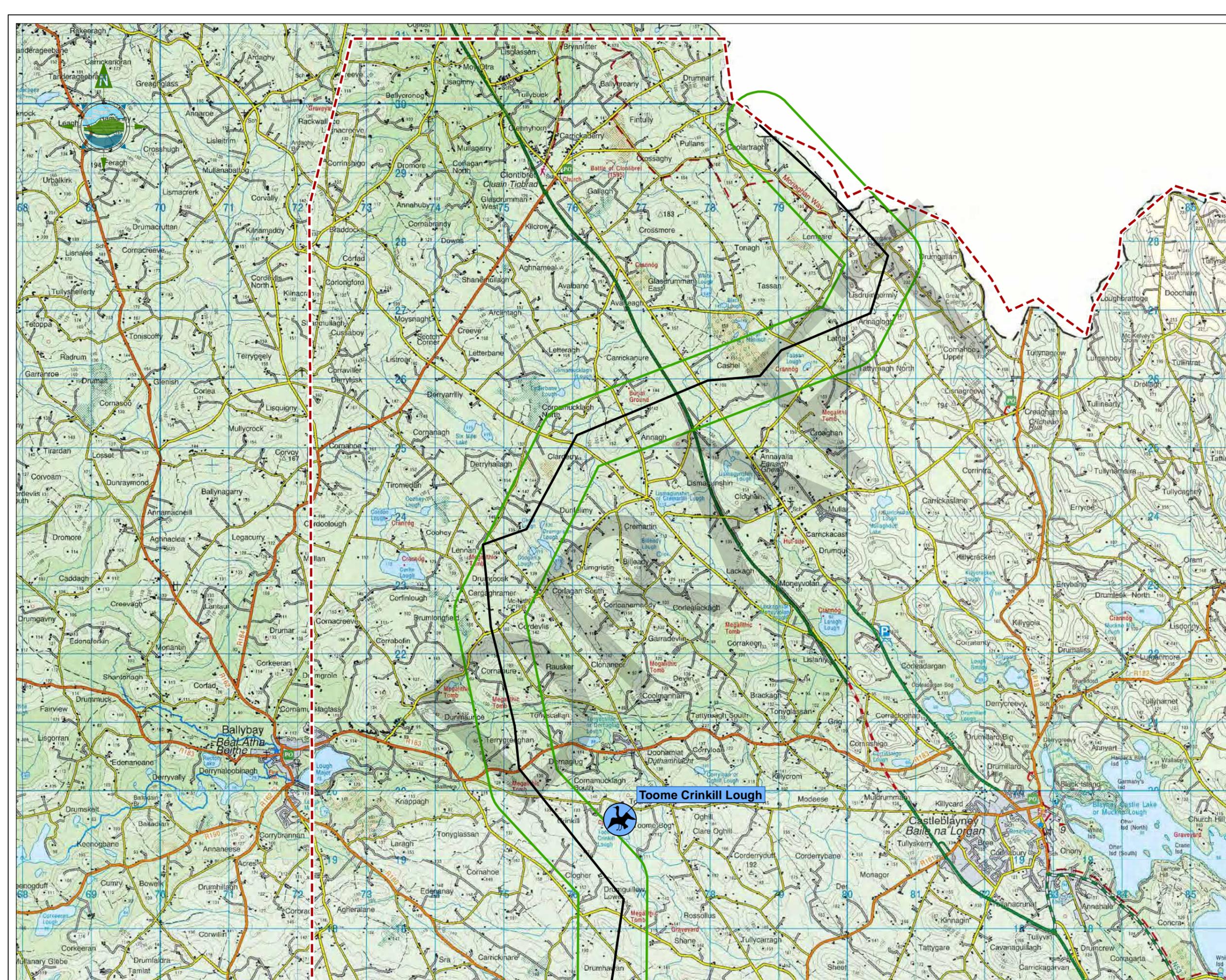
Prepared by: G.Fil
Checked: R.MacN.
Date: October 2014
Project Director: D.Grehan

