

# Humber Low Carbon Pipelines

**Preliminary Environmental Information Report**  
Volume III Appendix 7.3 Ecology and Biodiversity  
October 2022

nationalgrid

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# 1. Introduction

## 1.1 Scope of the Document

- 1.1.1 This report is Appendix 7.3 of the Preliminary Environmental Information Report (PEIR) and has been prepared in support of the Humber Low Carbon Pipelines project (i.e. 'the Project', the boundary for which is hereafter referred to as 'Proposed Order Limits'). It relates to reptiles and aims to:
- Present baseline information in relation to reptiles and the Proposed Order Limits in support of ecological impact assessment (presented within Chapter 7: Ecology and Biodiversity (Volume II));
  - Identify the requirement for any additional survey or assessment to be completed and the proposed timescales.
- 1.1.2 Section 6 of the Conservation Strategy (Appendix 7.1 (Volume III)) details the scope and methodology for surveying reptiles. Impact assessment, the need for mitigation and/or compensation, and the identification of potential opportunities to enhance the existing ecological baseline are not included within this report. Such information is presented in Chapter 7: Ecology and Biodiversity (Volume II).
- 1.1.3 Ecological impact assessment is moving towards strategic, landscape-scale habitat provision in favour of localised/isolated mitigation and compensation where greater benefit can be demonstrated (i.e. the 'bigger, better, more joined up' approach which also underpins other initiatives such as Biodiversity Net Gain and District Level Licensing). The approach taken for reptiles for this Project is in line with this perceived shift.
- 1.1.4 This approach has been chosen because widespread presence and large populations of reptiles are thought to be unlikely due to the lack of records, unsuitable nature of the majority of the habitats present across the range of the Project (predominately structurally poor agricultural fields) and because the Project impacts are largely temporary and provide the opportunity to improve habitats for this species group across an extensive area. Nevertheless, reptile presence is assumed within all suitable habitats. Accordingly, suitable precautionary working methods and mitigation will be developed to prevent death or injury during construction activities and to ensure an increase in area of better-quality habitat than that affected and that these habitats are well connected to the wider landscape (see Appendix 7.1 Conservation Strategy (Volume III) for more details).
- 1.1.5 This report presents the results of a desk study and habitat suitability assessment and evaluation, which together provide the baseline for assessment. It also sets out the proposed location and timings for further reptile surveys which will be undertaken in the appropriate survey season prior to commencement of site enabling, or establishment works. These surveys are targeted at habitats identified from the habitat suitability assessment and will inform the extent and method of measures necessary to mitigate for the risk of death or injury of individual reptiles during the construction period.
- 1.1.6 This approach will ensure that surveys are proportionate yet robust and provide up-to-date information, while minimising the collection of irrelevant/abortive information and the need for repeat surveys.

## 1.2 Mitigation Hierarchy

- 1.2.1 The Mitigation Hierarchy (Ref 7.3.1) is a sequential process that has been adopted through Project evolution to avoid, mitigate and compensate negative ecological impacts and effects. Reptiles have been identified as an Important Ecological Feature and thus the findings of this Technical Appendix have been (and will continue to be) used to inform changes to the Proposed Order Limits and construction techniques. This Technical Appendix reports where impacts have been avoided on any area/site and as such makes reference to areas/sites that are no longer within the Proposed Order Limits.

## 1.3 Legislation

- 1.3.1 The UK supports four species of "common" reptile which are found throughout a number of habitat types such as rough grassland, scrub, woodland edge and habitats associated with roadside verges. These species are: common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, grass snake *Natrix helvetica* and adder *Vipera berus*. All receive partial legal protection in England, arising from Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (WCA; Ref 7.3.2) which makes it an offence to intentionally kill or injure these species.
- 1.3.2 Two more threatened and rarer species, sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*, are fully protected in the UK under the combined measures of the Conservation of Habitats and Species Regulations 2017 (as amended) (Habitat Regulations; Ref 7.3.3) and WCA. These species are highly restricted in the UK and the Proposed Order Limits are beyond their known range.
- 1.3.3 The UK Post-2010 Biodiversity Framework (Ref 7.3.4) identifies 65 Priority Habitats and 1,150 Priority Species that are in need of protection. This list has been used to define habitats and species of 'Principal Importance' in England (the Section 41 list) as required by the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 7.3.5).
- 1.3.4 All six reptile species are listed as Species of Principal Importance (SoPI) under the NERC Act (Ref 7.3.5) and all planning decisions must be made with regard for their conservation.

## 2. Methodology

### 2.1 Desk Study

- 2.1.1 Table 2-1 summarises the various sources of information utilised for the desk study and the information obtained.

**Table 2-1 Sources of information**

Source	Information Obtained
<b>APEM (Ref 7.3.6) and Google Earth (Ref 7.3.7) aerial imagery</b>	Review of aerial photography was undertaken to: assess habitats within the study area in a wider (landscape-scale) context; identify potential ephemeral ecological features that may not be evident on the ground during the field survey (e.g. ephemeral ponds); identify potential wildlife corridors or barriers to animal movements (e.g. road networks, built development and major watercourses); and review changes to habitats over time so that an assessment of reliability/longevity can be made.
<b>Multi-agency geographic information for the countryside (MAGIC) (Ref 7.3.8)</b>	The location of statutory designated sites for nature conservation and the National Habitat Network Maps.  As some ecological features are not always apparent on aerial photographs, relevant Ordnance Survey mapping on MAGIC was also studied to identify ponds, issues and/or drains.
<b>Local Record Centres</b>	The location of non-statutory designated sites for nature conservation and records of reptiles within 2 km of the Proposed Order Limits were obtained from Lincolnshire Environmental Records Centre (LERC) (Ref 7.3.9) and North & East Yorkshire Ecological Data Centre (NEYEDC) (Ref 7.3.10). NB: any records older than 20 years were omitted from the results.
<b>National Infrastructure Planning (Ref 7.3.11)</b>	The National Infrastructure Planning website was searched for reptile survey information and documents relating to other NSIPs within/close to the Proposed Order Limits and reptile survey results relating to the following were reviewed: <b>Semi-natural area near Drax / Lytag</b> (Ref 7.3.12). <b>Keadby Ash Tip</b> (Ref 7.3.13).



	Absence reported by Drax Power Limited (Ref 7.3.14), WSP (Ref 7.3.15), Able UK Ltd and ERM (Ref 7.3.16) and National Grid (Ref 7.3.17).
<b>North Lincolnshire Council</b>	<p>The North Lincolnshire Council planning portal was searched for reptile survey information and documents relating to the following planning applications:</p> <p><b>PA/2018/1245</b> (Ref 7.3.18).</p> <p>No reptile survey information supported:  <b>PA/2017/49; PA/2015/0114; PA/2018/2471; and PA/2022/443.</b></p>
<b>East Riding of Yorkshire Council</b>	<p>The East Riding of Yorkshire Council planning portal was searched for reptile survey information and documents relating to the following planning applications:</p> <p><b>18/04071/STPLFE</b> (Ref 7.3.19).</p> <p><b>21/04695/CM</b> (Ref 7.3.20).</p> <p>No reptile survey information supported:  <b>22/01545/EIASCO and 21/04695/CM.</b></p>

## 2.2 Habitat Suitability Assessment and Site Evaluation

2.2.1 Aerial imagery (Ref 7.3.6) was reviewed in conjunction with the desk study results to identify and map areas/sites known and/or potentially suitable to qualify as a Key Reptile Site (see Section 2.3) within or adjacent to the Proposed Order Limits. Habitat suitability within each area was appraised during Extended Phase 1 Habitat Survey (between June and August 2022) based on the following characters (Ref 7.3.21):

- Location in relation to species range;
- Vegetation structure;
- Insolation (sun exposure);
- Aspect;
- Topography;
- Surface geology;
- Connectivity to nearby good quality habitat;
- Prey suitability/abundance;
- Refuge opportunity;
- Hibernation habitat potential;
- Disturbance; and
- Egg-laying site potential (grass snake only).

