Norfolk Boreas Offshore Wind Farm

Appendix 22.2

Great Crested Newt Survey Reports

Environmental Statement

Volume 3

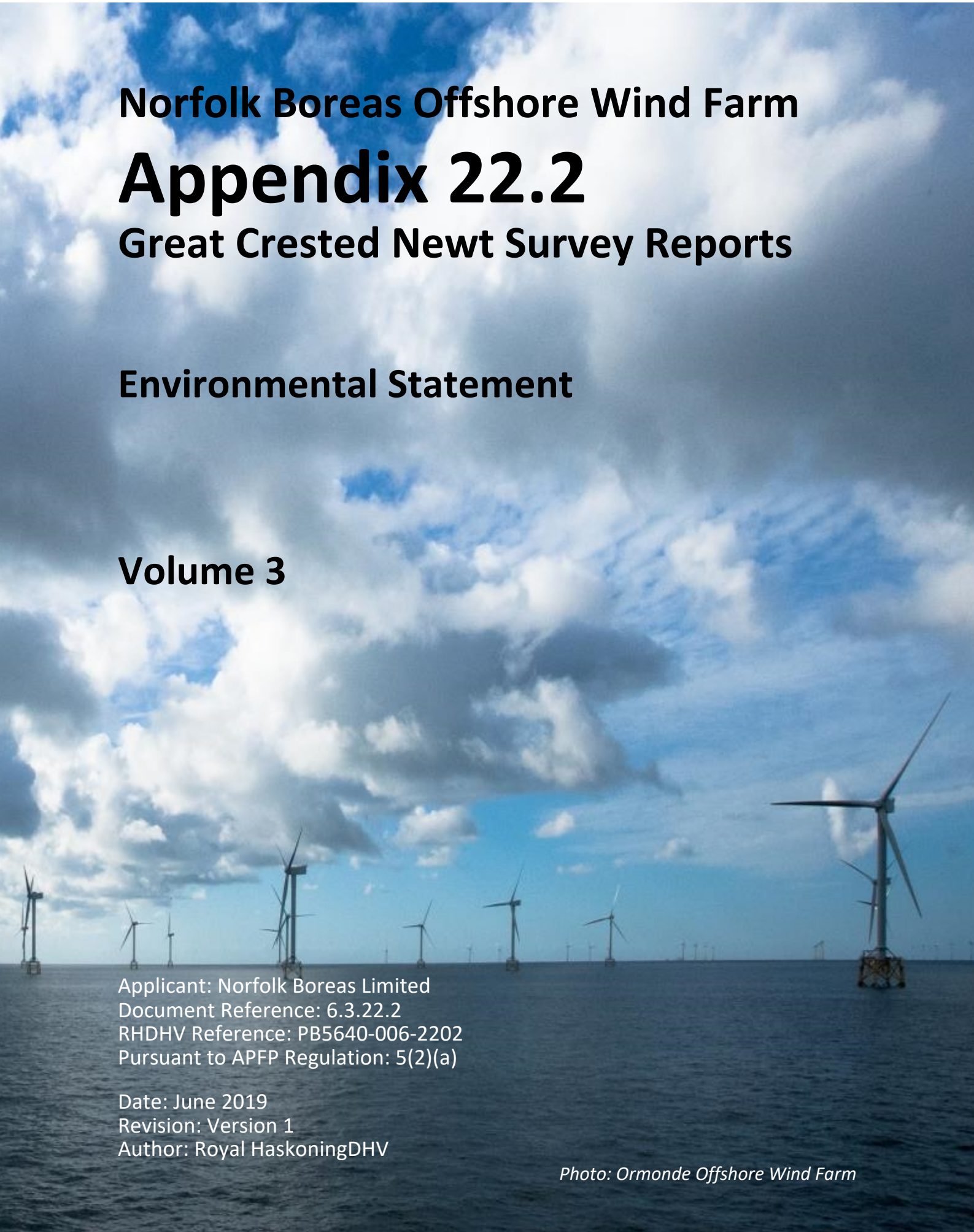

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Photo: Ormonde Offshore Wind Farm

Norfolk Boreas Offshore Wind Farm

Great Crested New Survey Report

Document Reference: PB5640-005-2202

Date: October 2018

Author: Royal HaskoningDHV

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
06/06/2018	01D	First draft for Norfolk Boreas Limited review	KT	GC/CS	AD
28/09/2018	01F	Final for PEIR submission	KT	CD	AD/JL

Table of Contents

Tables

Figures (Annex A)

Glossary of Acronyms

CIEEM	Chartered Institute of Ecology and Environmental Management
EPS	European Protected Species
EU	European Union
ETG	Expert Topic Group
HDD	Horizontal Directional Drilling
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
HSI	Habitat Suitability Index
kV	Kilovolts
PEIR	Preliminary Environmental Information Report
SAC	Special Areas of Conservation
SPA	Special Protection Areas
UK BAP	UK Biodiversity Action Plan
VWPL	Vattenfall Wind Power Limited

Glossary of Terminology

Landfall	Where the offshore cables come ashore at Happisburgh South.
Mobilisation area	Areas approx. 100 x 100m used as access points to the running track for duct installation. Required to store equipment and provide welfare facilities. Located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of heavy and oversized materials and equipment.
Mobilisation zone	Area within which a mobilisation area will be located.
National Grid overhead line temporary works	Area within which the work will be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid substation extension	The permanent footprint of the National Grid substation extension.
Necton National Grid substation	The grid connection location for Norfolk Boreas and Norfolk Vanguard.
Onshore cable route	The up to 35m working width within a 45m wide corridor which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore project area	The area of the onshore infrastructure (landfall, onshore cable route, accesses, trenchless crossing zones and mobilisation areas; onshore project substation and extension to the Necton National Grid substation and overhead line modifications).
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from HVDC to HVAC, to 400kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
The project	Norfolk Boreas Wind Farm including the onshore and offshore infrastructure.

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1 Introduction

1. The aim of this report is to present the findings of a suite of great crested newt *Triturus cristatus* presence/absence surveys (herein the '2018 Great Crested Newt Survey') which have been conducted with respect to the Norfolk Boreas Offshore Wind Farm (herein the 'project') onshore project area.

2. The results of this survey are also informed by the findings from the 2017 Great Crested Newt Survey which was conducted for Norfolk Vanguard (Norfolk Boreas' sister project) in 2017. Details with respect to the two surveys have been included throughout the report.

1.1 Project Background

3. The onshore electrical infrastructure works for the project at the time of the survey consisted of the following key elements:

- Landfall zone at Happisburgh South;
- An approximately 60km long, 35m wide buried onshore cable corridor from the landfall zone to the Necton National Grid substation;
- Onshore project substation, National Grid substation extension and overhead line modification zones near the existing Necton National Grid substation;
- A transition jointing bay behind the landfall site at Happisburgh South to connect the offshore export cables with the onshore export cables; and
- Associated infrastructure including trenchless crossing technique (e.g. Horizontal Directional Drilling (HDD)) zones, mobilisation areas and temporary and permanent access routes located along the onshore cable corridor.

4. To minimise impacts arising from construction activities and delays to the programme schedule, much of the infrastructure of Norfolk Boreas and its 'sister project' Norfolk Vanguard have been co-located. This approach applies to the offshore and onshore parts of the export cable route, the cable landfall and the onshore project substations.

5. Following discussion with stakeholders as part of the Norfolk Boreas Evidence Plan Process (EPP), it was decided that due to the co-location of the two projects with respect to the onshore cable corridor, the species-specific Phase 2 ecological surveys carried out in 2017 for the Norfolk Vanguard project including the 2017 Great Crested Newt Survey carried out for the Norfolk Vanguard project in 2017 (the '2017 Great Crested Newt Survey') can be used to inform the Norfolk Boreas Project also. The combined results from the 2017 and 2018 Great Crested Newt Surveys are provided in Section 4.2. A copy of the 2017 Great Crested Newt Survey Report is contained in Appendix 22.6.

6. The location of the onshore electrical infrastructure is shown in Figure 22.2.1, Annex A: Figures. Collectively, the onshore infrastructure is herein referred to as the 'onshore project area'. It should be noted that this Appendix presents the results of a survey which was undertaken in April and May 2018, and therefore the onshore project area shown is as it stood at that time. It is understood that the final cable route has been decided, and that no further amendments will be made.

7. Please refer to Chapter 5 Project Description for details of the project.

1.2 Purpose and Scope of this Report

8. An Extended Phase 1 Habitat Survey for the project was undertaken by Royal HaskoningDHV ecologists during February and March 2017 (the '2017 Extended Phase 1 Habitat Survey'), and a subsequent survey was undertaken during February and March 2018 (the '2018 Extended Phase 1 Habitat Survey'). The findings of these surveys are reported in Appendix 22.4 and 22.1 respectively. The 2017 and 2018 Extended Phase 1 Habitat Surveys included a Habitat Suitability Index (HSI) assessment (following Oldham *et al*., 2000) of all standing waterbodies which had been identified to be within 250m of the onshore electrical infrastructure temporary and within 500m of the onshore project area permanent infrastructure to assess their potential to support great crested newts. Collectively, for both the 2017 and 2018 surveys this comprises the "onshore survey area" (as detailed in Appendix 22.1).

9. During the 2017 Extended Phase 1 Habitat Survey, a total of 208 standing water bodies were subject to a HSI assessment to determine their habitat suitability. Of these, 25 were no longer present, or are now part of another pond or dry at the time of the survey. In these instances, these water bodies have been discounted. The remaining 183 were subject to a HSI assessment; the results of which are summarised in Table 1.1.

Table 1.1 Summary of the 2017 HSI assessments

Habitat suitability index score	Habitat Suitability	No. of standing water bodies
<0.5	Poor	47
0.5 – 0.59	Below average	59
0.6 – 0.69	Average	36
0.7 – 0.79	Good	25
> 0.8	Excellent	16

10. The locations of these waterbodies are shown on Figure 22.2.2 Annex A: Figures; plates of these waterbodies are shown in Appendix 22.1, Annex G: Plates. .

11. In order to ensure that, as far as possible, the 2018 survey effort addresses key data gaps identified within the dataset collected during 2017, it was proposed in the Norfolk Boreas EPP that surveys would focus on a series of ecological 'priority areas'. Each priority area focuses on a part of the onshore project area where either the onshore project area at this location is anticipated to give rise to effects of a greater magnitude than in other areas or the area may be ecologically sensitive due to the presence of sensitive habitats, as identified using available desk-based information.

12. The 2018 Extended Phase 1 Habitat Survey focussed on 15 priority areas. Within these areas, an additional 17 standing water bodies were identified. These 17 water bodies were subject to a HSI assessment to determine their habitat suitability. Due to the seasonably wet weather, all ponds contained water at the time of the survey, although seven were considered to be ephemeral and expected to dry out on an annual cycle. A summary of HSI results of these 17 ponds is presented in Table 1.2, and full results of the HSI assessments are included within Appendix 22.1. The locations of these waterbodies are shown on Figure 22.2.2 Annex A: Figures; plates of these waterbodies are shown in Appendix 22.1, Annex G: Plates.

Table 1.2 Summary of the 2018 HSI assessments

Habitat suitability index score	Habitat Suitability	No. of standing water bodies
<0.5	Poor	6
0.5 – 0.59	Below average	4
0.6 – 0.69	Average	2
0.7 – 0.79	Good	5
> 0.8	Excellent	0

13. Part of the HSI assessment includes an assessment of the habitat surrounding a potential breeding pond to assess its suitability to support foraging and hibernating newts. Suitable terrestrial habitat for supporting foraging and hibernating great crested newts was observed throughout both the 2017 and 2018 survey areas.

14. As full survey access was not available at the time of the 2018 survey, and will only be available post-consent, the 2018 Great Crested Newt Surveys have not sought to provide a complete baseline. Instead, the 2018 surveys have sought to target the key data gaps within the baseline data collected during the 2017 Great Crested Newt Survey. A key data gap within the 2017 Great Crested Newt Survey data is those ponds located within the onshore project area. Of the 17 water bodies along the cable route that were subject to HSI, three of these are located within the onshore project area. A further three water bodies are located within the project area but which were not subject to HSI during the 2018 Extended Phase 1 Habitat Survey. These six water bodies have therefore been the focus of the 2018 survey effort, in

order to understand whether water bodies which will be directly affected by the project support breeding populations of great crested newts.

Table 1.3 HSI scores for each pond surveyed

Water body reference number	HSI score	Habitat Suitability	Scoped in
TF9614-147	0.71	Good	Yes
TF9413-120	0.54	Below average	Yes
TF9413-119	0.58	Below average	Yes
TG0115-205	0.50	Poor	No
TG0115-195	0.44	Poor	No
TG0115-191	N/A	N/A	N/A

15. Of these six water bodies, survey access was not granted to one (TG0115-191). Two of the five remaining water bodies which had been calculated as being of 'poor' habitat suitability (a HSI of less than 0.5), and were therefore scoped out of further assessment. The remaining three were therefore subject to presence / likely absence surveys.

16. This report presents the findings of the 2018 great crested newt presence / likely absence surveys (referred to in this document as the '2018 Great Crested Newt Survey') of these three waterbodies.

17. The findings of this report will provide details of the great crested newt population present within the survey area. This will be used to inform the project Preliminary Environmental Information Report (PEIR) which will be submitted in autumn 2018. To this end, the findings of this report have also been used to identify outline mitigation measures and licensing requirements which may be required.

18. This report has been prepared in line with the guidelines as set out in the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines on Ecological Report Writing (2nd Edition, December 2015).

1.3 Consultation

19. The methodology set out in this report is consistent with that detailed in the 2017 Great Crested Newt Survey Report (Royal HaskoningDHV, 2017). This methodology was discussed and agreed with stakeholders from Natural England, Environment Agency, Breckland Council, Norfolk Country Council and Norfolk Wildlife Trust during a Norfolk Vanguard Expert Topic Group (ETG) meeting held on 24th January 2017 as part of the project EPP.

20. As part of the Norfolk Boreas EPP, the scope of the surveys presented in this report were issued to the Norfolk Boreas ETG in January / February 2018. Natural England

subsequently confirmed agreement with the scope of the 2018 Great Crested Newt Survey.

2 Legislation and Policy

21. Table 2.1 summarises the relevant information relating to the legal protection afforded to great crested newts. However it should be noted that this is for information only and is not intended to be comprehensive or to replace specialised legal advice.