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Issue:

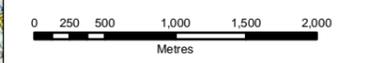
FIGURE 3.6 (CMSA) A





LEGEND

- Approximate Route Study Area
- Existing Substation Location
- Proposed Line Route
- 1km Corridor
- Locally Important Breeding Bird Site



Client:

Project:

**NORTH-SOUTH 400 kV
INTERCONNECTION DEVELOPMENT**

Title:

**CMSA
Breeding Bird Survey 2014**

Scale @ A3: **1 : 50 000**

Prepared by: G.Fil Checked: R.MacN. Date: October 2014
 Project Director: D.Grehan

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FIGURE 3.7 (CMSA) **A**

3.2 RED LISTED SPECIES OF HIGH CONSERVATION CONCERN

Black-Headed Gull

No Black Headed Gull breeding colonies were recorded in 2014 or in previous surveys in both the MSA and CMSA.

In the CMSA over 100 individuals were recorded in June 2014 on Lough Eglish. Smaller numbers were seen at Lough Eglish, Lough Greaghlonge Lough in July and Whitewood Lough in July. These were all non-breeding individuals.

This species is not considered sensitive to the development and no significant breeding populations exist in the vicinity of the development.

Curlew

No Curlew were recorded in 2014 (as in 2012 and 2013). This species is a very rare breeding species in parts of the wider CMSA study area. One pair was noted in 2011 in the townland of Lemgare (within 300m of the preferred line route). These were probably a breeding pair. This area has since been drained and reseeded (improved for agriculture) and the area is now unsuitable for this species. No Curlew were recorded in the MSA.

Curlew is a species of high conservation concern, being considered “near threatened” (i.e. may be considered threatened with extinction in the near future, although it does not currently qualify for the threatened status based on International Union for Conservation of Nature criteria). Breeding populations of this formerly common species in Ireland are now critically low and have been recently estimated as probably less than 200 pairs¹².

This species is considered a moderately collision prone species. This species is not considered sensitive to the development as no significant local populations exist or are likely to exist in the future close to the preferred line route.

Golden Plover

No Golden Plover were noted in the vicinity of the preferred line route in 2014. This species does not breed in the study area as habitat is unsuitable.

In 2014 ca. 250 birds were recorded on one occasion at Moylan Lough (Tullyvaragh Upper), over 9km from the development. These birds were spring passage migrants and were not breeding at this location.

This species is considered a moderately collision prone species. This species is not considered sensitive to the development.

Grey Wagtail

¹² Source: Birdwatch Ireland

In the MSA Grey Wagtail were recorded as probably breeding in the townland of Donaghpatrick on the River Blackwater.

In the CMSA Grey Wagtail were probably breeding in the townland of Corglass on a tributary of the River Lagan. Grey Wagtail were also observed (possibly breeding) in the townland of Drumguillew in the CMSA.

This species is widespread and associated with rivers. It is not considered sensitive to the development.

Lapwing

This species is a scarce breeding species in the overall study area and is considered a moderately collision prone species. This species will require mitigation consideration at one specific location in the MSA (townland of Oristown).

In the MSA during April 2014 one Lapwing pair attempted to nest approximately 200m to the west of the preferred line route on the Oristown/Clongill townland boundary. This pair were displaced by land drainage works in mid-April and no further breeding activity was noted here. During 2013 and 2012 two pairs of Lapwing were noted at this location, while in 2011 two pairs were located in the townland of Clongill (c.a. 1km north). Due to these records of breeding Lapwing this general area is considered locally important for this species. This area is highlighted in Figure 3.2.

During May 2014 in the MSA an individual lapwing was noted displaying at Clooney Lough (<500m from the preferred line route) in the townland of Cloony, refer to Figure 3.3. Another individual was noted in fields to the south of this location. This pair may have been the displaced pair at Oristown. This pair was not detected in later surveys and likely did not breed here.

In the CMSA no breeding Lapwing were recorded in 2014. The only other record in the CMSA is from 2009 in the townland of Raferagh, approximately 150m from the preferred line route.