2.2.2 Each survey area was then graded for reptile suitability as follows:

- **Poor** – habitat which is unfavourable for reptiles based on the majority of the habitat assessment characters listed above, or is limited in size and highly isolated from other areas of suitable habitat.
- **Good** – habitat which is favourable or sub-optimal for many of the habitat assessment characters listed above; or is sub-optimal for some of the characters and has good connectivity with areas of more suitable habitat.
- **Exceptional** – habitat which is favourable for reptiles based on the majority of habitat assessment characters listed above.

2.2.3 Grading also noted which species the survey area is considered potentially suitable for, and this was combined with the results of the desk study and professional judgement to rank the likelihood of presence as follows:

- **Negligible** – while presence cannot be absolutely discounted, habitats are very limited in size or of poor quality for reptile species and/or assemblages. There may be no desk study records and the surrounding habitats are considered unlikely to support wider populations. The Project may also be outside or peripheral to the known natural range of reptile species.
- **Low** – habitats are of poor to good quality for reptiles. There are few or no desk study records but presence cannot be discounted based on national distribution, the nature of surrounding habitats, habitat fragmentation or recent disturbance etc.
- **Medium** – habitats are of good quality and desk study records reveal local occurrence, or the area is within the national distribution and with suitable surrounding habitat. Factors limiting the likelihood of occurrence may include small habitat area, habitat isolation, and/or disturbance.
- **High** – habitats are of exceptional quality for reptiles. Desk study provides evidence of historic presence (greater than 2 years old, but see ‘confirmed presence’ below) or local occurrence. The area is within/peripheral to a national or regional stronghold and/or has good quality surrounding habitat and good connectivity.
- **Confirmed Presence** – presence confirmed from survey undertaken in support of this Project or by recent records (within the last 2 years) and/or long-standing presence data sets.

2.2.4 Accordingly, an isolated area of exceptional quality habitat could be considered to have negligible likelihood of reptile presence and an area of poor quality habitat could have a high likelihood of reptile presence, if situated adjacent to better quality habitat with confirmed presence.

## 2.3 Key Reptile Sites

2.3.1 Froglife (Ref 7.3.22) defines criteria for site selection as a ‘Key Reptile Site’, whereby survey results can be used to obtain an objective evaluation of the importance of the reptile interest within a given area. To qualify as a Key Reptile Site, the site must meet one of the criteria illustrated within Image 2-1.

## Image 2-1 Criteria for Key Reptile Sites, taken from Froglife (Ref 7.3.22)

- (1) supports three or more reptile species
- (2) supports two snake species
- (3) supports an exceptional population of one species (see table)
- (4) supports an assemblage of species scoring at least 4 (see table)
- (5) does not satisfy 1-5 but which is of particular regional importance due to local rarity (e.g. in the East Midlands of England, adders are very rare so even "low" populations should be designated as Key Sites)

	Low population <i>Score 1</i>	Good population <i>Score 2</i>	Exceptional population <i>Score 3</i>
Adder	<5	5 - 10	>10
Grass snake	<5	5 - 10	>10
Common lizard	<5	5 - 20	>20
Slow-worm	<5	5 - 20	>20

Figures in the table refer to maximum number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare), by one person in one day.

- 2.3.2 In the absence of survey data, habitat suitability assessments and site evaluation were used to assess the potential for each area/site to qualify as a Key Reptile Site. With the exception of any access constrained areas (e.g. due to health and safety concerns such as busy roadside verges), the survey area/s to be targeted for further presence/likely absence surveys will comprise only the land affected by construction of the Project that is assessed as having the potential to qualify as a Key Reptile Site.

## 2.4 Assumptions and Limitations

- 2.4.1 Whilst extensive effort has been made to identify all areas that could potentially qualify as a Key Reptile Site, no assessment in the absence of survey data can ensure the complete characterisation of the natural environment. Desk study data is not likely to be exhaustive and is biased towards areas with public access or where surveys have taken place to inform other development projects. It is therefore possible that there are reptiles present within/adjacent to the Proposed Order Limits not identified during the data searches. However, the presence (or absence) of desk study records forms only part of the extensive desk study analysis undertaken, which focuses heavily on habitat suitability and the landscape scale approach to site assessment and evaluation assumes a "worst-case" scenario to overcome this limitation for the purposes of impact assessment.
- 2.4.2 Habitat suitability assessments provide an assessment of the likelihood of reptile presence within the Proposed Order Limits. This is based on the suitability of the habitat, known distribution in the local area and any direct evidence within the study area. It should not be taken as providing a full and definitive survey and is only representative of the time the assessment was carried out. Where appropriate, additional surveys have therefore been recommended to ensure the baseline is up to date during construction, to refine avoidance and restoration measures and inform method statements. A lack of evidence does not necessarily mean that the species is absent, hence the assessment within this report also records and assesses the ability of habitats to support reptiles.



## 3. Results

### 3.1 Desk Study

- 3.1.1 The desk study information obtained from LERC and NEYEDC highlighted the presence of common lizard, grass snake and adder within the search area. No recent records of slow worm were recorded, though it is acknowledged that the Proposed Order Limits does lie within the natural range of this species (Ref 7.3.23). Table 3-1 provides a summary of reptile desk study records from LERC and NEYEDC.

**Table 3-1 Summary of Reptile Records from LERC and NEYEDC**

Scientific name	Common name	Number of records	Year of latest record
<b>Natrix helvetica</b>	Grass Snake	66	2020
<b>Vipera berus</b>	Adder	31	2016
<b>Zootoca vivipara</b>	Common Lizard	52	2019

- 3.1.2 The citations/site information sheets relating to the following statutory and non-statutory designated sites note reptile presence:
- **Thorne, Crowle and Goole Moors Site of Special Scientific Interest (SSSI)** is the largest terrestrial SSSI in England, supporting adder, grass snake and common lizard.
  - **Messingham Sand Quarry SSSI** noted the presence of common lizard.
  - **Sugar Mill Ponds Local Nature Reserve (LNR)** noted the presence of grass snake.
  - **Three Rivers Local Wildlife Site (LWS)** noted the presence of grass snake.
- 3.1.3 A search of ecological survey reports for developments within the study area highlighted the following:
- Grass snake were recorded within the semi-natural area near Drax / Lytag (Ref 7.3.12) and Keadby Ash Tip (Ref 7.3.13), and reported as present within the former Hedon Aerodrome (Ref 7.3.20).
  - Common lizard were recorded within the fields adjacent to Holme Plantation (Ref 7.3.18).
  - Slow worm were reported as present within the former Hedon Aerodrome (Ref 7.3.20).
- 3.1.4 Absence following survey of suitable habitat was also reported by Drax Power Limited (Ref 7.3.14), WSP (Ref 7.3.15), Able UK Ltd and ERM (Ref 7.3.16), National Grid (Ref 7.3.17) and AECOM (Ref 7.3.19), suggesting patchy distribution and localised absence across some areas.
- 3.1.5 The following reptile records were recorded within the Proposed Order Limits during non-target field surveys:

- Two juvenile common lizard basking adjacent to a ditch within West Common North Drain, recorded during an extended Phase 1 Habitat Survey on 10 May 2022. A dead grass snake was also recorded within the Drain during hedgerow survey on 23 August 2022.
- A dead grass snake was recorded on a pathway within Paull Holme Strays nature reserve (on the northern side of the River Humber Corridor) during bird surveys on 17 May 2022.
- An adult common lizard was recorded within Bellevue Farm during bat tree inspection surveys on 20 July 2022.
- A juvenile common lizard was recorded within Broom Plantation during bat tree inspection surveys on 18 August 2022.