Table 2.1 Summary of the key legislation and policy relevant to great crested newts

Legislation	Relevance
European Union (EU) Directive 92/43/EEC (The Habitats Directive)	This Directive provides protection for specific habitats listed in Annex I and species listed in Annex II of the Directive. The Directive sets out decision making procedures for the protection of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) and these are implemented in the UK through The Conservation of Habitats and Species Regulations 2017. Great crested newts are listed on Annex II of the directive.
The Conservation of Habitats and Species Regulations 2017 (as amended)	Codifies the EU (European Union) Directive 92/43/EEC (The Habitats Directive) into UK law; provides legal protection for European Protected Species (EPS). Great crested newts are an EPS.
Wildlife and Countryside Act 1981 (as amended)	This Act makes it an offence to intentionally kill, injure or take any animal listed in Schedule 5 of the Act and protects occupied and unoccupied places used for shelter or protection. Great crested newts are listed on Schedule 5.
Natural Environment and Rural Communities Act 2006	Section 41 of the Act requires the Secretary of State to compile a list of habitats and species of principal importance for the conservation of biodiversity in England. Decision makers of public bodies, in the execution of their duties, must have regard to the conservation of biodiversity in England, and the list is intended to guide them. Natural England have compiled a list of species of Principal Importance. Great crested newts are on this list.
UK Post-2010 Biodiversity Framework	Supersedes the UK Biodiversity Action Plan (UK BAP), which fulfilled legal obligation under the Convention on Biological Diversity to identify and produce action plans for produce priority habitats and species.

3 Methodology

3.1 Survey Area

22. The 2018 survey area as shown in Figure 22.2.2, Annex A: Figures, includes all standing water bodies that are:

- Located within the onshore project area;
- Were not surveyed during the 2017 Great Crested Newt Survey; and
- Were scoped into the presence/absence survey as having an HSI score greater than 0.5.

23. The 2018 survey area comprised three standing water bodies which are shown on Figure 22.2.2, Annex A: Figures.

3.2 Survey Methodology

24. Great crested newt presence/absence surveys of the three water bodies were undertaken between 19th April and 10th May 2018. A full calendar of the survey dates within this period is provided in Table 3.1 in Section 3.4.

25. The 2018 Great Crested Newt Survey was undertaken in accordance with the protocol set out in the Great Crested Newt Mitigation Guidelines (English Nature, 2001) and Natural England's Standing Advice for Great Crested Newts (Natural England, 2015). Each standing water body scoped into the survey was subject to four survey visits between mid-March and mid-June, with at least two visits during the peak season (mid-April to mid-May). During each visit, each standing water body was subject to three survey methods, including torching and bottle-trapping, and one of either netting or egg-searching. Each survey method was used to record number, sex, life-stage of all great crested newts founding during the surveys. All other amphibians found were also recorded.

26. If the presence of great crested newts was found during the 1-4 survey visits, two further survey visits were undertaken to calculate the great crested newt population size class estimate. The same survey methods as outlined above have been followed for these subsequent visits.

27. The Great Crested Newt Mitigation Guidelines (English Nature, 2001) were adhered to when using each survey method. Torching surveys were conducted using 500,000 candle torches and the full perimeter of each pond was subject to torching where possible. Where bottle trapping was used, traps were two-metres apart around the pond's perimeter with a maximum of 16 traps in any one pond. Where vegetation cover was too dense or the water too turbid to effectively using the torching method, netting was used. In these instances, at least 15 minutes of netting per 50m of shoreline was undertaken.

28. Weather conditions were recorded during each survey visit. No surveys were conducted if the night time temperatures were <5°C at the start of the survey, there was strong wind or heavy rain. The vegetation cover and turbidity of the water were also each recorded during each visit. A scale of 1-5 was used, with '1' representing no vegetation cover obscuring the pond surface, or low turbidity allowing visibility to the pond floor, and '5' being dense vegetation cover ensuring none of the pond is visible, or high turbidity resulting in zero visibility during torching.

29. For those water bodies where great crested newt presence was recorded during the 2018 Great Crested Newt Survey, a population size class assessment was carried out. This assessment provides an estimate of the population size class – not of the actual population size – of each great crested newt population found. The methodology for estimating the population size class followed the approach set out in the Great Crested Newt Mitigation Guidelines was followed (English Nature, 2001). The maximum count of great crested newts achieved during a single survey visit, using either the torching method or bottle trapping, was identified for each water body. This maximum count was then classified into 'high, 'medium' or 'low' population size class using the following categories:

- 'Small' for maximum counts up to 10;
- 'Medium' for maximum counts between 11 and 100; and
- 'Large' for maximum counts over 100.

3.3 Surveyors

30. The 2018 Great Crested Newt Survey was undertaken by a team of three Royal HaskoningDHV ecologists. All survey teams contained at least one surveyor holding a great crested newt WML-CL08 Level 1 Class Licence for survey great crested newts.

31. The survey team was led by Charlotte Clements, BSc. Affiliate Member of the IEMA. Charlotte has 3 years' experience of great crested newt surveying and holds a WML-CL08 Level 1 Class Licence (Licence no. 2016-25773-CLS-CLS). The survey team included:

- Maria Walentek, BSc. MSc. Associate Member of CIEEM (ACIEEM); and
- Blair Davies, BSc. (Hons).

3.4 Weather Conditions

32. Table 3.1 summarises the weather conditions encountered during each of the survey visits within the surveying period.

33. Temperatures recorded at each individual water body are shown in the full survey results provided in Annex B: Full Survey Results.

Table 3.1 Weather conditions

Visit	Date	Weather conditions	Temperature (°C)	
			@ Survey Start	@ Survey finish
Visit 1	19th April 2018	Clear and dry	11	15
Visit 2	26th April 2018	Patchy cloud and dry	9	10
Visit 3	3rd May 2018	Patchy cloud and dry	7	7
Visit 4	10th May 2018	Patchy cloud and dry	6.5	10

3.5 Survey Limitations

34. The survey team covered all land to which landowner access permission was granted. This included five of the six water bodies scoped into the 2018 Great Crested Newt Survey. The remaining water body (TG0115-191) was not surveyed due to restricted landowner access. This water body will be surveyed during future survey seasons, when full landowner access is obtained.

35. In some cases, physical access to the entire pond perimeter was not possible due to dense vegetation cover. For these ponds, the surveys were conducted from the accessible areas of the perimeter only. Where vegetation was too dense to successfully torch or the water was too turbid (a vegetation or turbidity score of 4 or above), netting was used. For some ponds, cattle were present in the field and so bottle trapping was not used in case of damage to the traps or at the request of the landowner. In these cases, alternative survey techniques (i.e. torching, netting and egg searches) were used. The details of the limitations encountered against each individual water body are recorded within Annex B: Full Survey Results. The limitations encountered were not considered to prevent reliable survey results being obtained from any of the ponds surveyed.

36. Whilst the survey team made the utmost effort to pick up all sightings of great crested newts present during the field survey, on occasion due to human error some sightings may be overlooked. However despite this, the data presented in this report is considered to provide an accurate description of the habitats within the survey area and provide a robust understanding of the survey area's great crested newt population.

4 Results

37. Results from both the 2018 survey and the 2017 Great Crested Newt Surveys carried out for Norfolk Vanguard are included in this section. The survey areas covered in this survey include only those that were scoped in during the Norfolk Boreas Phase 1

Habitat Survey, but could not be accessed during surveys in 2017 due to landowner access restrictions.

4.1 Survey Results

38. Great crested newt presence was not recorded in any of the three water bodies during the 2018 Great Crested Newt Survey.

39. No other amphibian species were recorded during this survey period.

4.2 Full Survey Results (2017 and 2018)

40. Great crested newt presence was recorded in five water bodies during the 2017 Great Crested Newt Survey. Three of these water bodies were located within the project area, with the remaining two located within the wider great crested newt survey area. Presence of great crested newts was not recorded in any water bodies during the 2017 Great Crested Newt Survey.

41. The great crested newts breeding ponds found during the 2017 Great Crested Newt Surveys are considered to be part of three separate metapopulations.

42. Presence was not recorded in the remaining 38 water bodies surveyed during the 2017 Great Crested Newt Survey.

43. Table 4.1 Water bodies with great crested newt presence in 2017 summarises the findings of 2017 Great Crested Newt Survey.

Table 4.1 Water bodies with great crested newt presence in 2017

Water body reference	Peak adult count using any method	Eggs found	Population size class assessment	Metapopulation
TF9010-50	2	No	Small	Metapopulation 1
TF9614-154	1	Yes	Small	Metapopulation 2
TF9614-155	12	No	Medium	Metapopulation 2
TF9614-157	0	Yes	Small	Metapopulation 2
TF0721-256	3	No	Small	Metapopulation 3

44. Other amphibians including smooth newts *Lissotriton vulgaris*, palmate newts *Lissotriton helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo* have been recorded widely during the 2017 Great Crested Newt Survey.

5 Recommendations

45. The results of the 2017 Great Crested Newt Survey outlined in section 4 showed that there are five standing water bodies within the 2017 survey area in which presence of great crested newts has been confirmed.

5.1.1 Potential Impacts

46. Given the great crested newts recorded during the 2017 Great Crested Newt Survey, consideration of the potential impacts of the project upon great crested newt populations will be required in order to ensure that adequate steps are taken to minimise the risk of killing or injuring any great crested newts, or damaging any great crested newt aquatic or terrestrial habitat during construction. Specifically, the following potential impacts should be considered in detail:

- Mortality during site clearance and construction,
- Disturbance of resting sites during construction,
- Terrestrial and aquatic habitat loss and modification, and
- Habitat fragmentation and isolation.

47. If any impacts are identified, the options for mitigating these will be considered at detailed design stage. Options for avoiding known great crested newt breeding ponds will be considered in the first instance, followed by avoiding terrestrial great crested newt habitat. If neither of these options are available, on-site mitigation, and finally offsite mitigation will be considered.

48. If mitigation is required in order to ensure there is no adverse impact on the great crested newt population identified due to the project, the Great Crested Newt Mitigation Guidelines (English Nature, 2001) should be used to inform any mitigation design.

5.1.2 Further Surveys

49. For those water bodies surveyed during the 2018 Great Crested Newt Survey, no further surveys are recommended at this stage.

50. All unsurveyed water bodies within the onshore project area and within 250m of the temporary works and 500m of the permanent works need to be surveyed prior to construction.

6 Conclusions

51. A suite of great crested newt presence/absence surveys were conducted for three standing water bodies located within the onshore project area in 2018. These three water bodies had not been surveyed as part of the 2017 survey effort. Great crested newt presence was not found in any of the three water bodies.

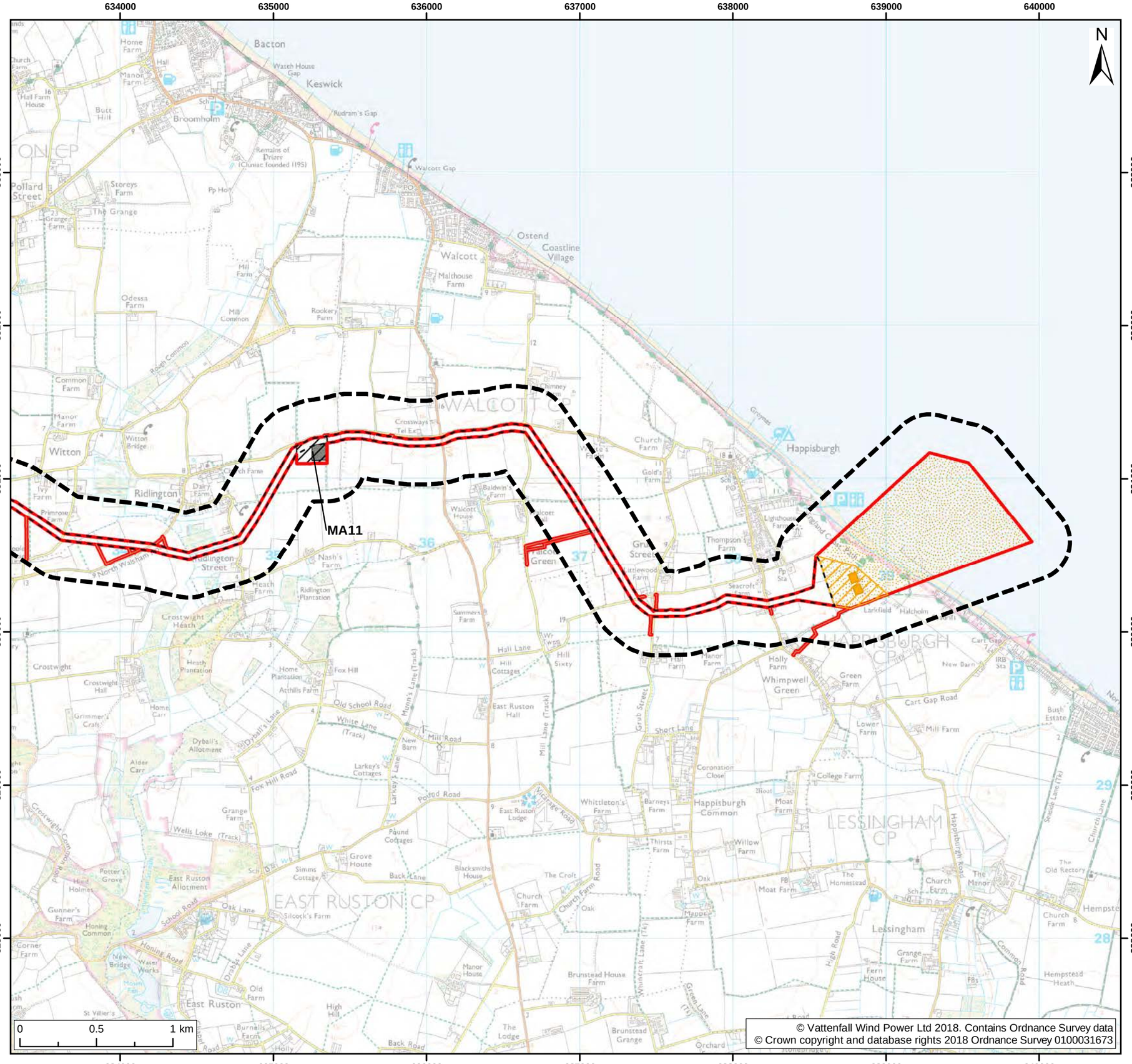
52. Great crested newt presence was found in five standing water bodies within the survey area carried out in 2017. Four of these water bodies were found to support populations within the 'low' population size class, and one was found to support a population in the 'medium' size class. These results are considered to represent three separate metapopulations.

53. One water body located within the project area was not surveyed in 2017 or 2018 due to landowner access restrictions. Further water bodies located within 250m of the onshore project area temporary works (or 500m of the onshore project area permanent works) have not been surveyed due to landowner access restrictions. All of these water bodies will require further surveying post-consent.