Meadow Pipit

In the MSA, Meadow Pipit were recorded as probably breeding in the townland areas of Red Island, Oristown and Clongill.

In the CMSA, Meadow Pipit were recorded as probably breeding in the townland, Lemgare, Moorlagh and Raferagh in the CMSA.

This species is common and widespread. It is not considered sensitive to the development.

Tufted Duck

No Tufted Duck were recorded in the MSA during 2014 surveys.

In the CMSA Tufted Duck were recorded in Lough Morne on the 3rd April. These birds were likely passage migrants as they were not noted in later surveys, and likely did not breed here.

This species is considered a highly collision prone species. This species is not considered sensitive to the development as no significant breeding populations exist in the vicinity of the development. As with all collision prone species precautionary mitigation will be detailed as relevant.

Wigeon

A flock of over 50 individuals was noted at Moylan Lough (>10km) in April 2014. These were non-breeding migrants.

Breeding populations of this species are not considered sensitive to the development as no significant breeding populations exist in the vicinity of the development.

Yellowhammer

This small passerine species is common in mixed (tillage and livestock) farmland in the MSA study area and was regularly recorded (probable breeder) in 2014 and previous years of survey. No Yellowhammer have been recorded to date in the CMSA.

This species is not considered a collision prone species. It may be susceptible to disturbance during woody vegetation clearance prior to construction.

Barn Owl

Barn Owl is a nocturnal bird of prey species which potentially breeds in the MSA and CMSA study area.

This species typically breeds in old uninhabited buildings and outhouses though they may possibly use hollows in large old trees. It is very scarce in the study area¹⁴.

No Barn Owl were recorded in the MSA and CMSA. There were no night-time observations/signs of barn owl activity during night-time bat surveys. Typical breeding areas are avoided. No potential roost or nest sites¹⁵ were recorded at any roadside crossings or lands accessed. It is considered that risks of removing a nest site of this species are very low due to the scarcity of this species in the area as indicated by field studies and available literature. This species is not considered sensitive to the development and standard mitigation for woody vegetation clearance will minimise any risk of nest site disturbance.

¹⁴ Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. & Fuller, R.J. (2013). *Bird Atlas 2007-11: The Breeding and Wintering Birds of Britain and Ireland*. BTO Books, Thetford.

¹⁵ Shawyer, C.R. 2011 Barn Owl *Tyto alba* survey methodology and techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

3.3 AMBER LISTED – MODERATE CONSERVATION CONCERN

Common Sandpiper

No Common Sandpiper were recorded in 2014 and this species is unlikely to breed in the study area.

In 2013 an individual was recorded on one occasion in the CMSA at Moylan Lough (Tullyvaragh Upper). This bird was a spring passage migrant and was not breeding at this location.

This species is considered a moderately collision prone species. This species is not considered sensitive to the development.

Coot

No Coot were recorded in the MSA.

In the CMSA this species is a scarce breeding species in larger lakes. In 2014 Coot were recorded as probably breeding on Raferagh Lough (0.2km - from the preferred line route). In 2013 Coot were recorded breeding on Toome or Crinkill Lough, Lough Egish and Lough Major. These areas are removed from the preferred line route.

This species is considered a highly collision prone species. It is relatively sedentary, occurs at low numbers and does not make regular flightlines.

The location of breeding Coot on Raferagh pond is less than 200m from the preferred line route. Precautionary mitigation will be implemented at this location (see EIS Volume 3C Section 6.5.3.3.1.1.).

Cormorant

This species frequents the larger rivers and lakes throughout the study area.

In the MSA during 2014 and 2013 Cormorants were recorded on Whitewood Lough (c.a. 600m from preferred line route); this is a probable breeding site. Newcastle Lough (c.a. 2.1km from preferred line route) is another probable breeding site and regular roost site.

No breeding sites were noted in the CMSA. In previous studies in the CMSA breeding sites were recorded away from the study area including Lough Muckno. Large numbers of Cormorant forage on Lough Egish at times (in particular during the winter) and it is a mobile species moving between lakes in the overall CMSA study area.