3.1.6 A drawing highlighting the locations of all reptile records identified during the desk study, the locations of statutory and non-statutory designated sites noted above, and reptile field observations is included in Appendix A – Figures.

## 3.2 Habitat Suitability Assessment

3.2.1 The vast majority of the Proposed Order Limits extends through agricultural land of negligible value/suitability to reptiles. A total of 45 distinct areas/sites were initially identified across the Proposed Order Limits that were assessed as potentially suitable to trigger any of the criteria for a Key Reptile Site. These are listed within Table 3-2, along with the results of reptile habitat suitability assessment and site evaluation, and the conclusion of the Key Reptile Site assessment. A drawing highlighting the locations of all these areas/sites is included in Appendix A – Figures.

3.2.2 Networks of field margins, hedgerows and ditches were also present within the Proposed Order Limits and collectively these were of poor to good suitability to support reptiles. These networks are also likely to (and, for the purpose of mitigation, assumed to) support reptiles; however, such areas are not included within Table 3-2 as reptile abundance is anticipated to be low (at best) and limited to one or two species (i.e. they were assessed as not being capable of qualifying as a Key Reptile Site).

**Table 3-2 Habitat areas assessed with suitability to support reptiles**

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
<b>1. Semi-natural area near Drax / Lytag</b>	<p>An extensive area situated to the north of Drax Power Station that appears (from aerials) to have been created in stages since the 1990s. Comprises a mosaic of grassland, scrub, plantation woodland and scattered trees. The area also contains several waterbodies and records of grass snake from 2011 and 2012 that suggest a 'good' population.</p> <p>Exceptional habitat suitability for reptiles and historical survey results suggest a high likelihood of supporting grass snake, low likelihood of supporting common lizard, and negligible likelihood of supporting slow worm and adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 3 and 4. Given the lack of records and suitable habitat locally, the site is also deemed to qualify based on criteria 5; see Image 2-1.</p>
<b>2. Disused Railway Line at Drax</b>	<p>Approximately 1.3 km of disused railway line, comprising a mosaic of grassland, scrub and broadleaved trees on an embankment. The corridor is also connected to the River Ouse corridor to the north east.</p> <p>Good suitability habitat with medium likelihood of supporting grass snake and common lizard; low likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>If present, reptile abundance is anticipated to be low with a limited number of species. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>3. Plantation Woodland off New Road, Drax</b>	<p>Approximately 2 ha of broadleaved plantation woodland and scrub with a few grassy rides/glades.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>Good suitability habitat but limited connectivity to semi-natural habitat. Low likelihood of supporting grass snake and common lizard; negligible likelihood of supporting slow worm and adder.</p> <p>If present, reptile abundance is anticipated to be low and limited to grass snake and common lizard. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>4. River Aire</b>	<p>Approximately 90 m wide corridor comprising the River Aire and its associated riparian grassland and scrub.</p> <p>Good suitability habitat with high likelihood of supporting grass snake, medium likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Extensive corridor but, when considering the relatively small section that falls within the Proposed Order Limits and lack of connectivity to other substantial areas of semi-natural habitat, reptile abundance is anticipated to be low and limited to grass snake and potentially common lizard. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>5. A645 Rawcliffe Road Soft Estate</b>	<p>North facing embankment; c. 30-40 m wide and comprising grassland, scattered trees and scrub connected with the River Aire.</p> <p>Poor suitability habitat with medium likelihood of supporting grass snake and common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to grass snake and potentially common lizard. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>6. Oak Hill, Dutch River &amp; Aire and Calder Canal complex</b>	<p>Extensive area of semi-natural vegetation including Oakhill LWS, Dutch River, the Aire and Calder Navigation (Knottingley and Goole Canal), and sections of used and disused railway lines.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>Grass snake have been recorded along this corridor to the west (at Sugar Mills Ponds LWS in 2017) and adder to the east within Oakhill LWS (in 2002).</p> <p>Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, medium likelihood of supporting adder, and low likelihood of supporting slow worm.</p> <p>Potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1.</p>
<b>7. Thorne to Goole Railway</b>	<p>Extensive corridor with connectivity to Oak Hill, Dutch River &amp; Aire and Calder Canal complex and Thorne, Crowle and Goole Moors SSSI.</p> <p>Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, medium likelihood of supporting adder, and low likelihood of supporting slow worm.</p> <p>Potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1.</p>
<b>8. Swinefleet Warping Drain</b>	<p>Approximately 65 m wide corridor comprising the Swinefleet Warping Drain and its associated riparian grassland and scrub upon embankments and cuttings. Corridor connects Thorne, Crowle and Goole Moors with the River Ouse and there are multiple records of common lizard (north and south of the Project and from as recent as 2014), grass snake (to the south in 2006) and adder (to the south from as recent as 2013) in proximity.</p> <p>Good suitability habitat with high likelihood of supporting adder, grass snake and common lizard and low likelihood of supporting slow worm.</p> <p>Swinefleet Warping Drain as a whole, particularly in close proximity to Thorne, Crowle and Goole Moors, potentially qualifies as a Key Reptile Site based on criteria 1 to 4; see Image</p>



Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>2-1. The relatively small section of this extensive corridor that falls within the Proposed Order Limits is considered likely to support low numbers of grass snake and common lizard only (and thus not qualify as a Key Reptile Site). Nevertheless, applying the precautionary approach, the site is considered a potential Key Reptile Site.</p>
<p><b>9. Paupers' Drain</b></p>	<p>A west-east orientated 7 km stretch of canalised watercourse, with steep banks of rank grassland and scrub creating an approximately 3 m to 8 m corridor designated as a LWS that outfalls into the Humber Estuary SSSI. There are records of grass snake situated on the drain to the east of the Proposed Order Limits from 2010 and to the west of the drain from 2020.</p> <p>Good suitability habitat with high likelihood of supporting grass snake, medium likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to grass snake and potentially common lizard. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<p><b>10. Keadby Ash Tip</b></p>	<p>There are records of grass snake (most recently from 2017) within and adjacent to this former ash tip that comprises an open mosaic habitat of grassland and scrub. The tip is also bordered by Keadby Warping Drain LWS to the north which is a botanically-rich 15 m wide drain extending west-north-westwards for more than 2 km from the west bank of the River Trent.</p> <p>Exceptional suitability habitat and records suggest high likelihood of supporting grass snake, medium likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	Existing survey data suggests low population of grass snake, only (maximum adult count of 1); not considered to have the potential to qualify as a Key Reptile Site.
<b>11. South Soak Drain</b>	<p>Partially designated as Stainforth and Keadby Canal Corridor LWS and creating an extensive riparian corridor that is connected to the Keadby Ash Tip, River Trent and Three Rivers LWS.</p> <p>Good suitability habitat with high likelihood of supporting grass snake, medium likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Existing survey data from nearby Keadby Ash Tip suggests low population of grass snake, only; not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>12. Three Rivers and South Engine Drain</b>	<p>Extensive complex of watercourses partially designed as Three Rivers LWS and including Engine Drain (and the River Torne and Folly Drain, to the west). The citation for Three Rivers notes the presence of grass snake.</p> <p>Exceptional suitability habitat and LWS citation suggests high likelihood of supporting grass snake, medium likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>As above, existing survey data from nearby Keadby Ash Tip suggests low population of grass snake, only; not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>13. Folly Drain</b>	Watercourse with associated riparian grassland, scrub and ponds. Extensive corridor but narrow and situated within an agricultural area; relatively small section situated within the Proposed Order Limits.

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>Exceptional suitability habitat with high likelihood of supporting grass snake, medium likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Connected to other linear features but no obvious extensive areas of semi-natural habitat. Reptile abundance is anticipated to be low and limited to grass snake and common lizard. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>14. Warping Drain, Derrythorpe</b>	<p>Partially designated as Warping Drain, Derrythorpe LWS. Narrow watercourse corridor within an agricultural area. Connected with Folly Drain, Three Rivers and South Engine Drain (see above) and the River Trent.</p> <p>No closely associated records, but good suitability habitat with medium likelihood of supporting grass snake, low likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Connected to other linear features but no obvious extensive areas of semi-natural habitat. Reptile abundance is anticipated to be low and limited to grass snake and potentially common lizard. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>15. River Trent</b>	<p>Approximately 150 m wide corridor comprising the River and its associated grassland and scrub. Extensive corridor but relatively small section situated within the Proposed Order Limits.</p> <p>No closely associated records, but good suitability habitat with medium likelihood of supporting grass snake, low likelihood of supporting common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Restricted by roads on both sides of the River and does not appear to be connected with any extensive areas of semi-natural habitat. Reptile abundance is anticipated to be low and limited to</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	grass snake and potentially common lizard. Not considered to have the potential to qualify as a Key Reptile Site.
<b>16. West Common North Drain</b>	<p>Partially designated as West Common North Road LWS and well connected with a number of other small field drains and ditches and the River Trent. Common lizard and grass snake were recorded on this drain during botanical surveys in May and August 2022 (respectively).</p> <p>Good suitability habitat with confirmed presence of common lizard and grass snake and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to grass snake and common lizard. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>17. Holme Plantation</b>	<p>Extensive broadleaved plantation woodland with a large woodland block and lake to the south west and smaller woodland block with areas of scrub and grassland to the north east. Both woodland blocks are connected by an approximately 35 m wide plantation corridor.</p> <p>Common lizard have been recorded within Brick Hills LWS (approximately 1.5 km north east) and Messingham Sand Quarry (approximately 2 km south) that have connectivity with this woodland.</p> <p>Exceptional suitability habitat with high likelihood of supporting common lizard, medium likelihood of supporting grass snake and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and potentially grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
<b>18. Holme Lane Soft Estate</b>	<p>Approximately 20-25 m wide corridor extending adjacent to Holme Lane. Comprises a band of broadleaved trees with a predominately scrub and bracken understorey.</p> <p>Connected with Brick Hills LWS within which common lizard have been recorded (in 2009 and situated approximately 170 m south east). Low suitability habitat with medium likelihood of supporting common lizard, low likelihood of supporting grass snake and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and potentially grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>19. Sweeting Thorns</b>	<p>Sweeting Thorns LWS, comprising 51.2 ha of heathland, semi-natural woodland, peatland, grassland and pond.</p> <p>Common lizard have been recorded within Brick Hills LWS (approximately 200 m south east). Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, and low likelihood of supporting slow worm and adder.</p> <p>Potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1.</p>
<b>20. A18 Mortal Ash Hill Roadside Verge</b>	<p>Approximately 15-40 m wide corridor of woodland, scrub and grassland. Fragmented from north to south by dual carriageway but connects to woodlands to the east and west.</p> <p>Good suitability habitat with medium likelihood of supporting grass snake and common lizard, and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>



Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
<b>21. Low Wood and Top Hedge</b>	<p>Part of an extensive area of plantation woodland with glades and areas of open grassland.</p> <p>Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, and low likelihood of supporting slow worm and adder.</p> <p>Potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1.</p>
<b>22. Blackhoe and Broom Plantations</b>	<p>Comprising Blackhoe Plantations LWS and Broom Plantations LWS, which collectively make up an extensive open broadleaved plantation woodland with areas of scrub and grassland. Woodland has connectivity with Messingham Sand Quarry SSSI and extensive areas of semi-natural vegetation associated with Manton Warren LWS and Manton and Twigmoor SSSI that are likely to support reptiles. A juvenile common lizard was recorded within Broom Plantation during bat tree inspection surveys in August 2022. Further, SIBELCO (Ref 7.3.18) reported common lizard presence (maximum adult count of 12; closest record situated within the Proposed Order Limits, adjacent east of Broom Plantations LWS) and the creation of a reptile mitigation area situated approximately 140 m east of these plantations and 60 m from the Proposed Order Limits.</p> <p>Exceptional suitability habitat with confirmed presence of common lizard, high likelihood of supporting grass snake, and low likelihood of supporting slow worm and adder.</p> <p>Potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1.</p>
<b>23. Bellevue Farm</b>	<p>Extensive area of varied grassland, woodland, scrub, ditches and standing bodies of water. Common lizard was recorded within this area during bat tree inspection surveys in July 2022.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>Exceptional suitability habitat with confirmed presence of common lizard, high likelihood of supporting grass snake and negligible likelihood of supporting slow worm and adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 3, 4 and 5; see Image 2-1.</p>
<b>24. Stonepit Wood</b>	<p>Extensive woodland with glades. Good connectivity extensive areas of semi-natural vegetation associated with Manton Warren LWS and Manton and Twigmoor SSSI that are likely to support reptiles.</p> <p>Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, and low likelihood of supporting slow worm and adder.</p> <p>Potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1.</p>
<b>25. Sand Field Wood</b>	<p>Approximately 5 ha of woodland with a grass ride. Somewhat isolated but hedgerows provide some connectivity with other sites that may support reptiles such as Stonepit Wood and a disused quarry (to the north and south, respectively).</p> <p>Low suitability habitat with medium likelihood of supporting grass snake and common lizard, and negligible likelihood of supporting slow worm and adder.</p> <p>Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>26. A15 Roadside Verge</b>	<p>Extensive corridor of grassland, bracken and scattered trees and scrub on both side of the A15.</p> <p>There are no records of reptiles locally but good suitability habitat with medium likelihood of supporting grass snake and common lizard, negligible likelihood of supporting slow worm and adder.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	Not considered to have the potential to qualify as a Key Reptile Site.
<b>27. Railway and Woodland and Scrub Corridor at Brigg</b>	<p>Comprising the Kirton Lindsey to Brigg railway line which creates an extensive linear corridor through the landscape and in proximity of the Project it is connected to an approximately 600 m linear band of woodland and scrub, Railway Plantation and the New River Ancholme and Old River Ancholme LWS.</p> <p>There are no records of reptiles locally but good suitability habitat with high likelihood of supporting grass snake and common lizard, low likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1</p>
<b>28. New River Ancholme and Old River Ancholme</b>	<p>Comprising the New River Ancholme LWS and Old River Ancholme LWS with an area of broadleaved plantation. There are no records of reptiles locally but the site has good connectivity with the wider landscape via the river corridors and adjacent rail and Kettleby Beck corridors.</p> <p>Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, low likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1</p>
<b>29. Kettleby Beck</b>	An extensive west-east orientated watercourse defined by access tracks to north and south with rank grassland and scrub, creating an extensive semi-natural corridor through an otherwise intensive agricultural landscape. Connects with other corridors such as the New River Ancholme and Old River Ancholme and Candley Beck.