7 References

Chartered Institute of Ecology and Environmental Management (2nd Edition, December 2015) Guidelines on Ecological Report Writing
English Nature (2001) Great crested newt mitigation guidelines. August 2001
Natural England (2015) Great Crested Newts: surveys and mitigation for development projects. Natural England Standing Advice.
Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155.
Royal HaskoningDHV (2018) Norfolk Boreas Offshore Wind Farm: Extended Phase 1 Habitat Survey Report. Document Reference PB5640-005-0221
Royal HaskoningDHV (2017b) Norfolk Vanguard Offshore Wind Farm: Extended Phase 1 Habitat Survey Report. Document Reference PB4476-003-040.
Royal HaskoningDHV (2018) Norfolk Vanguard Offshore Wind Farm: Great Crested Newt Survey Report. Document Reference PB4476-005-0222

8 Annex A: Figures



Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Landfall zone
- Landfall compound zone
- Indicative landfall compound
- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Mobilisation zone
- Indicative mobilisation area compound

Project:	Report:
Norfolk Boreas	Great Crested Newt Survey Report

Title:

Survey location
(Map 1 of 9)

Figure: 22.2.1a | Drawing No: PB5640-005-0222-001a

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Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

0 0.5 1 km

Project: Norfolk Boreas	Report: Great Crested Newt Survey Report

Title: Survey location (Map 2 of 9)

Figure: 22.2.1a | Drawing No: PB5640-005-0222-001a

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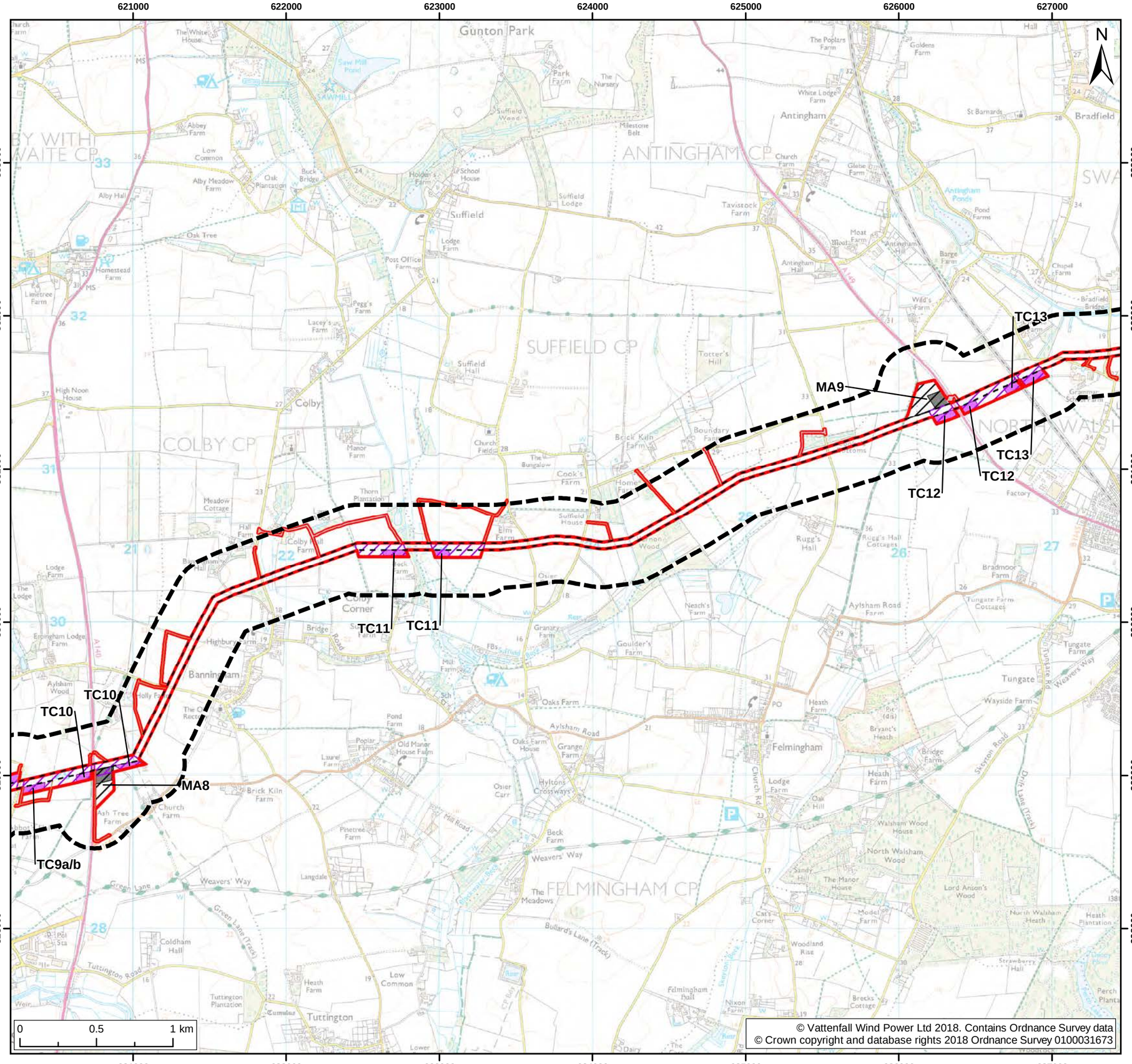

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Project: Norfolk Boreas	Report: Great Crested Newt Survey Report

Title: Survey location (Map 3 of 9)

Figure: 22.2.1a | Drawing No: PB5640-005-0222-001a

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Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Cable logistics area
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Project: Norfolk Boreas	Report: Great Crested Newt Survey Report

Title: Survey location (Map 4 of 9)

Figure: 22.2.1a | Drawing No: PB5640-005-0222-001a

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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609000 610000 611000 612000 613000 614000 615000

327000 326000 325000 324000 323000 322000

N

MA6

TC7

TC8

TC8

TC7

TC6

TC6

0 0.5 1 km

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Cable logistics area
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Project: Norfolk Boreas	Report: Great Crested Newt Survey Report

Title: Survey location (Map 5 of 9)

Figure:	Drawing No:
22.2.1a	PB5640-005-0222-001a

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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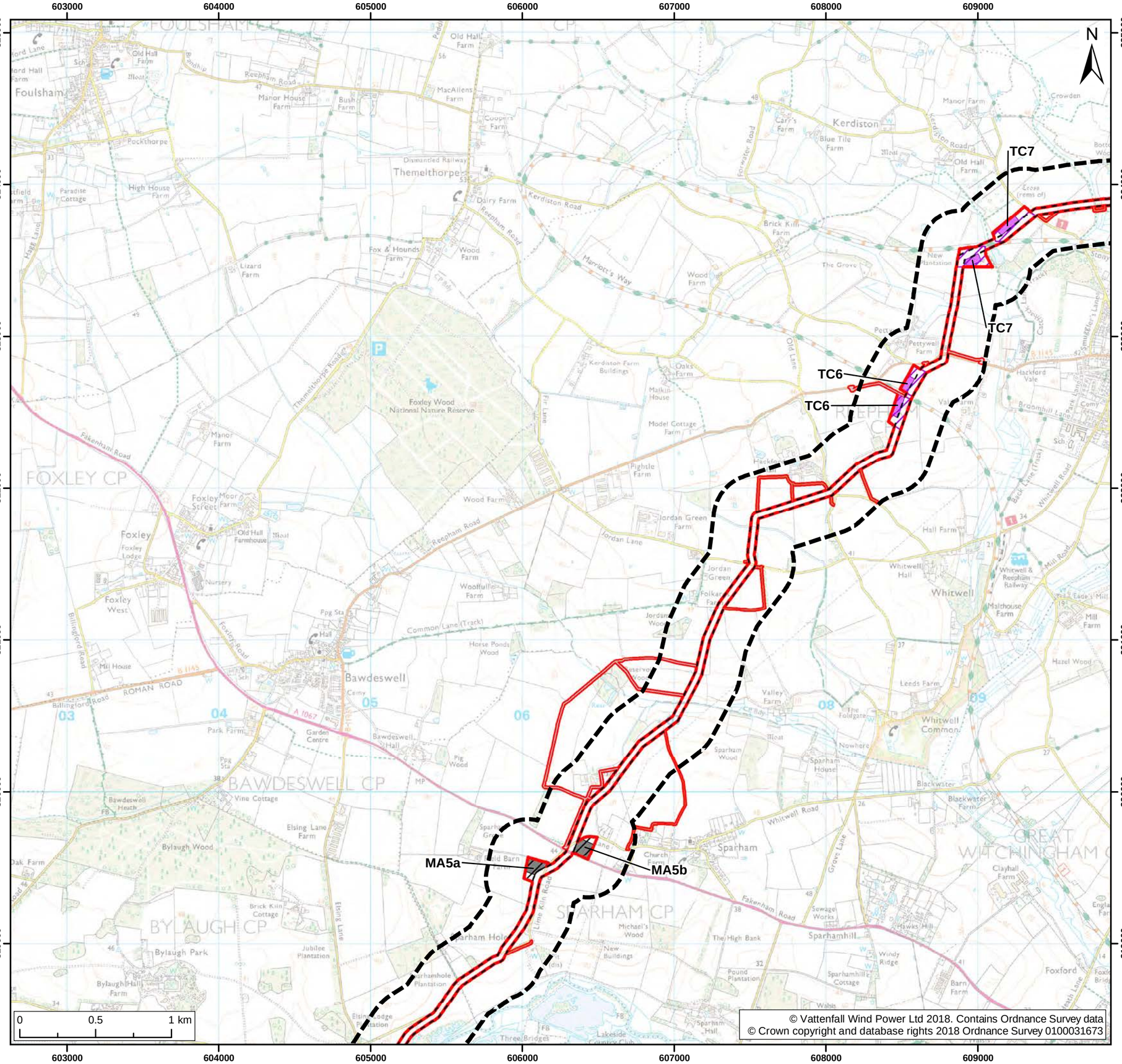

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Project: Norfolk Boreas	Report: Great Crested Newt Survey Report

Title: Survey location (Map 6 of 9)

Figure: 22.2.1a | Drawing No: PB5640-005-0222-001a

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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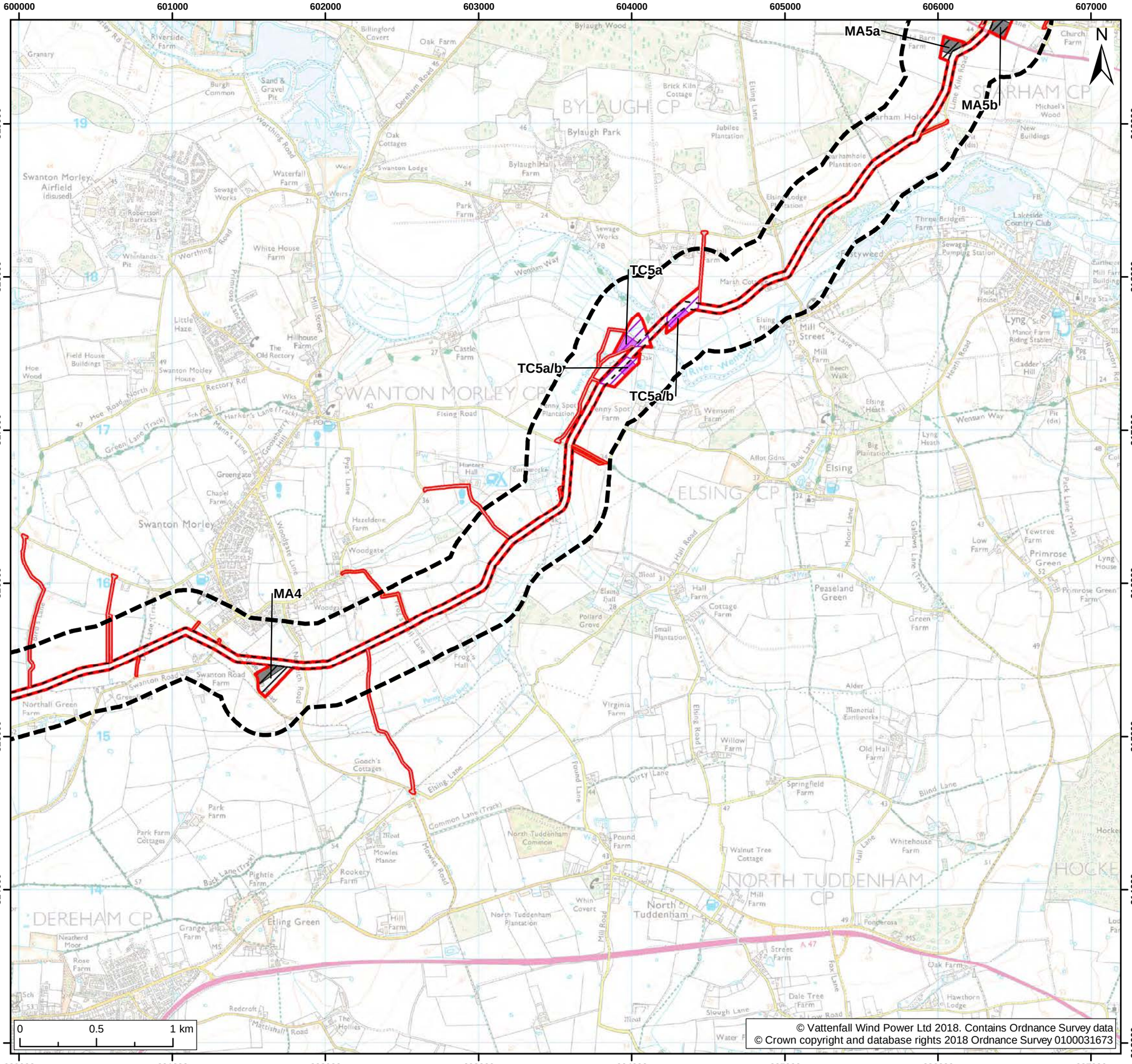

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Project:	Report:
Norfolk Boreas	Great Crested Newt Survey Report

Title:

Survey location
(Map 7 of 9)