This species is considered a highly collision prone species. It is a relatively mobile species. Flight diverters are proposed at a number of key areas identified for Whooper Swan and Mute Swan. These locations are also the most relevant for Cormorant and will minimise risk to this species.

Goldcrest

This is a common breeding species of mature forest plantations in the MSA and CMSA.

This species is not considered a collision prone species and is not considered sensitive to the development.

Great Crested Grebe

In the MSA this species is a local breeding species associated with lakes, refer to Table 3-1.

Table 3-1: Great Crested Grebe Breeding Sites in the MSA 2014

Site	Breeding Status (2014)	Approximate distance from preferred Line route (km)
Whitewood Lough	Regular breeding site. Minimum of 2 pair breeding in 2014. 1 pair - confirmed breeding (1 juvenile).	0.6
Ervey Lough	1 pair - confirmed breeding	1.3
Newcastle Lough	1 pair - probably breeding	2.2
Breaky Lough	1 pair - probably breeding	2.2

In the CMSA, this is a widespread breeding species on medium to larger sized lakes within 2km of the preferred line route, refer to Table 3-2. Most lakes have one breeding pair though more occur in larger lakes.

Table 3-2: Great Crested Grebe Breeding Sites in the CMSA 2014

Site	Breeding Status (2014)	Approximate distance from preferred Line route
Bocks Lough	1 pair – probably breeding	0.2
Lough Morne	1 pairs – confirmed breeding	0.25
Toome or Crinkill Lough	1 pair – probably breeding	0.5
Comertagh Lough	1 pair - probably breeding,	0.75
Lough Egish	Minimum of 1 pair probably breeding	0.8
Lough Shantonagh	Minimum of 1 pair - confirmed breeding (3 juveniles)	1
Lough Tonyscallen	1 pair – probably breeding	1
Beagh or Greaghlone	1 pair - probably breeding,	1.4

Other individual Great Crested Grebe were noted at the following Loughs; Moylan, Corvally and Lisnakillewbane Lough.

This is a relatively sedentary species (flight lines restricted predominantly to lake territory), that nevertheless is considered highly susceptible to collision with powerlines.

Greenfinch

Greenfinch are a widely distributed species in both the MSA and CSMA.

This species is not considered a collision prone species and is not considered sensitive to the development.

House Martin

This species is a relatively common summer migrant throughout the study area in particular in the CMSA. It typically nests on the gable end of houses.

This species is not considered a collision prone species and is not considered sensitive to the development.

House Sparrow

Surveys to date confirm this is a common breeding species around farmsteads in the MSA and CMSA. This species is not considered a collision prone species and is not considered sensitive to the development.

Kestrel

No Kestrel were recorded in 2014 in the MSA and CMSA. While not recorded in 2014 it was recorded previously and is likely to breed at low densities in old buildings, quarries and mature trees in the wider MSA and CMSA study area.

This species is not considered a collision prone species and is not considered sensitive to the development.

Linnet

Surveys to date confirm this species to be widespread and locally common in the MSA and CMSA in areas of gorse scrub and less managed farmland.

This species is not considered a collision prone species and is not considered sensitive to the development.

Little Grebe

This species was not recorded in the MSA during 2014 but it potentially breeds on Loughs Ervey, Breakey, Breaky Little, Clooney, Newcastle and possibly Whitewood Lough.

This species breeds on ponds and smaller lakes throughout the CMSA. In 2014 (and 2013) a minimum of one pair was probably breeding on the following lakes within 1km of the preferred line route; Loughs Morne, Raferagh, Muff Lough and Corawaddy.

Little Grebe is a relatively sedentary species (flight lines restricted predominantly to lake territory), that nevertheless is considered highly susceptible to collision with powerlines.

Mute Swan

This species is a widespread breeding species on water bodies from small ponds to lakes and large rivers throughout the study area.