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>There are no records of reptiles locally but good suitability habitat with medium likelihood of supporting grass snake and common lizard, and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
30. Candley Beck	<p>Designated as Candley Beck, Westrum LWS and comprising 3 km of steep-sided, narrow drains with neutral grassland banks, creating a narrow semi-natural corridor through an otherwise intensive agricultural landscape.</p> <p>There are no records of reptiles locally but good suitability habitat with medium likelihood of supporting grass snake and common lizard, and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
31. Kettleby Covert	<p>Mature broadleaved woodland with ponds and ditches.</p> <p>There are no records of reptiles locally but low suitability habitat with low likelihood of supporting grass snake and common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Not considered to have the potential to qualify as a Key Reptile Site.</p>
32. Barnetby Road Verges and Semi-natural area	<p>Partially designated as Barnetby Road Verges LWS but also including an area of trees, scrub, rough grassland and a pond, associated with a ditch that extends away from the road verges to the west.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>There are no records of reptiles locally but good suitability habitat with medium likelihood of supporting grass snake and common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>33. Grasby Bottoms Green Lane LWS</b>	<p>Grasby Bottoms Green Lane LWS which comprises both neutral and calcareous grassland verges on either side of a track varying between 5 m and 15 m in width. Situated within an agricultural area with limited connectivity to any extensive areas of semi-natural habitat, though Hendale Wood was situated to the south east.</p> <p>There are no records of reptiles locally but good suitability habitat with medium likelihood of supporting grass snake and common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>34. Plantation woodlands near Kirmington</b>	<p>A network of broadleaved plantations that includes an unnamed woodland situated between the A18 and B1210, Betty Holmes (and connected unnamed woodlands), Horns Wood and Mark Cooper's Wood.</p> <p>There are no records of reptiles locally but low suitability habitat with low likelihood of supporting grass snake and common lizard and negligible likelihood of supporting slow worm and adder.</p>



Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<p><b>35. Goxhill to Ulceby Railway Line</b></p>	<p>Comprising the Goxhill to Ulceby railway line which creates an extensive linear corridor (c. 20 m wide) of grassland, scrub and trees.</p> <p>There are no records of reptiles locally but good suitability habitat with high likelihood of supporting grass snake and common lizard, low likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<p><b>36. East Halton Beck and Woodland</b></p>	<p>An extensive corridor comprising East Halton Beck (also labelled Skitter Beck) with adjacent woodland and pond.</p> <p>There are no records of reptiles locally but exceptional suitability habitat with high likelihood of supporting grass snake and common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<p><b>37. Disused Railway Line at East Halton</b></p>	<p>Extensive corridor (approximately 15-30 m wide) of broadleaved trees, and scrub. Connected to East Halton Beck and Woodland, the Mosaic habitats at East Halton and other areas of semi-natural habitats to the west.</p> <p>There are no records of reptiles locally but good suitability habitat and good connectivity to other potential reptile sites. Medium likelihood of supporting grass snake and common lizard, low</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1.</p>
<b>38. Mosaic habitats at East Halton</b>	<p>Three separate areas of bare ground, grassland, scrub and wetland mosaic situated between East Halton and North Killingholme.</p> <p>There are no records of reptiles locally but good suitability habitat with medium likelihood of supporting grass snake and common lizard and negligible likelihood of supporting slow worm and adder.</p> <p>Reptile abundance is anticipated to be low and limited to common lizard and grass snake. Not considered to have the potential to qualify as a Key Reptile Site.</p>
<b>39. River Humber Corridor</b>	<p>Extensive and highly variable corridor containing the River Humber SSSI and with Paull Holme Strays nature reserve (on the northern bank). Comprises the River Humber and its intertidal habitats (salt marsh, lagoons and mud flats).</p> <p>No records were identified during the desk study; however, a dead grass snake was recorded within Paul Holme Strays during wintering bird surveys. River Humber is considered to be a barrier to reptile dispersal but its riparian habitats were assessed to be good suitability with confirmed presence of grass snake and high likelihood of supporting common lizard, low likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
<b>40. Semi-natural area near Thorngumbald</b>	<p>Approximately 10 ha of woodland and scattered trees, grasslands, ditches and ponds.</p> <p>There are no records of reptiles locally but good suitability habitat with medium likelihood of supporting grass snake and common lizard, low likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1.</p>
<b>41. Hedon – Winestead Disused Railway Line</b>	<p>Designated as Hedon – Winestead Disused Railway Line LWS and comprising an extensive footpath and bridleway with Skeckling Drain, grassland, trees and scrub.</p> <p>There is a record of grass snake from Burstwick to the east. Good suitability habitat with high likelihood of supporting grass snake, medium likelihood of supporting common lizard and slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1.</p>
<b>42. Burstwick Drain</b>	<p>Connected with the Hedon – Winestead Disused Railway Line and creating an approximately 20 m wide corridor of watercourse, grassland and scrub, through an otherwise agricultural landscape.</p> <p>Good suitability habitat with high likelihood of supporting grass snake, medium likelihood of supporting common lizard and slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1.</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
<b>43. Hollym Carrs</b>	<p>The area includes Hollym Carrs nature reserve and rank access track to the north. Comprises meadow, woodland, scrub and ponds.</p> <p>Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, low likelihood of supporting slow worm and negligible likelihood of supporting adder.</p> <p>Potentially qualifies as a Key Reptile Site based on criteria 1, 4 and 5; see Image 2-1.</p>
<b>44. Hodgson's Fields</b>	<p>Hodgson's Fields LWS which comprises an extensive area of rough grassland and scrub within a mainly arable landscape.</p> <p>Exceptional suitability habitat with high likelihood of supporting grass snake and common lizard, low likelihood of supporting adder and negligible likelihood of supporting slow worm.</p> <p>Potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1.</p>
<b>45. Holderness Coast</b>	<p>Partially designated as Dimlington Cliffs SSSI and Greater Wash SPA and includes the intertidal area of the Easington foreshore within the Proposed Order Limits that consists of a long sandy beach, with an eroding cliff.</p> <p>Common lizard, grass snake and adder are known to occur within Spurn Point to the south and there is a record of common lizard near Withernsea to the north. Good suitability habitat with high likelihood of supporting grass snake and common lizard, low likelihood of supporting adder and negligible likelihood of supporting slow worm.</p> <p>The Holderness Coast as a whole potentially qualifies as a Key Reptile Site based on all criteria; see Image 2-1. The relatively small section of this extensive corridor that falls within the Proposed Order Limits is considered likely to support low</p>