Figure:	Drawing No:
22.2.1a	PB5640-005-0222-001a

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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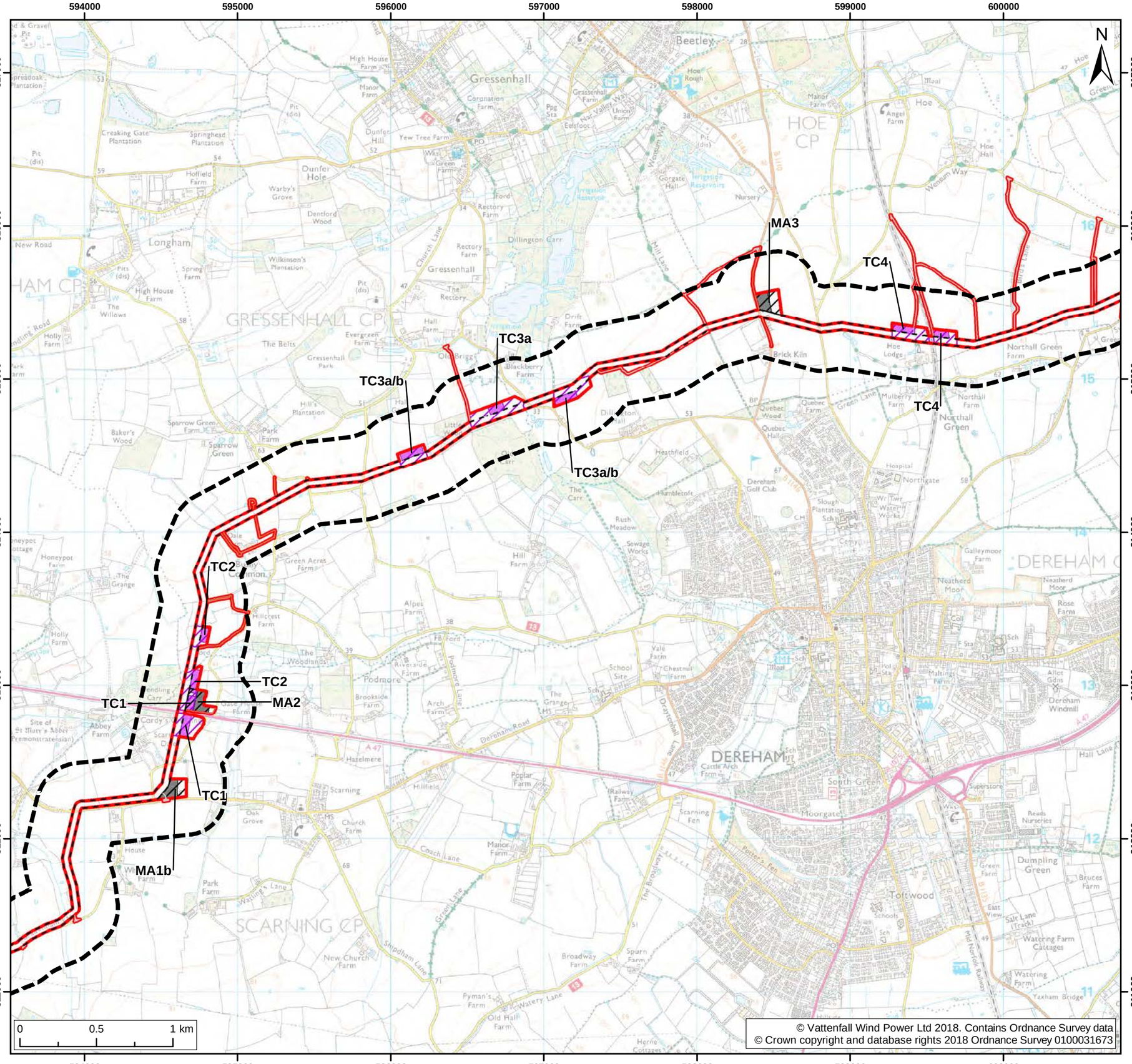

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Project: Norfolk Boreas	Report: Great Crested Newt Survey Report

Title: Survey location (Map 8 of 9)

Figure: 22.2.1a | Drawing No: PB5640-005-0222-001a

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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588000 589000 590000 591000 592000 593000 594000

314000 313000 312000 311000 310000 309000 308000

N

For onshore project substation & associated infrastructure see detailed figures 22.2.1b & 22.2.1c

0 0.5 1 km

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Mobilisation zone
- Indicative mobilisation area compound
- Construction access
- Operational access
- Permanent access

Project: Norfolk Boreas	Report: Great Crested Newt Survey Report

Title: Survey location (Map 9 of 9)

Figure: 22.2.1a | Drawing No: PB5640-005-0222-001a

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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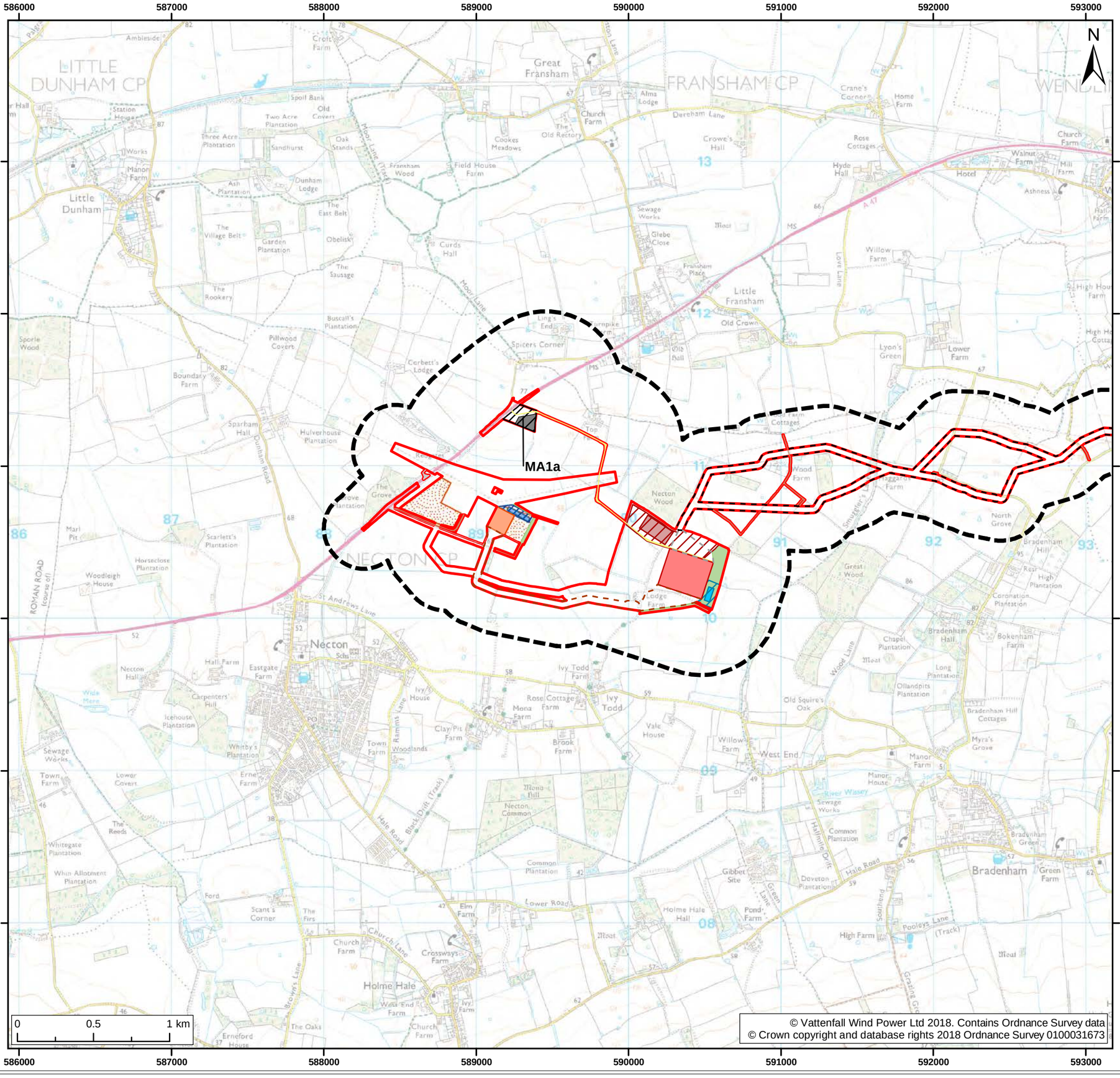

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1)

- Onshore cable route
- Cable route entry to substation
- Onshore 400kV cable route
- Mobilisation zone
- Indicative mobilisation area compound
- Construction access
- Operational access
- Permanent access
- Onshore project substation
- Onshore project substation temporary construction compound zone
- Indicative onshore project substation temporary construction compound
- Attenuation pond zone
- Indicative attenuation pond
- Indicative mitigation planting
- National Grid substation extension
- National Grid temporary works
- National Grid attenuation pond location search area
- Indicative National Grid attenuation pond

Project:	Report:
Norfolk Boreas	Great Crested Newt Survey Report

Title: Survey location

Figure: 22.2.1b | Drawing No: PB5640-005-0222-001b

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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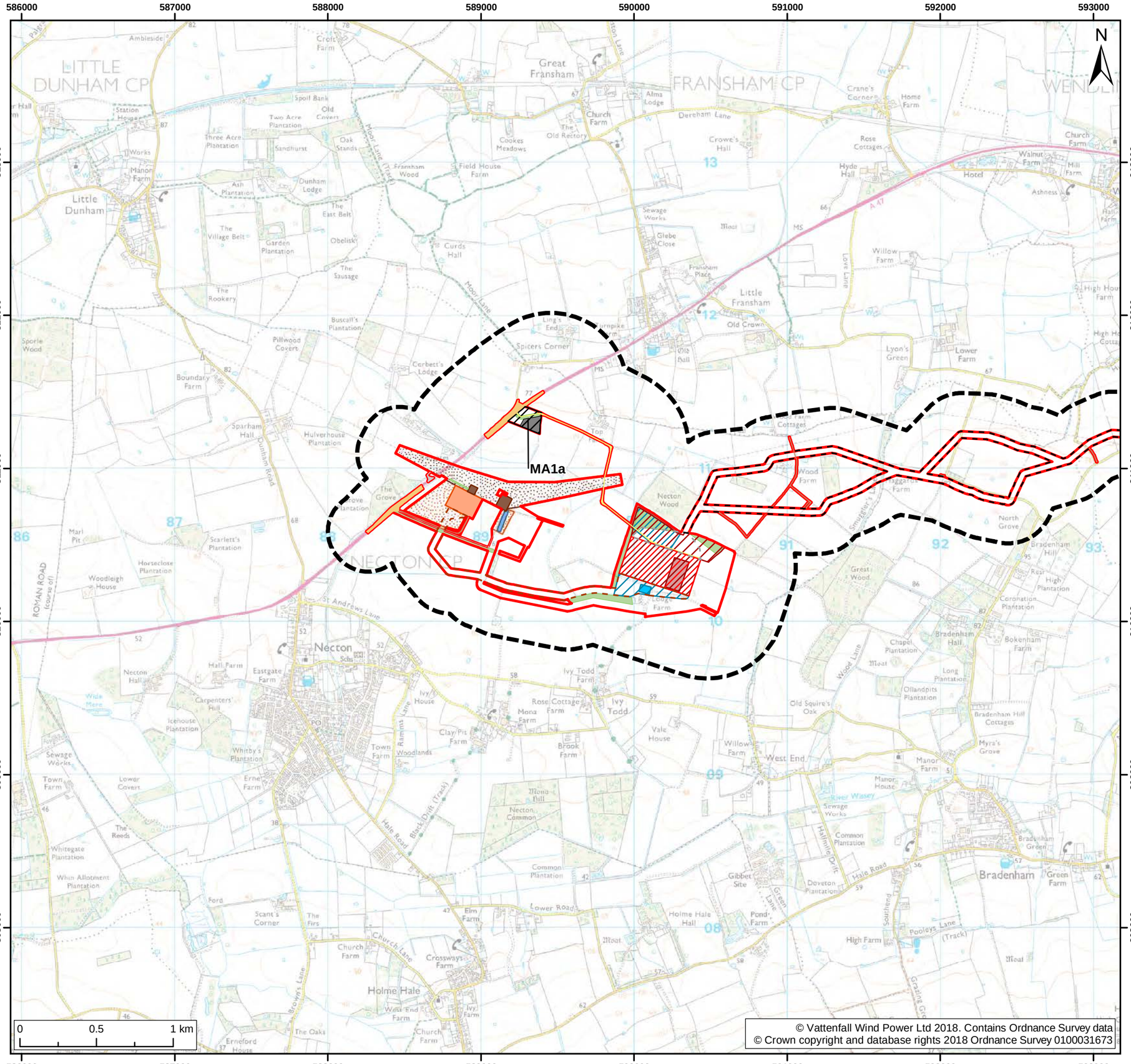

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Onshore cable route
- Cable route entry to substation
- Onshore 400kV cable route
- Mobilisation zone
- Indicative mobilisation area compound
- Highways temporary works area
- Construction access
- Operational access
- Permanent access
- Onshore project substation search area
- Onshore project substation temporary construction compound zone
- Indicative onshore project substation temporary construction compound
- Attenuation pond zone
- Indicative attenuation pond
- Indicative mitigation planting
- National Grid substation extension
- National Grid new / replacement OHL tower
- National Grid temporary works
- Overhead line temporary works
- National Grid attenuation pond

Project:	Report:
Norfolk Boreas	Great Crested Newt Survey Report

Title: Survey location

Figure: 22.2.1c | Drawing No: PB5640-005-0222-001c

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:25,000
01	19/07/2018	JH	GC	A3	1:25,000

Co-ordinate system: British National Grid **EPSG:** 27700

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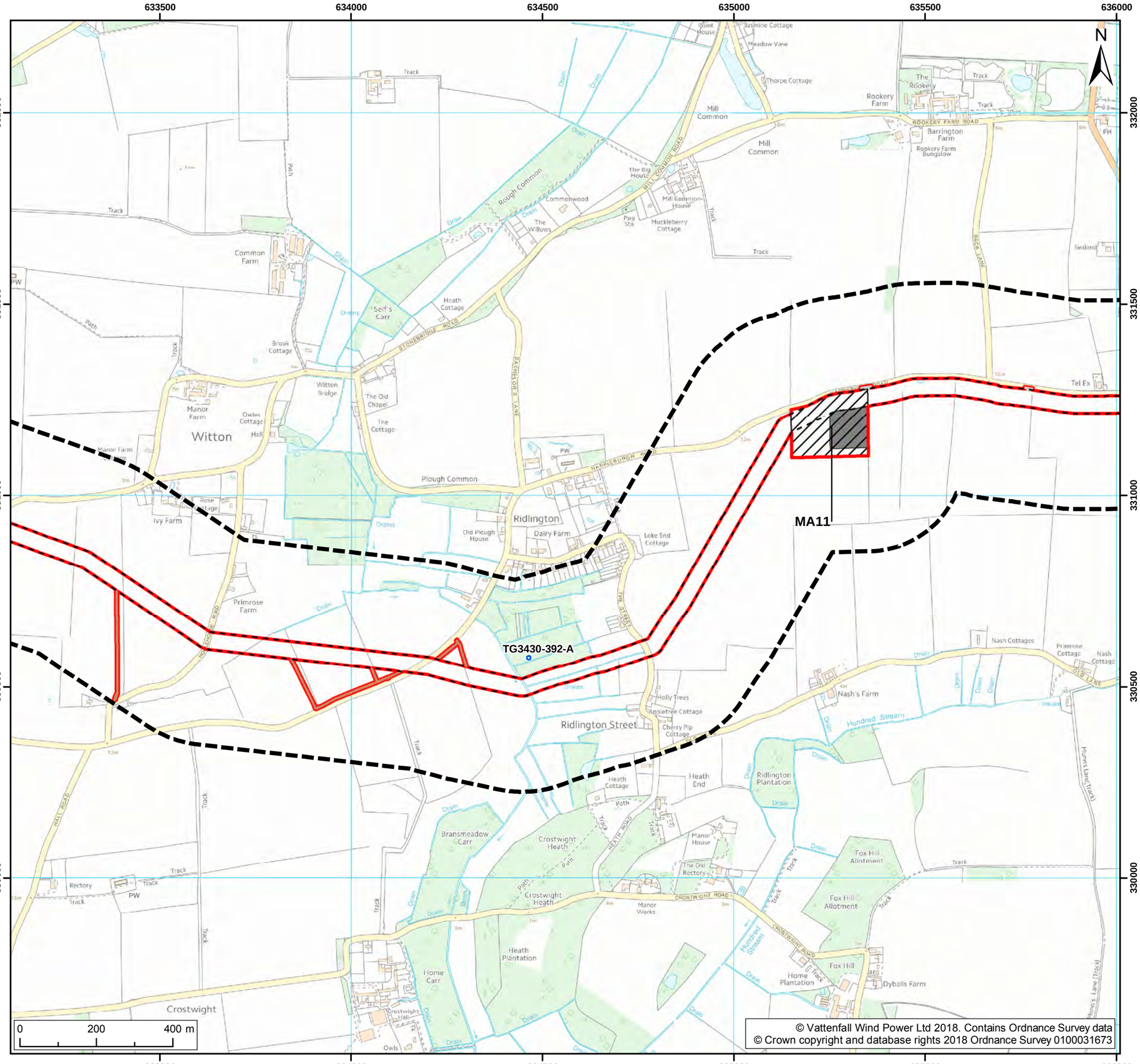