In the MSA this species regularly breeds on a number of lake sites within 2km of the preferred line route. In 2014 they were recorded as follows in the MSA, refer to Table 3-3.

Table 3-3: Mute Swan Breeding Sites in the MSA 2014

Site	Breeding Status (2014)	Distance from preferred Line route
River Blackwater	individuals noted indicating probable breeding within 2km of preferred line route	Crossed
River Boyne	individuals noted indicating probable breeding within 2km of preferred line route	Crossed
Whitewood Lough	Maximum 26 non breeding individuals, regular non breeding flock. 1 pair - confirmed breeding	0.6
Ervey Lough	1 pair - confirmed breeding	1.3
Newcastle Lough	1 pair - probably breeding	2.2
Breaky Lough	1 pair - probably breeding	2.2

In the CMSA this species breeds on a number of small lakes located between 0.25km and 3km of the preferred line route as follows. In 2014 they were recorded as follows in the CMSA, refer to Table 3-4.

Table 3-4: Mute Swan Breeding Sites in the MSA 2014

Site	Breeding Status (2014)	Distance from preferred Line route
Muff Lough	1 pair – confirmed breeding	0.25
Lough Morne	1 pair – confirmed breeding	0.25
Toome or Crinkill Lough	1 pair – probably breeding	0.5
Mill Lough	1 pair - probably breeding,	0.7
Lough Egish	minimum of 3 pairs probably breeding	0.8
Lough Shantonagh	1 pair - confirmed breeding (3 juveniles)	1
Lough Tonyscallen	1 pair – probably breeding	1
Beagh or Greaghlonge	1 pair - probably breeding,	1.4
Crossduff Lough	1 pair - probably breeding,	1.7
Bellatrain Lough	1 pair - probably breeding,	3
Lisnakkillewbane Lough	regular breeding site	3.3

Other lakes within 1km of the preferred line route as follows were surveyed and no Mute Swan were recorded; Bocks lough (0.2km) in 2014 (recorded in 2013); Boraghy, Comertagh (previously recorded) Lurgacham (previously recorded), Drumlane, Corfin Lough (previously recorded), White Lough(s) Tassan and Nahinch.

Mute Swan are a relatively sedentary species (flight lines restricted predominantly to lake territory), that nevertheless are considered highly susceptible to collision with powerlines. Larger congregations of non- breeding birds can occur on Loughs Egish and Whitewood (MSA) for extended periods. Local movements were observed indicative of occasional flightlines between Whitewood Lough and the River Dee south of here and to Newcastle Lough north of here. These movements do not require crossing of the preferred line route.

Sand Martin

Surveys to date confirm this species breeds in sand quarries outside the general study area. It was noted foraging in particular around lakes.

This species is not considered a collision prone species and is not considered sensitive to the development.

Skylark

Surveys to date confirm this species is widespread in arable farmland in the southern parts of the MSA including the River Boyne valley. They are scarcer outside this area with a male noted in the townland of Oristown and boglands to the west.

No Skylark were noted in the CMSA though it may occur on higher more open drumlin habitat.

This species is not considered a collision prone species and is not considered sensitive to the development.

Snipe

In the MSA suitable breeding habitat is very scarce. Snipe were not recorded in the 2014 surveys. In 2013 this species was only recorded in the townland of Oristown (same area as Lapwing).

In the CMSA more suitable breeding habitat occurs. However this species was not recorded in 2014, and only recorded at Drumcarn ASSI and Milltown Lough during 2013. In the past Snipe has been recorded breeding at Raferagh Lough and at Cashal Bog also. It likely breeds at low densities in cutover bog and wetland habitats throughout the CMSA.

This species is considered a moderately collision prone species. Suitable habitat is largely avoided and this species is not considered sensitive to the development.

Starling

This is a common breeding species around farmsteads and farmland in the MSA and CMSA.

This species is not considered a collision prone species and is not considered sensitive to the development.

Stock Dove

Three Stock Dove were recorded foraging in suitable habitat near Cloony Lough in the MSA in 2014 approximately 1km from the preferred line route. This is a widely distributed breeding species in the MSA. It likely to be very scarce in the CMSA and has not been recorded in any surveys to date.