Site Name	Assessment, Suitability Evaluation and Likelihood of Presence
	<p>numbers of grass snake and common lizard, only (and thus not qualify as a Key Reptile Site). Nevertheless, applying the precautionary approach, the site is considered a potential Key Reptile Site.</p>



## Common lizard

- 3.2.3 Based on the desk study information, common lizard distribution appears to be patchy across the study area. There are multiple records from Thorne, Crowle and Goole Moors SSSI and around Messingham Sand Quarry; however, there are few records outside of these sites, and large expanses of the Proposed Order Limits are devoid of records, including the areas between Drax and Goole, Crowle and Messingham, and to the east of Scunthorpe, extending to the coast at Easington (there was just one record across this section, situated near to Withernsea). Nevertheless, reptiles are typically under recorded and the field observation within West Common North Drain (recorded during the extended phase 1 habitat survey) suggests that common lizard may be present across this area, albeit in low numbers.
- 3.2.4 In summary, low numbers of common lizard are potentially present with a patchy distribution across suitable habitats (see Ref 7.3.24 for detailed species habitat requirements).

## Slow worm

- 3.2.5 Based on the desk study results, slow worm appears to be largely absent across the study area with presence reported only at Hedon Aerodrome only (Ref 7.3.20), which is situated to the north of, and potentially segregated from the Project by, the A1033.
- 3.2.6 Due to their fossorial nature, slow worms are typically under recorded but (if present) slow worms are likely to be restricted to extensive areas of semi-natural habitats and railway corridors (see Ref 7.3.24 for detailed species habitat requirements).

## Grass snake

- 3.2.7 Based on the desk study information, grass snake appear to be the most widespread and abundant reptile species across the Project. Presence is still patchy but there are multiple records around Drax, from Thorne, Crowle and Goole Moors SSSI, around Keadby and to the south of Scunthorpe. There is only one record to the east of Scunthorpe, extending to the coast at Easington; however, the identification of a dead grass snake within the River Humber Corridor during wintering birds surveys for the Project suggests that this species (as with others) is under recorded across this range.
- 3.2.8 Therefore, low numbers of grass snake are potentially present intermittently across suitable habitats (see Ref 7.3.24 for detailed species habitat requirements) and particularly within the many ditch networks crossed by the Project.

## Adder

- 3.2.9 Based on the desk study results, adder appears to be restricted to Thorne, Crowle and Goole Moors SSSI and surrounding areas. There was one record (from 2002) situated outside of this SSSI; associated with the Oak Hill, Dutch River & Aire and Calder Canal corridor, and the species may also be present here. In addition, the habitats associated with Manton and Twigmoor SSSI appear to be suitable for the species (see Ref 7.3.24 for detailed species habitat requirements) which could be present/under recorded across this area.

## 4. Discussion

### 4.1 Summary

- 4.1.1 The habitats within the Project are largely unsuitable for reptiles as they comprise intensive agricultural land that is structurally deficient and lacking resting places (Ref 7.3.24). Nevertheless, distinct habitat patches and intermittent pockets of suitable habitat are sporadically distributed across the Project area. These are largely associated with linear features (such as railway/roadside embankments/verges, hedgerows and water features) and a few areas of rank semi-natural habitat, for example rough grassland and scrub.
- 4.1.2 Observations during field surveys confirmed presence of grass snake within the Proposed Order Limits at the River Humber Corridor and West Common North Drain and common lizard at Blackhoe and Broom Plantations and West Common North Drain. The desk study produced approximately 150 records and 11 reptile survey reports (5 reporting presence and six reporting a negative result). Where presence was reported, abundance was generally reported as low (the semi-natural area near Drax / Lytag and the land adjacent to Blackhoe and Broom Plantations being the exception and supporting medium populations of grass snake and common lizard, respectively).

### 4.2 Avoidance Measures

- 4.2.1 A total of 45 distinct habitat areas across the Proposed Order Limits were identified and assessed for their potential to qualify as a Key Reptile Site:
- 16 were assessed as being of exceptional quality for reptiles.
  - 24 were assessed as being of good quality for reptiles.
  - 5 were assessed as being of low quality for reptiles.
  - 18 were considered to potentially qualify a Key Reptile Site based on the criteria within Image 2-1.
- 4.2.2 Applying the Mitigation Hierarchy (Ref 7.3.1), avoidance of potential impacts from the Project was incorporated into the scheme design and it was possible to eliminate potential impacts from 20 of the 45 distinct habitat areas (9 of these being Key Reptile Sites) by removing them from the Proposed Order Limits or adopting trenchless techniques.
- 4.2.3 Table 4-1 summarises the results of the reptile habitat suitability assessment and evaluation, whether each distinct habitat area qualifies as a Key Reptile Site (KRS) and whether there is a perceived impact from the Project.

Table 4-1 Reptile summary table

Site Name	Habitat Suitability	Likelihood of supporting:				Potential KRS	Perceived Impact Pathway?
		Grass Snake	Adder	Common Lizard	Slow Worm		
<b>Semi-natural area near Drax / Lytag</b>	<b>Exceptional</b>	<b>High</b>	<b>Negligible</b>	<b>Low</b>	<b>Negligible</b>	<b>Yes</b>	<b>Yes</b>
<b>Disused Railway Line at Drax</b>	Good	Medium	Negligible	Medium	Low	No	Yes
<b>Plantation Woodland off New Road, Drax</b>	Good	Low	Negligible	Low	Negligible	No	No
<b>River Aire</b>	Good	High	Negligible	Medium	Negligible	No	No
<b>A645 Rawcliffe Road Soft Estate</b>	Poor	Medium	Negligible	Medium	Negligible	No	No
<b>Oak Hill, Dutch River &amp; Aire and Calder Canal complex</b>	Exceptional	High	Medium	High	Low	<b>Yes</b>	No
<b>Thorne to Goole Railway</b>	Exceptional	High	Medium	High	Low	<b>Yes</b>	No
<b>Swinefleet Warping Drain</b>	Good	High	High	High	Low	<b>Yes</b>	<b>Yes</b>
<b>Paupers' Drain</b>	Good	High	Negligible	Medium	Negligible	No	Yes
<b>Keadby Ash Tip</b>	Exceptional	High	Negligible	Medium	Negligible	No	Yes