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of 0.6 or above – scoped into further surveys

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 1 of 10)

Figure: 22.2.2 | Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:10,000
01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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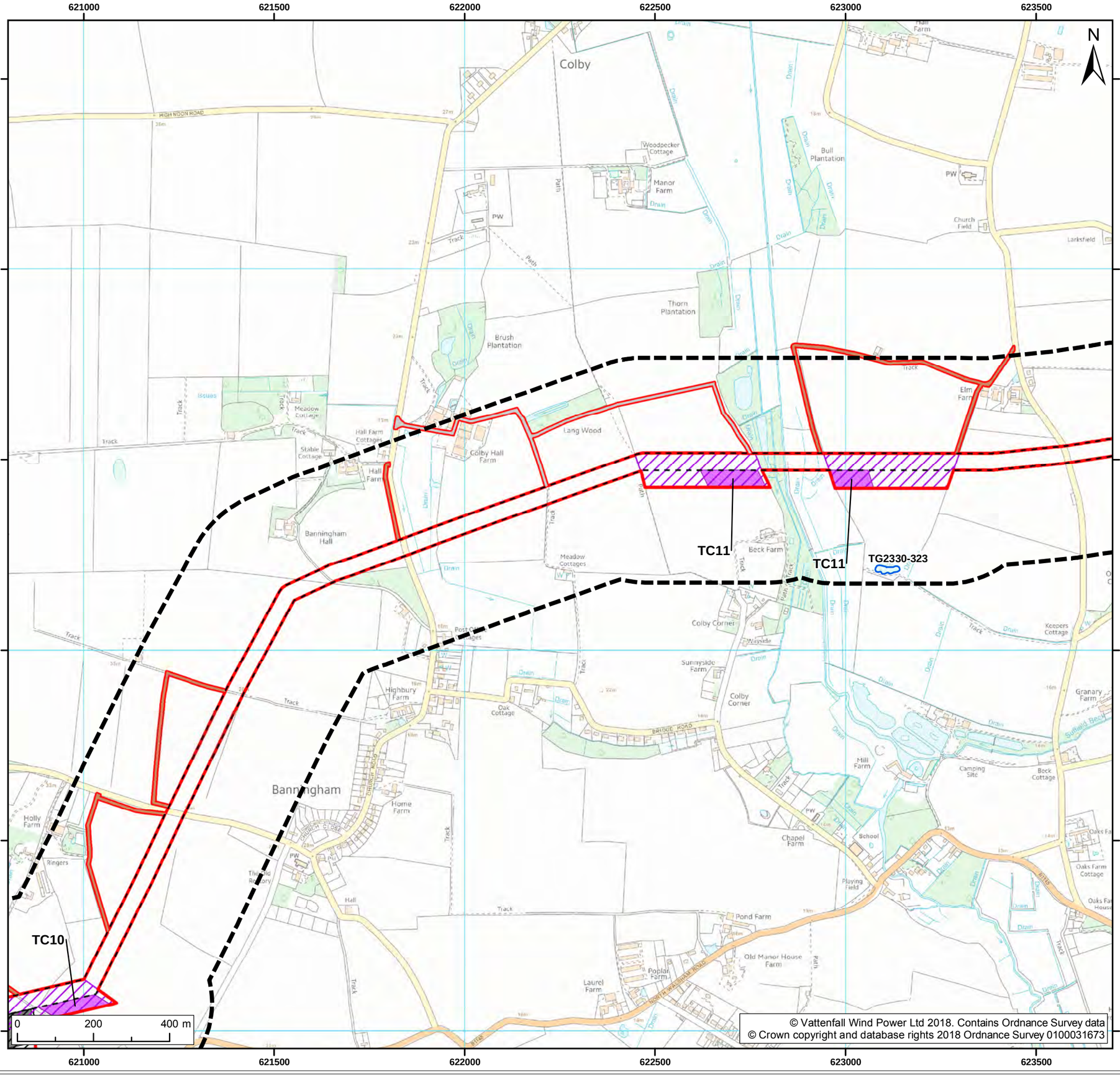

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of 0.6 or above – scoped into further surveys

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 2 of 10)

Figure: 22.2.2 | Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:10,000
01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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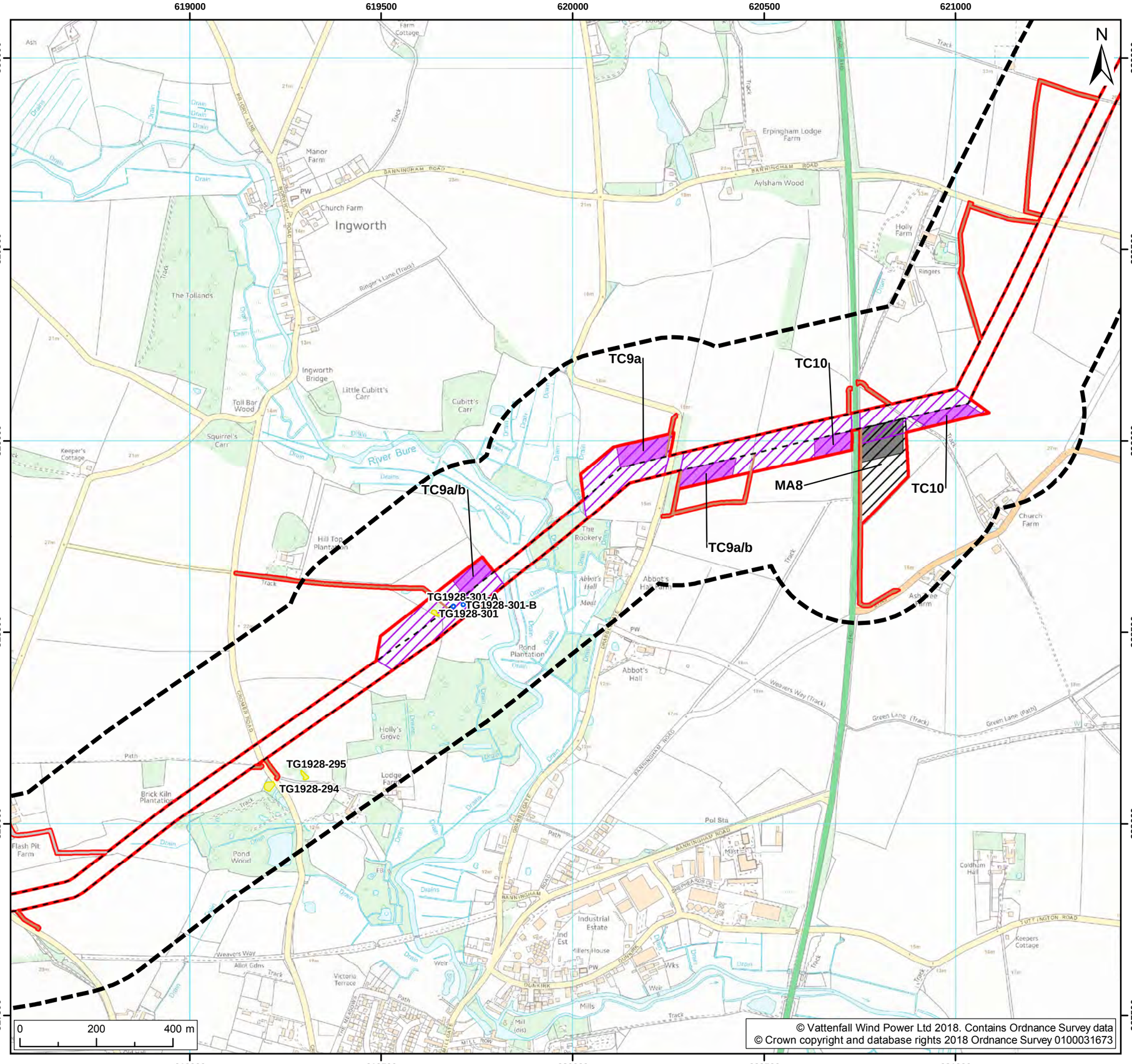

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of 0.6 or above – scoped into further surveys
- HSI score of below 0.6 – scoped out of further surveys

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 3 of 10)

Figure: 22.2.2 | Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:10,000
01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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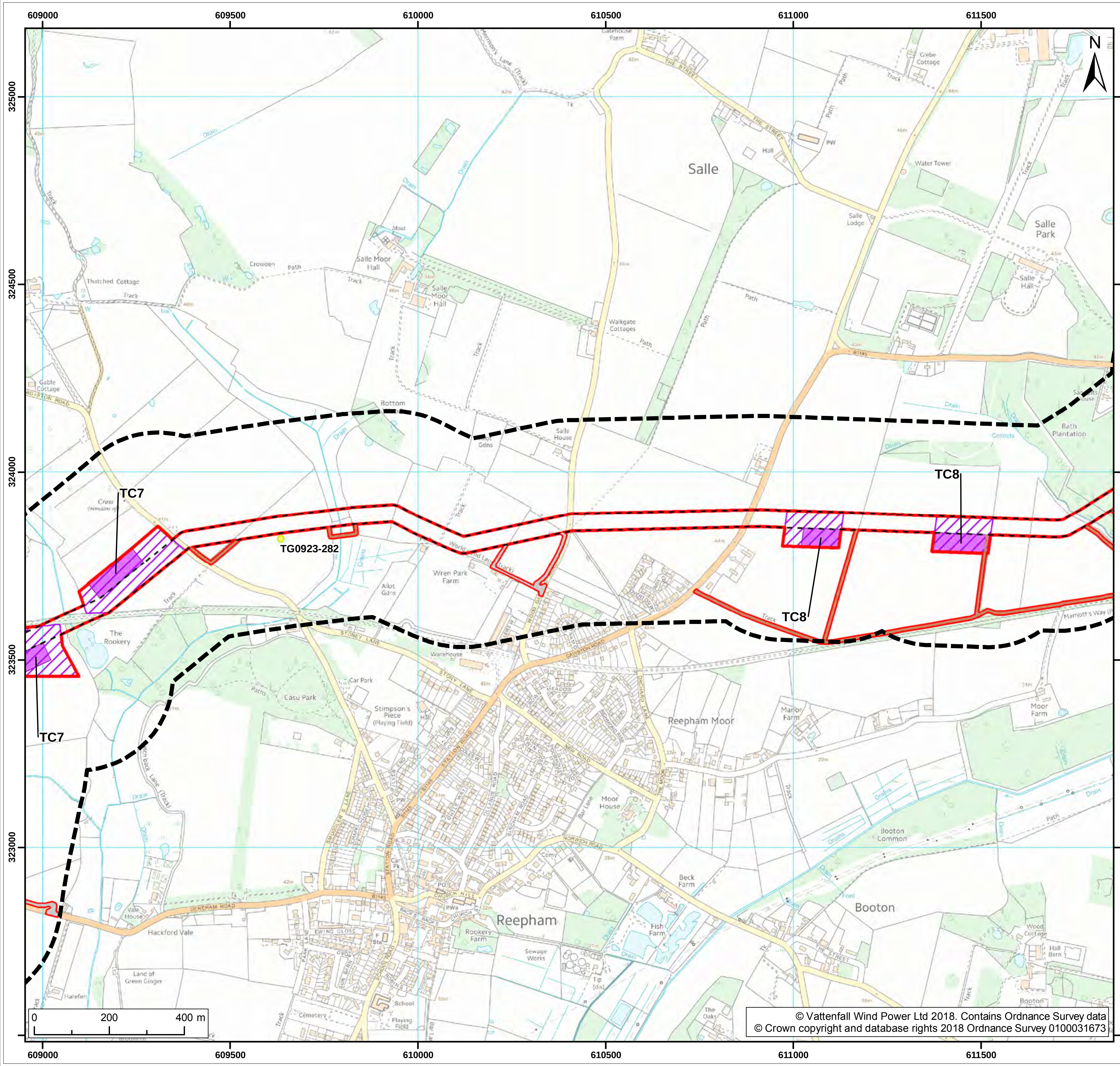

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound

Habitat Suitability Index (HSI) results

- HSI score of below 0.6 – scoped out of further surveys

Project: Norfolk Boreas

Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 4 of 10)