This species is not considered a collision prone species and is not considered sensitive to the development.

Swallow

This is a common breeding species around farmsteads and farmland in the MSA and CMSA.

This species is not considered a collision prone species and is not considered sensitive to the development.

Swift

This species typically breeds in built up areas. Foraging individuals were noted on occasion in the wider MSA and CMSA landscape.

This species is not considered a collision prone species and is not considered sensitive to the development.

Teal

This species was not recorded in the MSA.

In the CMSA a possible breeding site was recorded on Raferagh Lough in 2014 (0.2km - from the preferred line route). A pair of Teal was recorded in early April 2014 though these may have been passage migrants as no breeding evidence was noted and these birds were not recorded in later surveys. Teal were not recorded at any other site in 2014.

While this species is considered a highly collision prone species, during the breeding season it is a cryptic species which does not conduct regular flights. Suitable habitat is also avoided. This minimises its risk of collision.

Tree sparrow

This colonial species is quite common in the MSA around old ruins and arable farmland with abundant mature trees in hedgerows.

This species is not considered a collision prone species and is not considered sensitive to the development.

Water Rail

No Water rail were recorded in 2014 in the MSA.

In the CMSA this species has been regularly recorded in winter bird surveys and is widespread in wetlands and overgrown drumlin hollows. It is considered a moderately collision prone species. This cryptic species is not considered sensitive to the development as it is a sedentary low flying species and potential breeding sites (wetlands) are largely avoided.

Woodcock

Woodcock were not recorded as a breeding species. This species is a cryptic species active at night which breeds in the following habitats scrub, overgrown wetland edges and forestry. These habitats occur locally in the MSA and are more widespread in the CMSA. These habitats are largely avoided.

This species is considered a moderately collision prone species. This skulking sedentary species is not considered sensitive to the development except during vegetation clearance for the construction phase. Transmission line corridors through forested areas are considered likely to attract / benefit this species¹⁶

Robin

This is a common breeding species around farmsteads and farmland in the MSA and CMSA.

This species is not considered a collision prone species and is not considered sensitive to the development.

¹⁶ <http://today.uconn.edu/blog/2014/09/power-lines-offer-environmental-benefits-uconn-study/>

Mistle Thrush

In 2014 this species was noted as widespread in the MSA. It was recorded as probably breeding in the townlands of Culmullin, Philipstown (pair) and Kilmainham (3+ individuals).

It is likely to be widespread in the CMSA though none were recorded.

This species is not considered a collision prone species and is not considered sensitive to the development.

Green Listed – Common species

A wide range of common breeding species occur within the study area. Breeding sites are predominantly hedgerows, wetlands, linear woodland, and woodlands.

Key species with the potential to be impacted by the proposed development, as they are moderately or highly vulnerable to collision, are summarised below. Most of these species listed are associated with water bodies which will not be impacted by the proposed development.

- Mallard
- Grey Heron
- Moorhen

These species are considered in general mitigation measures (EIS Volume 3C and 3D, Section 6.6). Specific mitigation measures at certain locations i.e. flight diverters are also a precautionary mitigation approach for these species.

For raptor species including Buzzard and Sparrowhawk general mitigation approaches will be implemented so as to minimise disturbance risk to potential breeding sites (EIS Volume 3C and 3D, Section 6.6).

4 EVALUATION

Species of conservation concern are described in Section 3. Some of these species are widespread common passerines breeding throughout the study area, or at least over extensive areas.

A number of key sensitive locations are identified in Figures 3.1 to 3.7 inclusive, close to the preferred line route. These areas support concentrations of key breeding bird species of conservation concern (Annex 1 Birds Directive, Red and Amber listed – Birdwatch Ireland) potentially sensitive to a proposed transmission line development at the location of the preferred line route. A summary description of the closest sites (within 1km) with bird assemblages and key bird species for consideration in the EIS are detailed in Table 4-1 below. The evaluation following NRA (2009) guidelines considers the 2014 survey and all previous surveys (in particular 2013, 2012 and 2009).