Site Name	Habitat Suitability	Likelihood of supporting:				Potential KRS	Perceived Impact Pathway?
		Grass Snake	Adder	Common Lizard	Slow Worm		
South Soak Drain	Good	High	Negligible	Medium	Negligible	No	No
Three Rivers and South Engine Drain	Exceptional	High	Negligible	Medium	Negligible	No	No
Folly Drain	Exceptional	High	Negligible	Medium	Negligible	No	Yes
Warping Drain, Derrythorpe	Good	Medium	Negligible	Low	Negligible	No	Yes
River Trent	Good	Medium	Negligible	Low	Negligible	No	No
West Common North Drain	Good	Confirmed	Negligible	Confirmed	Negligible	No	Yes
Holme Plantation	Exceptional	Medium	Negligible	High	Negligible	No	Yes
Holme Lane Soft Estate	Poor	Low	Negligible	Medium	Negligible	No	Yes
Sweeting Thorns	<b>Exceptional</b>	<b>High</b>	<b>Low</b>	<b>High</b>	<b>Low</b>	<b>Yes</b>	<b>Yes</b>
A18 Mortal Ash Hill Roadside Verge	Good	Medium	Negligible	Medium	Negligible	No	Yes
Low Wood and Top Hedge	<b>Exceptional</b>	<b>High</b>	<b>Low</b>	<b>High</b>	<b>Low</b>	<b>Yes</b>	<b>Yes</b>
Blackhoe and Broom Plantations	Exceptional	High	Low	Confirmed	Low	<b>Yes</b>	<b>Yes</b>
Bellevue Farm	<b>Exceptional</b>	<b>High</b>	<b>Negligible</b>	<b>Confirmed</b>	<b>Negligible</b>	<b>Yes</b>	<b>Yes</b>
Stonepit Wood	Exceptional	High	Low	High	Low	<b>Yes</b>	No

Site Name	Habitat Suitability	Likelihood of supporting:				Potential KRS	Perceived Impact Pathway?
		Grass Snake	Adder	Common Lizard	Slow Worm		
Sand Field Wood	Poor	Medium	Negligible	Medium	Negligible	No	No
A15 Roadside Verge	Good	Medium	Negligible	Medium	Negligible	No	No
Railway and Woodland and Scrub Corridor at Brigg	Good	High	Negligible	High	Low	Yes	No
New River Ancholme and Old River Ancholme	Exceptional	High	Negligible	High	Low	Yes	No
Kettleby Beck	Good	Medium	Negligible	Medium	Negligible	No	Yes
Candley Beck	Good	Medium	Negligible	Medium	Negligible	No	Yes
Kettleby Covert	Poor	Low	Negligible	Low	Negligible	No	No
Barnetby Road Verges and Semi-natural area	Good	Medium	Negligible	Medium	Negligible	No	Yes
Grasby Bottoms Green Lane LWS	Good	Medium	Negligible	Medium	Negligible	No	Yes
Plantation woodlands near Kirmington	Poor	Low	Negligible	Low	Negligible	No	Yes
Goxhill to Ulceby Railway Line	Good	High	Negligible	High	Low	No	No

Site Name	Habitat Suitability	Likelihood of supporting:				Potential KRS	Perceived Impact Pathway?
		Grass Snake	Adder	Common Lizard	Slow Worm		
East Halton Beck and Woodland	Exceptional	High	Negligible	High	Negligible	No	Yes
Disused Railway Line at East Halton	Good	Medium	Negligible	Medium	Low	Yes	Yes
Mosaic habitats at East Halton	Good	Medium	Negligible	Medium	Negligible	No	Yes
River Humber Corridor	Good	Confirmed	Negligible	High	Low	Yes	No
Semi-natural area near Thorngumbald	Good	Medium	Negligible	Medium	Low	No	Yes
Hedon – Winestead Disused Railway Line	Good	High	Negligible	Medium	Medium	Yes	Yes
Burstwick Drain	Good	High	Negligible	Medium	Medium	Yes	Yes
Hollym Carrs	Exceptional	High	Negligible	High	Low	Yes	No
Hodgson's Fields	Exceptional	High	Low	High	Negligible	Yes	No
Holderness Coast	Good	High	Low	High	Negligible	Yes	No

## 4.3 Conclusion

- 4.3.1 Large populations and widespread presence of reptiles is considered unlikely. Nevertheless, widespread presence of grass snake and common lizard cannot be ruled out across suitable habitats and adder and slow worm may also be present within certain areas of suitable habitat. Suitable precautionary working methods and mitigation is required to prevent death or injury during construction activities and to ensure an increase in area of better-quality habitat than that affected and that these habitats are well connected to the wider landscape (see Appendix 7.1 Conservation Strategy (Volume IV) for more details).
- 4.3.2 Of the 26 distinct habitat areas that the Project may impact, 9 have been assessed as potentially qualifying as Key Reptile Sites and will be subject to pre-construction reptile presence/absence survey (and population size class estimates where presence is established; see Section 8 of the Conservation Strategy in Appendix 7.1 (Volume IV)): Semi-natural area near Drax / Lytag, Swinefleet Warping Drain, Sweeting Thorns, Low Wood and Top Hedge, Blackhoe and Broom Plantations, Bellevue Farm, Disused Railway Line at East Halton, Hedon – Winestead Disused Railway Line, and Burstwick Drain.
- 4.3.3 It is proposed that presence/likely absence surveys are undertaken in the appropriate survey season prior to construction activities.