Figure: 22.2.2 Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:10,000
01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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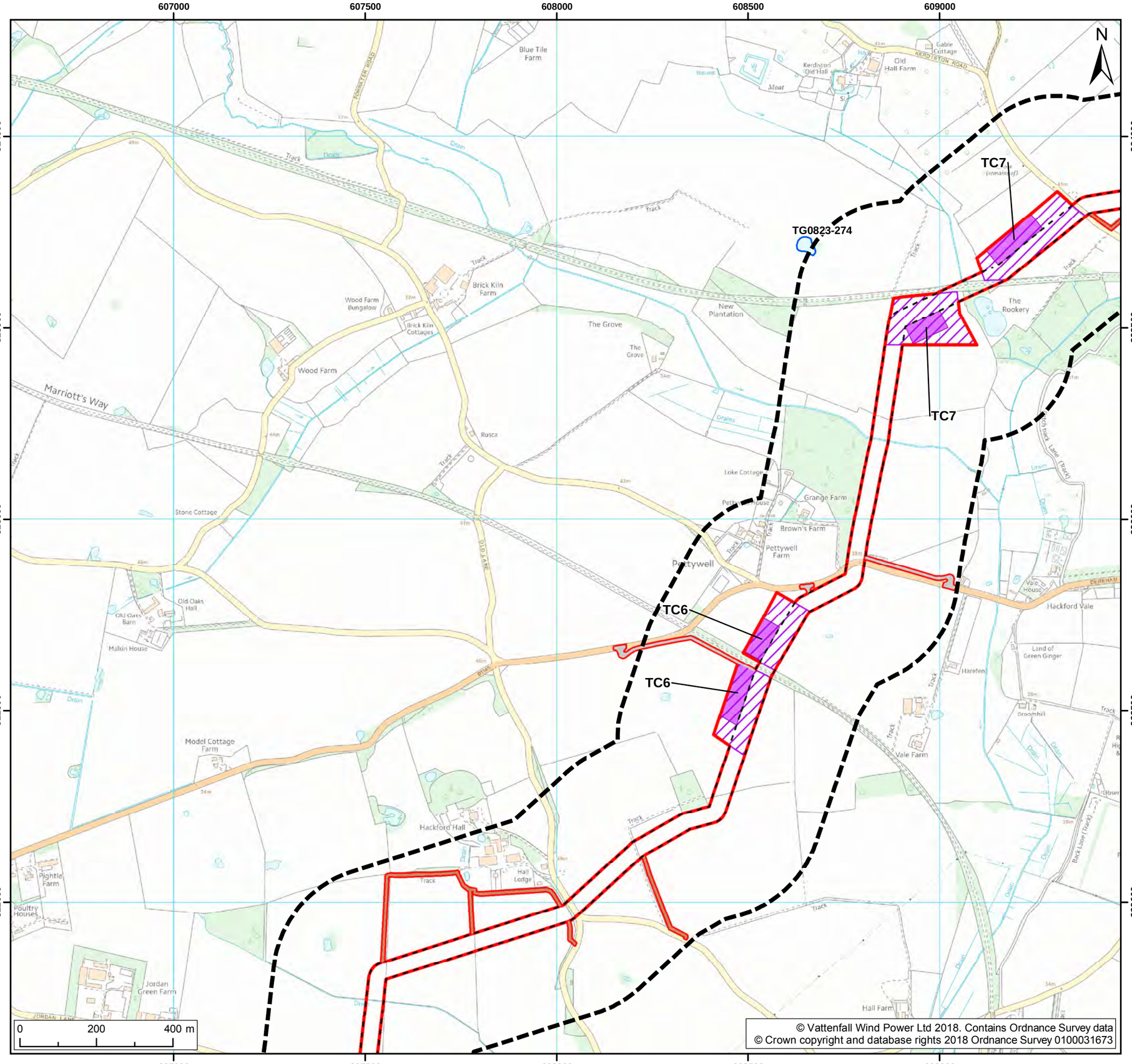

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound

Habitat Suitability Index (HSI) results

- HSI score of 0.6 or above – scoped into further surveys

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 5 of 10)

Figure: 22.2.2 | Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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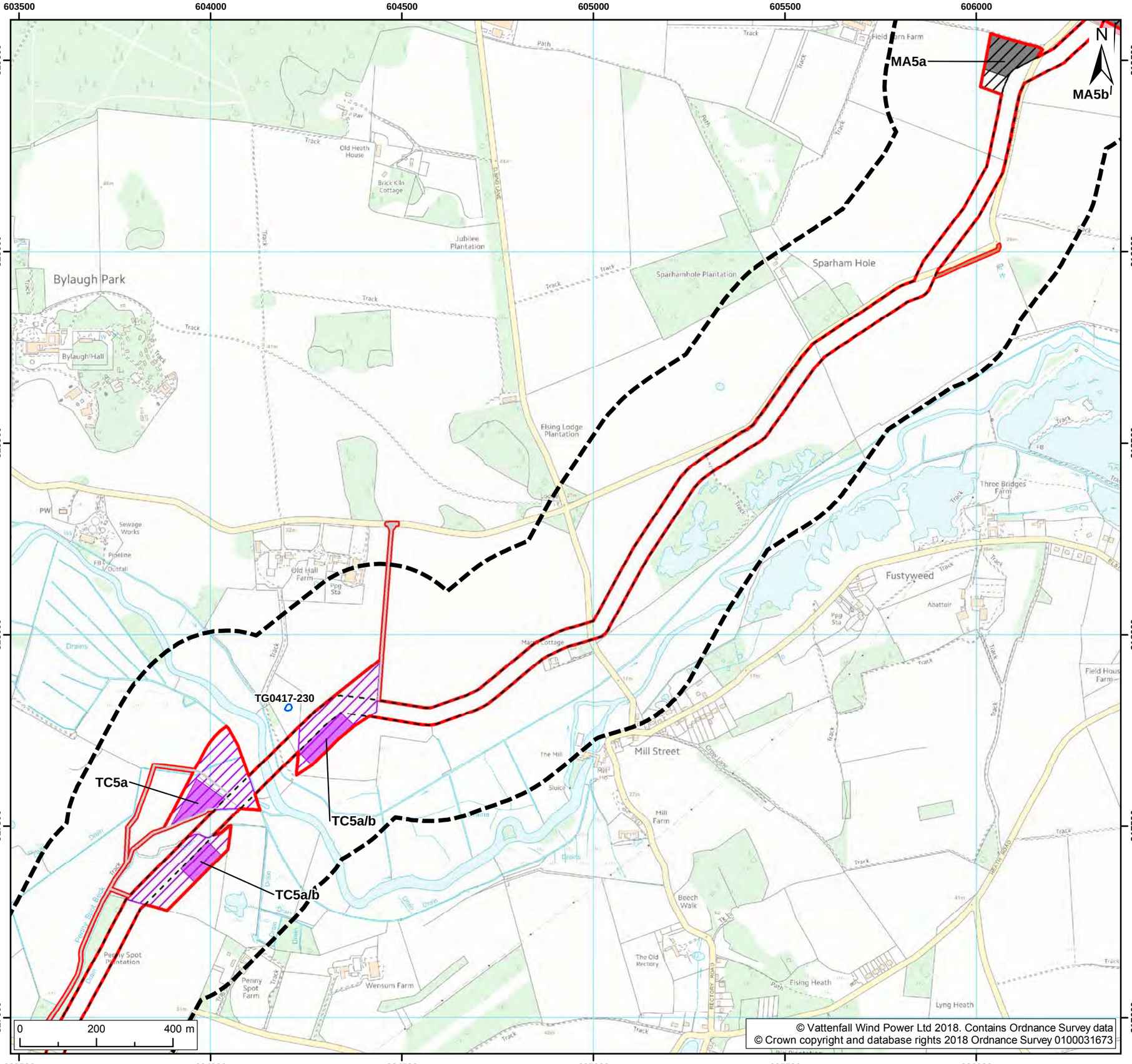

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of 0.6 or above – scoped into further surveys

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 6 of 10)

Figure: 22.2.2 | Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:10,000
01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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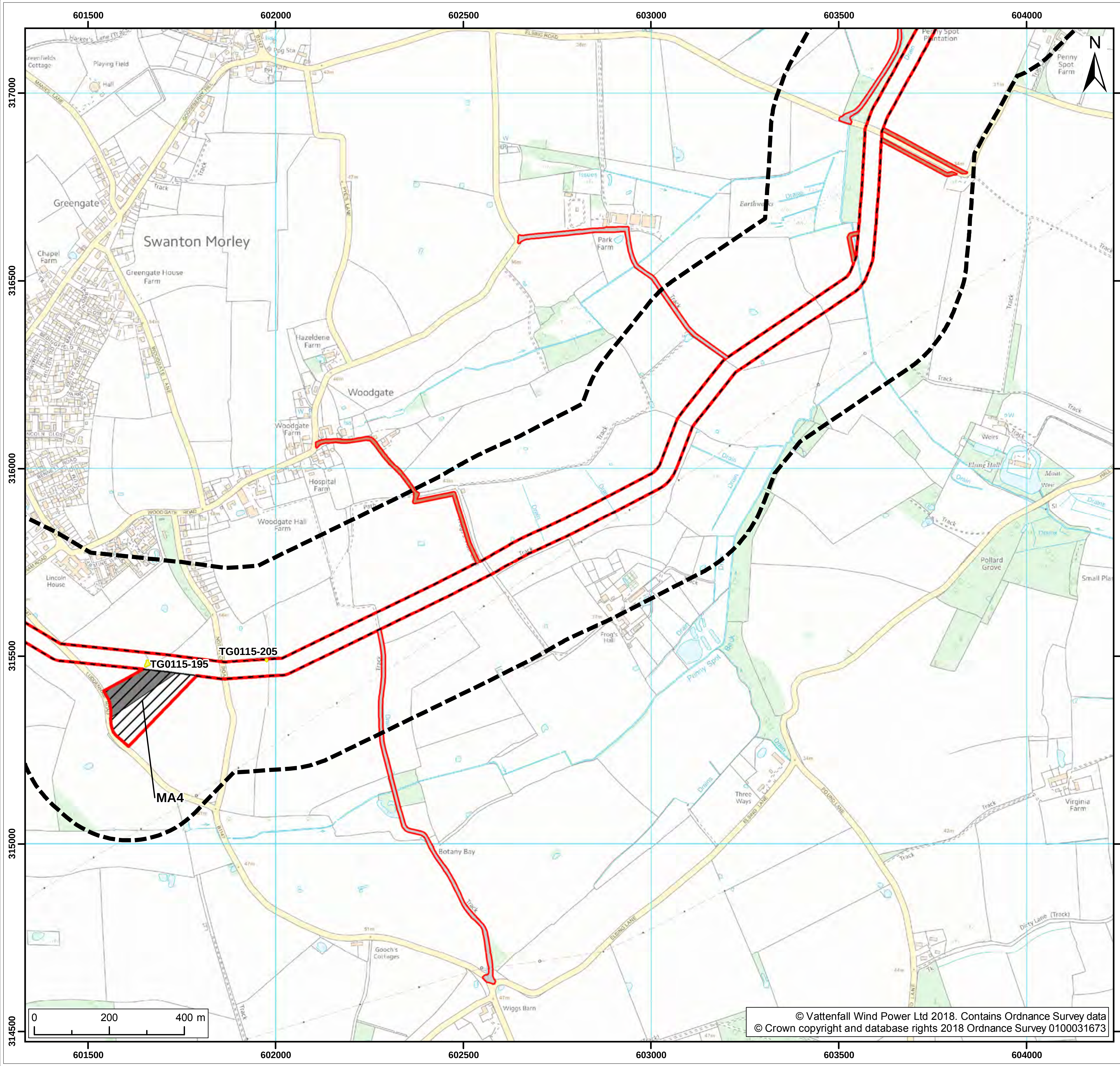

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of below 0.6 – scoped out of further surveys

Project:	Report:
Norfolk Boreas	Preliminary Environmental Information Report

Title:

Habitat Suitability Index (HSI) Results
(Map 7 of 10)

Figure: 22.2.2 Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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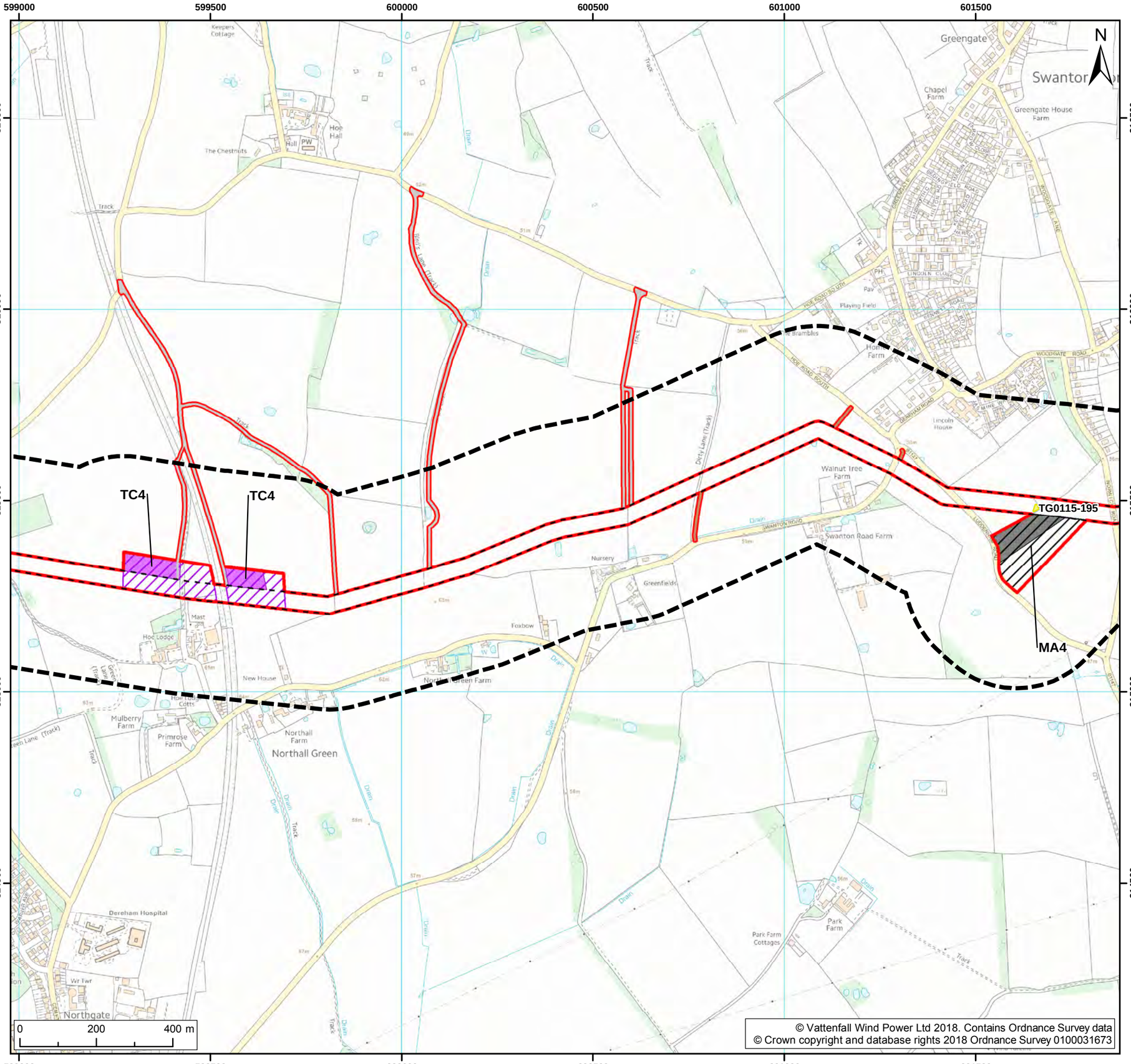