Many of the farmland bird species of conservation concern are widespread (not concentrated at certain locations). Key areas are detailed in text of Section 3 above for individual species.

Potential disturbance impacts during construction to all breeding bird species recorded are considered in the EIS Volume 3C and 3D. This is of particular relevance to other species of conservation concern recorded or likely to occur in the study areas including; Yellowhammer (red listed), Grey Wagtail (Red listed), Woodcock (Red listed).

Table 4-1: Key Sites and breeding bird species and evaluation

Study Area	Site (townland)	Description Assemblage	Bird Species	Evaluation	Key considerations for development
MSA	River Boyne	Breeding Kingfisher – designated as Special Protection Area. Mute Swan – probably breeding Cormorant - foraging		River Boyne overall = International (Kingfisher)	Construction stage disturbance to bird breeding sites. Flightlines of Cormorant and Mute Swan. Pollution controls
MSA	River Blackwater	Kingfisher – designated as Special Protection Area for breeding. Mute Swan – probably breeding Cormorant - foraging		River Blackwater overall = International (Kingfisher)	Construction stage disturbance to bird breeding sites. Flightlines of Cormorant and Mute Swan. Pollution controls
MSA	Oristown/ Clongill	Regular Lapwing breeding site. Locally important for scarce species in the study area including Snipe, Meadow Pipit, Skylark. Some land reclamation works noted in 2014 may permanently change usage of this area.		County important ¹	Construction stage disturbance to Lapwing Breeding sites. Operation stage: Indirect predator effects – increased predator risk
MSA	Whitewood Lough	Great Crested Grebe (breeding site and concentration of early season non breeding individuals), Mute Swan (breeding site and concentration of non-breeding individuals). Kingfisher (previously recorded – possibly breeding), Little Grebe (previously recorded), Cormorant (foraging)		Local/ County ²	Construction stage disturbance to bird breeding sites. Flightlines of Cormorant and Mute Swan. Pollution controls
CMSA	Muff Lough	Little Grebe and Mute Swan breeding site.		Local	Construction stage pollution control, Review /survey final site access routes
CMSA	Corawaddy Lough	Little Grebe and Mute Swan breeding site.		Local	Construction stage pollution control, Review/survey final site access routes
CMSA	Comertagh Lough	Mute Swan and Great Crested Grebe breeding site.		Local	Construction stage pollution control, Review/survey final site access routes
CMSA	Raferagh Lough	Teal (possible breeder), Little Grebe, Coot, Mute Swan, former Lapwing breeding site (2009 record)		Local	Construction stage pollution control, Review/survey final site access routes
CMSA	Bocks Lough	Great Crested Grebe, noteworthy woodland passerine assemblage		Local	Construction stage pollution control, Review/survey final site access routes
CMSA	Lough Morne	Little Grebe, Mute Swan, Great Crested Grebe, Tufted Duck (possible breeding site only)		Local	Construction stage pollution control, Review/survey final site access routes
CMSA	Toome Crinkell Lough	Coot (regular breeding site), Mute Swan, Great Crested Grebe		Local	Construction stage pollution control, Review/survey final site access routes

Notes:

- 1.Up to 2013 site likely to have supported > 1% County Meath breeding population of Lapwing. (Evaluation TBC 2015)
- 2.Likely to irregularly support >1% Mute Swan and possibly and >1% Great Crested Grebe during the breeding season.

5 CONCLUSION

This report is an information document to inform the Ecological Impact Assessment for the proposed North South 400kV Interconnection Development. Key species potentially at risk and key sensitive locations are detailed. An assessment of impacts to these species is detailed in Section 6.5.3.3.1 of Volumes 3C and 3D of the EIS.

Mitigation will be implemented where breeding birds, or suitable breeding bird habitat, may potentially be impacted by the proposed development as detailed in Section 6.6.2 of Volumes 3C and 3D of the EIS.

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