## 5. References

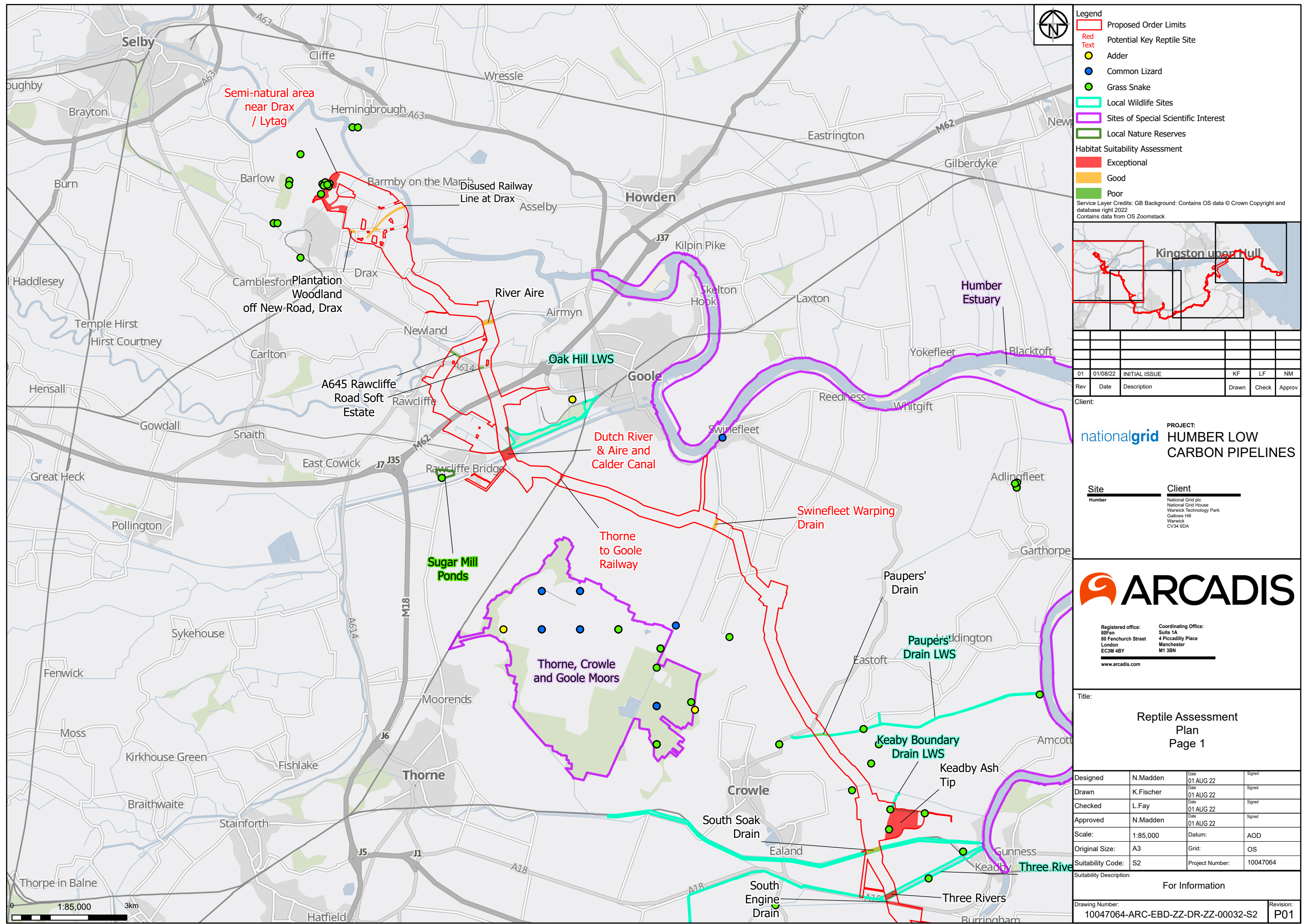
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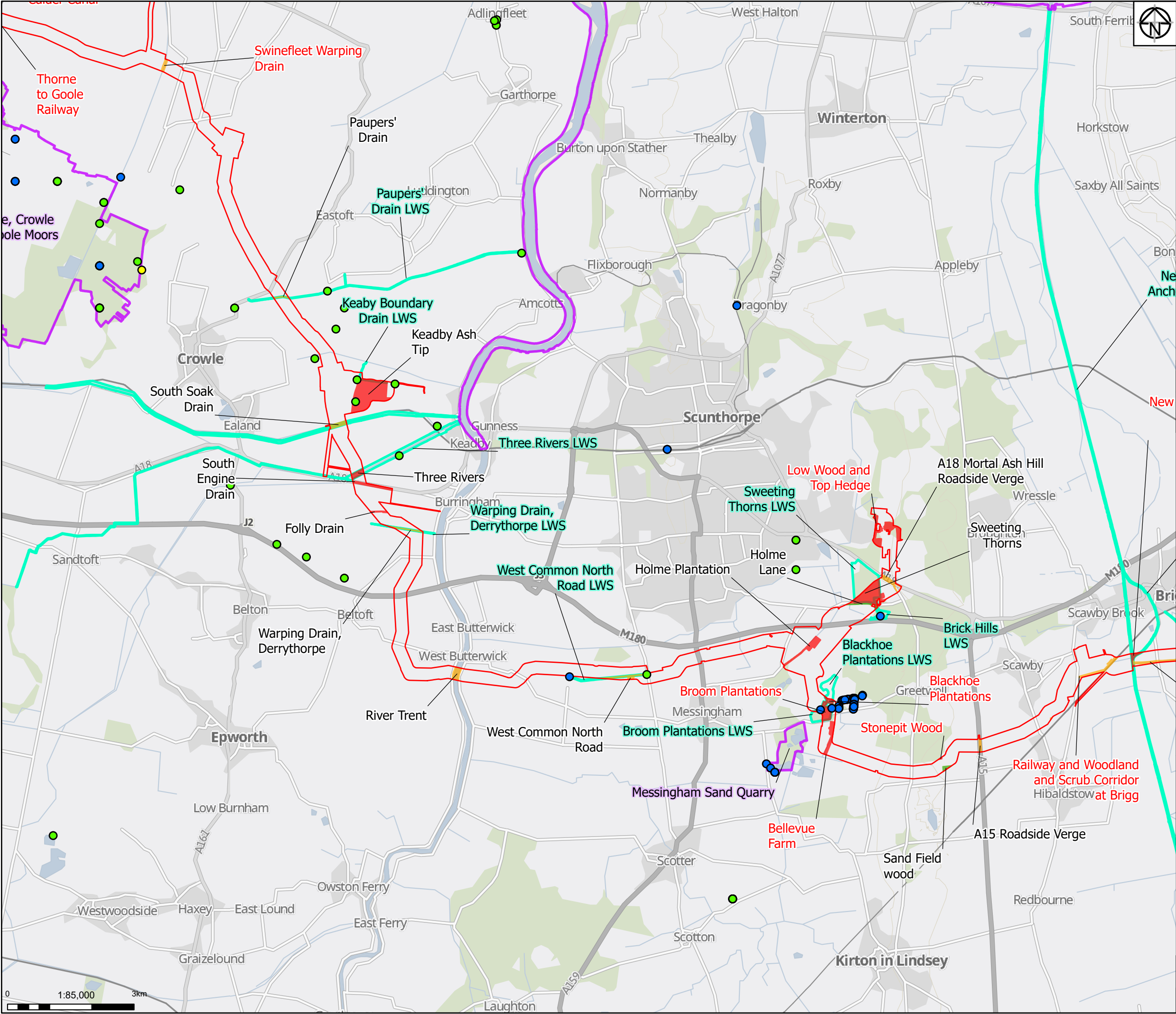
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# Appendix A – Figures







Proposed Order Limits

Red Text

Potential Key Reptile Site

Adder

Common Lizard

Grass Snake

Local Wildlife Sites

Sites of Special Scientific Interest

Habitat Suitability Assessment

Exceptional

Good

Poor

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Kingston upon Hull

01	01/08/22	INITIAL ISSUE	KF	LF	NM
Rev	Date	Description	Drawn	Check	Approv

Client:

nationalgrid

HUMBER LOW CARBON PIPELINES

Site

Humber

Client

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Title:

Reptile Assessment Plan  
Page 2

Designed	N.Madden	Date	01 AUG 22	Signed	
Drawn	K.Fischer	Date	01 AUG 22	Signed	
Checked	L.Fay	Date	01 AUG 22	Signed	
Approved	N.Madden	Date	01 AUG 22	Signed	
Scale:	1:85,000	Datum:	AOD		
Original Size:	A3	Grid:	OS		
Suitability Code:	S2	Project Number:	10047064		

Suitability Description:

For Information

Drawing Number:

10047064-ARC-EBD-ZZ-DR-ZZ-00032-S2

Revision:

P01

Print Date: 09-06-22 09:09:25

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North

Legend

Proposed Order Limits

Red Text

Potential Key Reptile Site

Grass Snake

Local Wildlife Sites

Sites of Special Scientific Interest

Habitat Suitability Assessment

Exceptional

Good

Poor

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01	01/08/22	INITIAL ISSUE	KF	LF	NM
Rev	Date	Description	Drawn	Check	Approv

Client:

nationalgrid

PROJECT:

HUMBER LOW CARBON PIPELINES

Site

Humber

Client

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Reptile Assessment Plan Page 3

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Approved	N.Madden	Date	01 AUG 22	Signed	
Scale:	1:85,000	Datum:	AOD		
Original Size:	A3	Grid:	OS		
Suitability Code:	S2	Project Number:	10047064		

Suitability Description:

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Revision:

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