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of below 0.6 – scoped out of further surveys

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 8 of 10)

Figure: 22.2.2 | Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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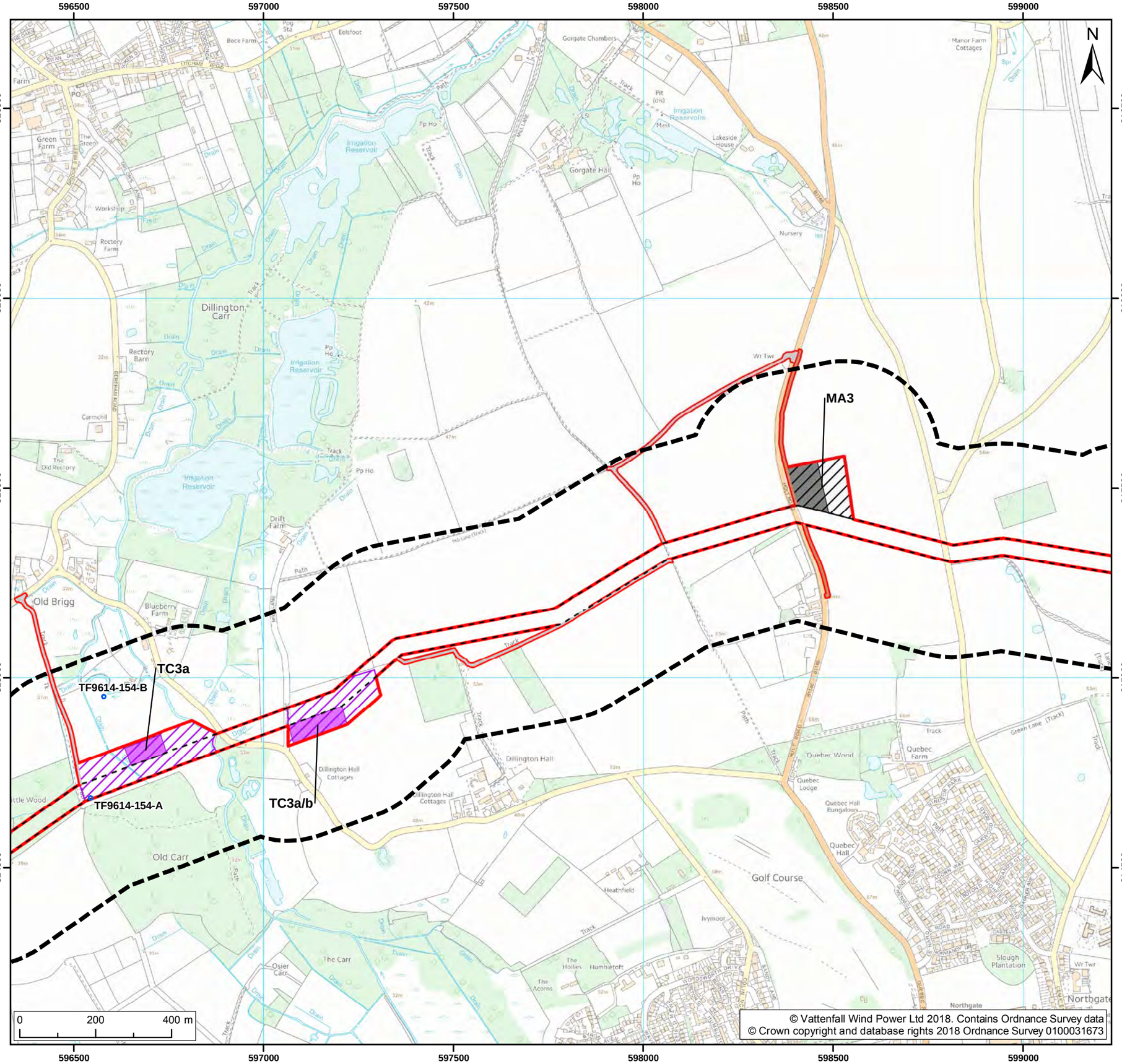

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of 0.6 or above – scoped into further surveys

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Habitat Suitability Index (HSI) Results (Map 9 of 10)

Figure: 22.2.2 | Drawing No: PB5640-005-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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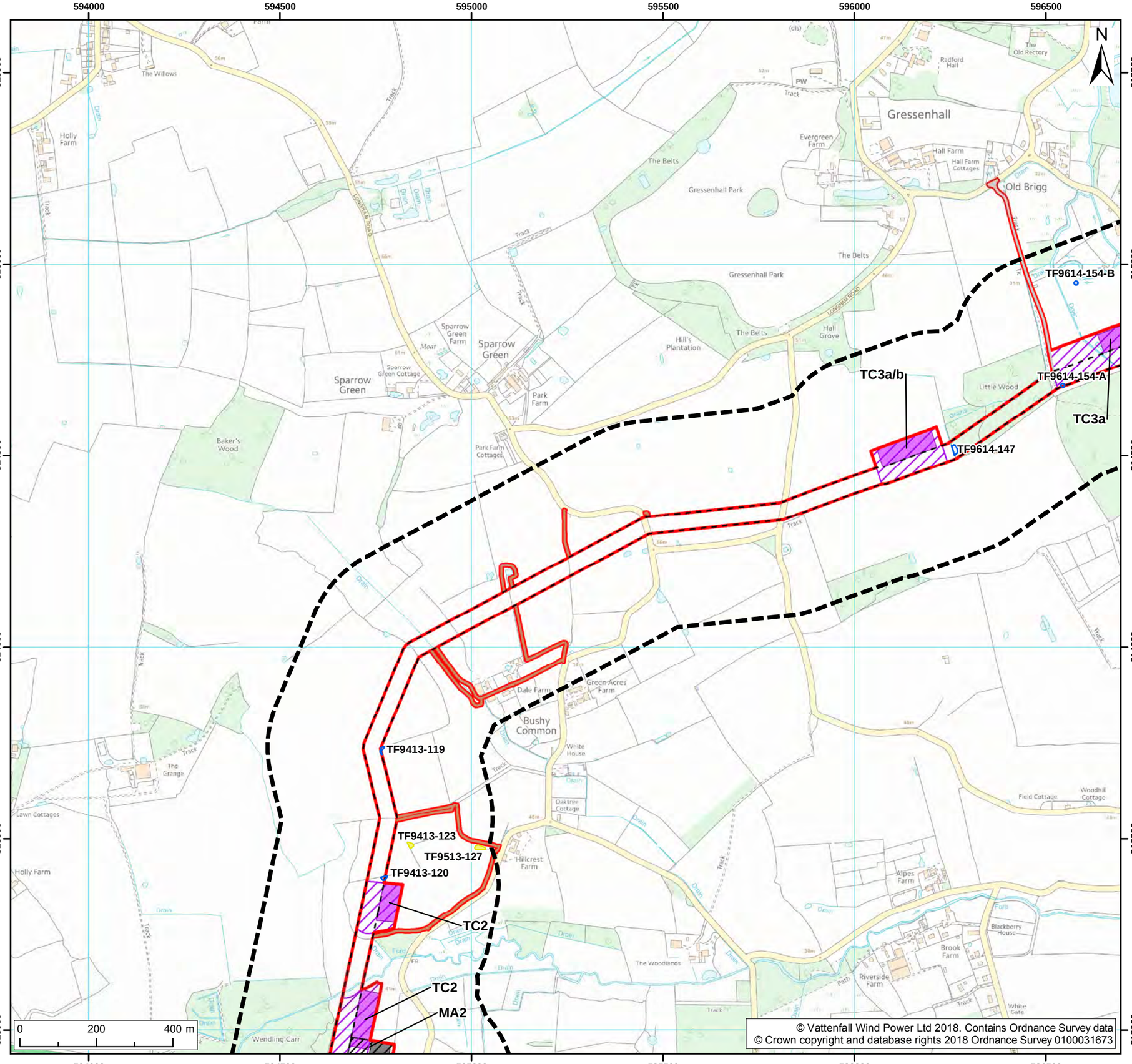

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Habitat Suitability Index (HSI) results

- HSI score of 0.6 or above – scoped into further surveys
- HSI score of below 0.6 – scoped out of further surveys

Project:	Report:
Norfolk Boreas	Preliminary Environmental Information Report

Title:

Habitat Suitability Index (HSI) Results
(Map 10 of 10)

Figure: 22.2.2	Drawing No: PB5640-005-0222-002				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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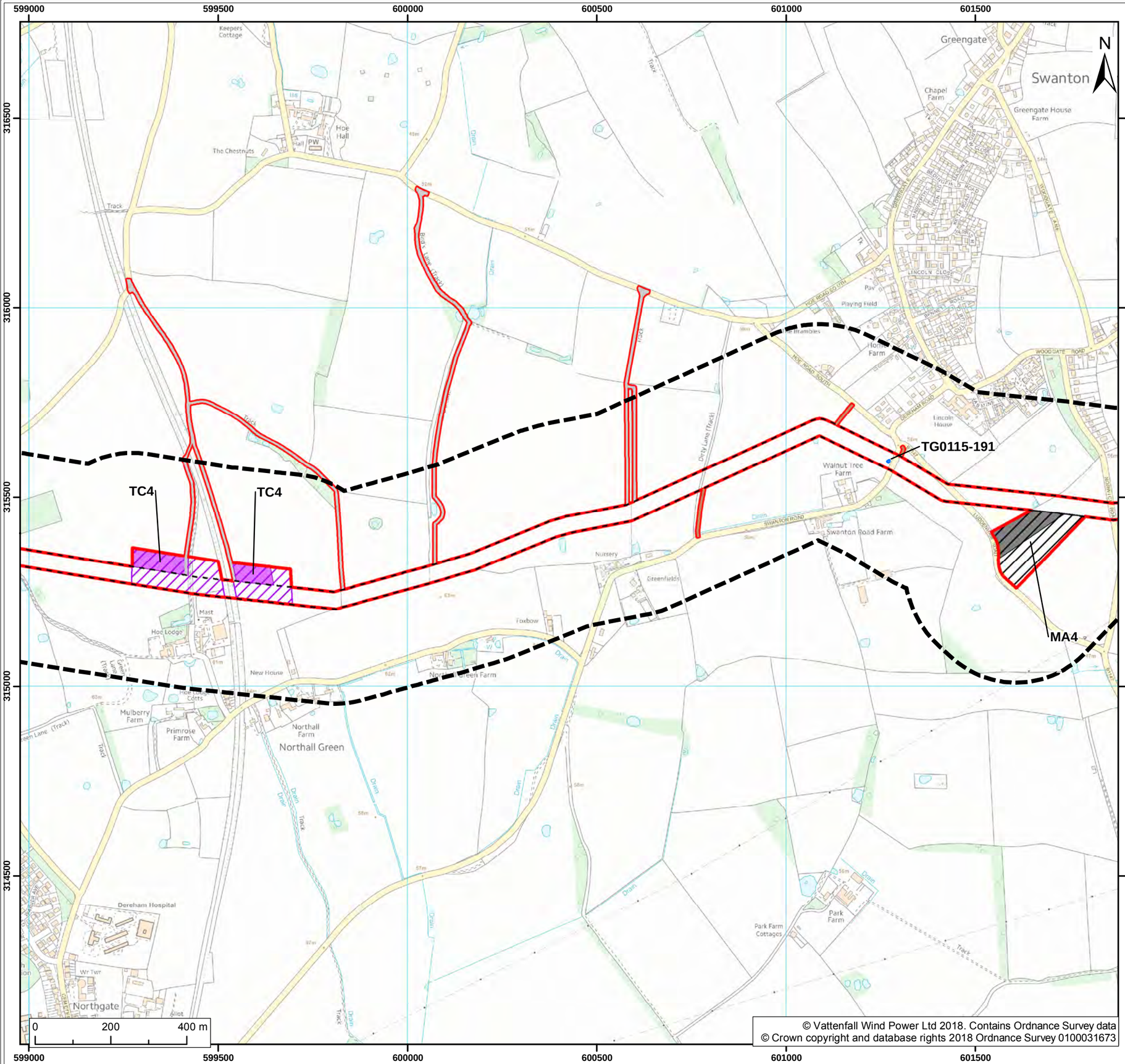

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Presence/absence survey results

- No access granted – no surveys undertaken

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Presence/Absence Survey Results (Map 1 of 2)

Figure: 22.2.3 | Drawing No: PB5640-005-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	15/08/2018	JT	GC	A3	1:10,000
01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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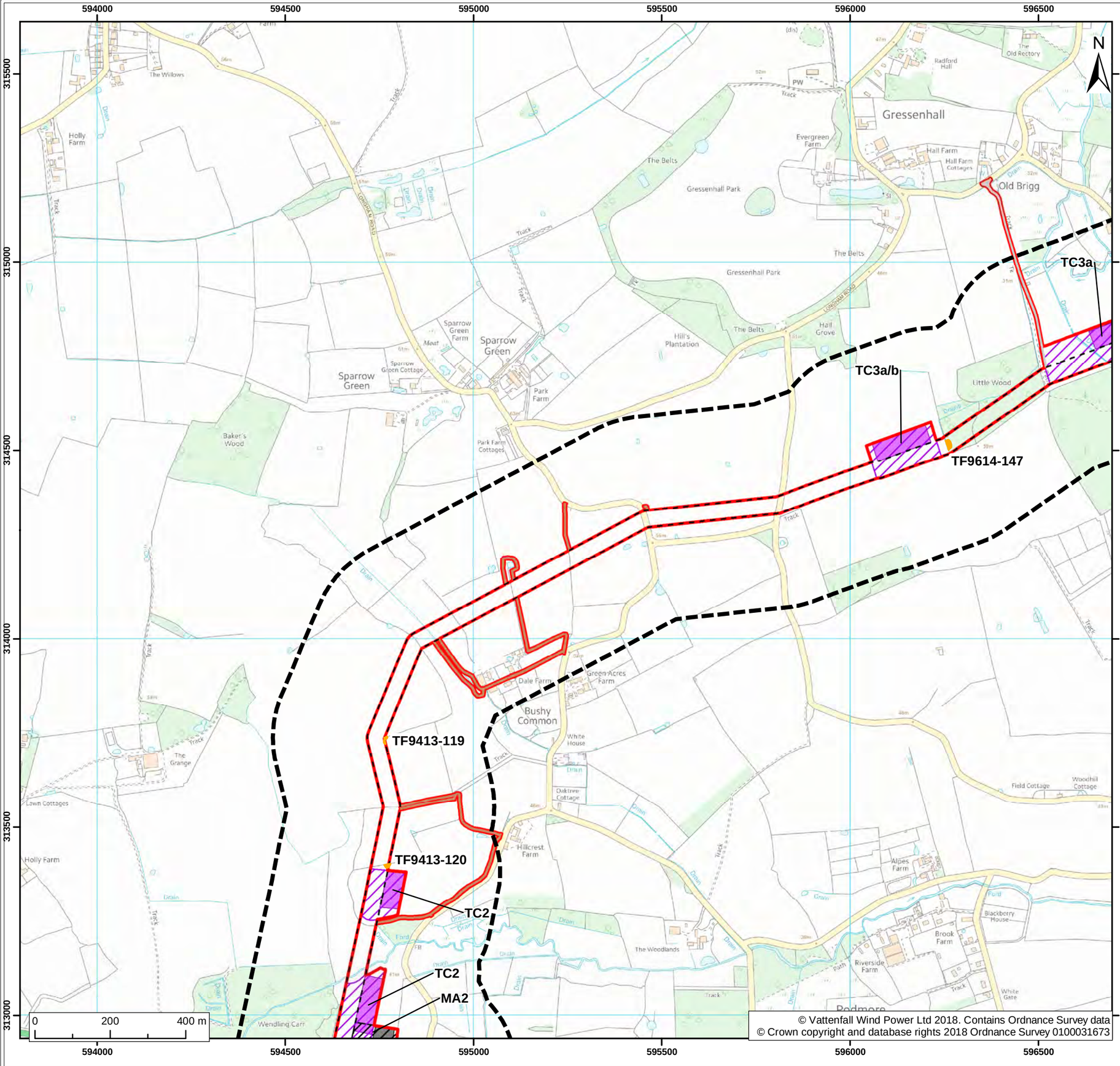

Legend:

- Norfolk Boreas red line boundary
- 2018 Survey area

Norfolk Boreas Onshore Project Infrastructure (Scenario 1 & 2)

- Onshore cable route
- Construction access
- Operational access

Norfolk Boreas Onshore Project Infrastructure (Scenario 2)

- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound

Presence/absence survey results

- Great Crested Newts absent

Project: Norfolk Boreas	Report: Preliminary Environmental Information Report

Title: Presence/Absence Survey Results (Map 2 of 2)

Figure: 22.2.3 | Drawing No: PB5640-005-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	19/07/2018	GC	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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9 Annex B: Great Crested Newt Survey: Full Survey Results

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9614-147					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		0			500,00			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
19.04.18	11	1	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
26.04.18	10	1	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
03.05.18	7	1	1	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
10.05.18	6.5	1	1	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 1: BT only possible around southern edge of pond; looks to be drying, shallow and silty along with leaf litter on bottom and woody debris on pond surface. No egg laying material present so only torching, netting and BT undertaken.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
2	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
3	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
4	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
5	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
6	**smooth**										
	palmate										
	common frog										
	common toad										

	other_____										
7	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
8	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9413-119					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			0		500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
19.04.18	15	1	4	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
26.04.18	9	1	4	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
03.05.18	7	1	4	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
10.05.18	10	1	4	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 1: Entire pond surface covered with thick leaf litter, shallow water and silty. Only torching, netting and bottle trapping undertaken. No egg laying material present for egg search

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
2	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
3	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____				Stickleback						
4	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
5	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
6	**smooth**										
	palmate										
	common frog										
	common toad										

	other_____										
7	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
8	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9413-120					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			0		500,000			11							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N/A	
19.04.18	15	0	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
26.04.18	9	0	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n/a	
03.05.18	7	0	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N/A	
10.05.18	10	0	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 1: steep sided pond, difficult to BT entire circumference, BT around southern edge through 2 gaps in dense vegetation. No egg laying material present so only torching, netting and BT undertaken. Deep leaf litter on pond bottom.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
2	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
3	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
4	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
5	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
6	**smooth**										
	palmate										
	common frog										
	common toad										

	other_____										
7	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
8	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

10 Annex C: Plates

Table 10.1 Plates

Pond	Photo	Description
TF9614-147		Photo taken during 2018 survey of pond TF9614-147 survey area.
TF9413-120	 	Photo taken during 2018 survey of pond TF9614-120 survey area.

Norfolk Vanguard Offshore Wind Farm

Great Crested Newt Survey Report
Environmental Statement

Document Reference: PB4476-005-0222

June 2018

Date	Issue No.	Remarks / Reason for Issue	Author	Checked	Approved
01/05/18	01D	First draft for Norfolk Vanguard Limited review	GC	CS/ST	JA
25/05/18	01F	Final for ES submission	GC	CS/ST	JA

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Glossary

AfL	Agreement for Lease
CIEEM	Chartered Institute of Ecology and Environmental Management
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EPS	European Protected Species
EU	European Union
ES	Environmental Statement
HDD	Horizontal Directional Drilling
HVDC	High Voltage Direct Current
HSI	Habitat Suitability Index
NSIP	National Significant Infrastructure Project
PEIR	Preliminary Environmental Information Report
SPR	Scottish Power Renewables (UK) Limited
UK BAP	UK Biodiversity Action Plan
VWPL	Vattenfall Wind Power Ltd
ZDA	Zone Development Agreement

Terminology

Cable Relay Station	Primarily comprised of an outdoor compound containing reactors (also called inductors, or coils) and switchgear to increase the power transfer capability of the cables under the HVAC technology scenario as considered in the PEIR. This is no longer required for the project as the HVDC technology has been selected.
Landfall	Where the offshore cables come ashore at Happisburgh South
Mobilisation area	Areas approx. 100 x 100m used as access points to the running track for duct installation. Required to store equipment and provide welfare facilities. Located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of heavy and oversized materials and equipment.
Mobilisation zone	Area within which the mobilisation area will be located.
National Grid new / replacement overhead line tower	New overhead line towers to be installed at the National Grid substation.
National Grid overhead line modifications	The works to be undertaken to complete the necessary modification to the existing 400kV overhead lines
National Grid substation extension	The permanent footprint of the National Grid substation extension
National Grid temporary works area	Land adjacent to the Necton National Grid substation which would be temporarily required during construction of the National Grid substation

	extension.
Necton National Grid substation	The existing 400kV substation at Necton, which will be the grid connection location for Norfolk Vanguard
Onshore cable corridor	200m wide onshore corridor within which the onshore cable route would be located as submitted for PEIR.
Onshore cable route	The 45m easement which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore cables	The cables which take the electricity from landfall to the onshore project substation
Onshore project area	All onshore electrical infrastructure (landfall; onshore cable route, accesses, trenchless crossing technique (e.g. Horizontal Directional Drilling (HDD)) zones and mobilisation areas; onshore project substation and extension to the Necton National Grid substation and overhead line modification)
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from HVDC to HVAC, to 400kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
Onshore project substation temporary construction compound	Land adjacent to the onshore project substation which would be temporarily required during construction of the onshore project substation.
The project	Norfolk Vanguard Offshore Wind Farm, including the onshore and offshore infrastructure

22 GCN SURVEY REPORT

22.1 Introduction

1. The aim of this report is to present the findings of a suite of great crested newt *Triturus cristatus* presence/absence surveys (herein the 'Great Crested Newt Survey') which have been conducted with respect to the Norfolk Vanguard Offshore Wind Farm (herein referred to as the 'project') onshore project area.

22.1.1 Project Background

2. In December 2009 as part of the UK Offshore Wind Round 3 tender process, The Crown Estate awarded the joint venture company, East Anglia Offshore Wind (EAOW) Ltd, the rights to develop Zone 5 (later called the 'East Anglia zone'). These rights were granted through a Zone Development Agreement (ZDA). EAOW Ltd. is a 50:50 joint venture owned by Vattenfall Wind Power Ltd (VWPL) and Scottish Power Renewables (UK) Limited (SPR).

3. Under the ZDA, the joint venture consented East Anglia ONE, and commenced the Environmental Impact Assessments (EIA) for East Anglia THREE (prior to the project being taken forward to submission by SPR) and East Anglia FOUR (up to submission of a request for Scoping Opinion in 2012).

4. In December 2014, a decision was taken to split the zone, with VWPL having development rights within the north of the former East Anglia Zone, and SPR continuing to develop the southern part. In agreement with The Crown Estate, the ZDA was effectively dissolved in 2016. New Agreement for Lease (AfL) areas have been awarded by The Crown Estate within the former Zone, separately to VWPL and its affiliate companies, and SPR and its affiliates.

5. VWPL are now developing plans for the northern half of the zone, which is split into two development areas: Norfolk Vanguard and Norfolk Boreas. Norfolk Vanguard will have a capacity of 1800MW which is enough to power 1.3 million UK households[1]. Norfolk Vanguard Limited (an affiliate company of VWPL) is now undertaking the Environmental Impact Assessment (EIA) and Environmental Statement (ES) for Norfolk Vanguard and a Scoping Report was submitted to the Planning Inspectorate in October 2016 (Royal HaskoningDHV, 2016).

6. Norfolk Vanguard is a National Significant Infrastructure Project (NSIP) and as such is subject to a Development Consent Order (DCO) process in order to obtain planning permission. An EIA is required as part of a DCO application under the Planning Act

[1] assuming a load factor of 34.88 http://www.renewableuk.com/page/UKWEDExplained

2008. In order to inform the ES, ecological baseline data is required with respect to the onshore project area. This report represents part of that ecological baseline.

22.1.2 Site Description

7. The onshore project area at the time of the survey consisted of the following key elements:

- Landfall;
- Cable relay station (CRS) (no longer required);
- Onshore cable corridor;
- Onshore project substation; and
- Extension to the existing Necton National Grid substation and overhead line modifications.

8. The location of the onshore project area is shown on Figure 1, Annex A: Figures. During the development of the project, the onshore Scoping Area that was initially defined has been refined, to identify three landfall options, associated CRS zones, as well as an onshore project substation search zone in proximity to the Necton National Grid substation. A 200m wide cable corridor has been identified, within which the cable will be located, and trenchless crossing (e.g. Horizontal Directional Drilling (HDD)) zones and mobilisation zones have been identified along the onshore cable corridor. The surveys undertaken for great crested newt were designed and based on the project infrastructure and search zones at that time (March 2017). As the project design is further refined, these search zones will decrease in size, and the final options for the siting of infrastructure (i.e. one landfall, refined onshore cable route, one onshore project substation) will be taken forward.

9. For more details of the project as submitted for the ES, see Chapter 5 Project Description. Norfolk Vanguard Limited have selected the High Voltage Direct Current (HVDC) technology, removing the requirement for the CRS from the project, however as this report details a survey done at a specific moment in time, reference to these areas remains in this document.

22.1.3 Purpose and Scope of this Report

10. An Extended Phase 1 Habitat Survey for the project was undertaken during February 2017. The findings are reported in Appendix 22.1. The Extended Phase 1 Habitat Survey included a Habitat Suitability Index (HSI) assessment (following Oldham *et al.*, 2000) of all standing water bodies within 250m of all proposed temporary works and within 500m of all proposed permanent works (herein referred to as the 'survey area') for their ability to support breeding populations of great crested newts.

11. During the Extended Phase 1 Habitat Survey, a total of 208 standing water bodies were subject to a HSI to determine their habitat suitability. Of these, 25 were no longer present, or are now part of another pond or dry at the time of the survey. In these instances, these water bodies were discounted. The remaining 183 were subject to a HSI assessment. The results of which are summarised in Table 22.1. The locations of these water bodies are shown on Figure 2, Annex A: Figures.

Table 22.1 Summary of the 2017 HSI assessments

Habitat suitability index score	Habitat Suitability	No. of standing water bodies
<0.5	Poor	47
0.5 – 0.59	Below average	59
0.6 – 0.69	Average	36
0.7 – 0.79	Good	25
> 0.8	Excellent	16

12. Suitable terrestrial habitat for supporting foraging and hibernating great crested newts was observed throughout the survey area. Part of the habitat suitability assessment includes an assessment of the habitat surrounding a potential breeding pond for its suitability to support foraging and hibernating newts.

13. All standing water bodies identified as containing 'average', 'good' or 'excellent' habitat suitability (a HSI score of 0.6 or greater) were recommended to be subject to presence / likely absence surveys. This includes 77 standing water bodies. Those standing water bodies with a HSI score of lower than 0.6 (i.e. 'below average' or 'poor' suitability) have been scoped out of further assessment. Additional water bodies were subject to HSI during April 2017. Five of these water bodies were also identified as providing a HSI score of 0.6 or greater, hence making the total number of water bodies recommended to be subject to presence / likely absence surveys 82.

14. This report presents the findings of the suite of great crested newt presence / likely absence surveys (referred to in this document as the 'Great Crested Newt Survey') of these 82 water bodies. This report also presents the findings of a population size class assessment survey (i.e. an additional two survey visits) for those water bodies where great crested newt presence was found.

15. The findings of this report will provide details of the great crested newt population present within the survey area. This was used to inform the project PEIR which will be submitted in Autumn 2017. To this end, the findings of this report have also been

used to identify outline mitigation measures and licensing requirements which may be required.

16. This report has been prepared in line with the guidelines as set out in the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines on Ecological Report Writing (2nd Edition, December 2015).

22.1.4 Consultation

17. The methodology set out in this report was issued on 17th March 2017, as part of the project Evidence Plan Process to the following stakeholders for comment:

- Natural England;
- Environment Agency;
- Breckland Council;
- Norfolk County Council; and
- Norfolk Wildlife Trust.

18. Feedback was received from Norfolk County Council and Natural England on the 23rd March 2017 and 3rd April 2017 confirming that the methodology and approach to surveys was appropriate and acceptable.

22.2 Legislation and Policy

19. Table 22.2 summarises the relevant information relating to the legal protection afforded to great crested newts. However it should be noted that this is for information only and is not intended to be comprehensive or to replace specialised legal advice.

Table 22.2 Summary of the key legislation and policy relevant to great crested newts

Legislation	Relevance
European Union (EU) Directive 92/43/EEC (The Habitats Directive)	This Directive provides protection for specific habitats listed in Annex I and species listed in Annex II of the Directive. The Directive sets out decision making procedures for the protection of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) and these are implemented in the UK through The Conservation of Habitats and Species Regulations 2010. Great crested newts are listed on Annex II of the directive.
The Conservation of Habitats and Species Regulations 2010 (as amended)	Codifies the EU Directive 92/43/EEC (The Habitats Directive) into UK law; provides legal protection for European Protected Species (EPS). Great crested newts are an EPS.
Wildlife and Countryside Act 1981 (as amended)	This Act makes it an offence to intentionally kill, injure or take any animal listed in Schedule 5 of the Act and protects occupied and unoccupied places

Legislation	Relevance
	used for shelter or protection. Great crested newts are listed on Schedule 5.
Natural Environment and Rural Communities Act 2006	Section 41 of the Act requires the Secretary of State to compile a list of habitats and species of principal importance for the conservation of biodiversity in England. Decision makers of public bodies, in the execution of their duties, must have regard to the conservation of biodiversity in England, and the list is intended to guide them. Natural England have compiled a list of species of Principal Importance. Great crested newts are on this list.
Policy	**Relevance**
UK Post-2010 Biodiversity Framework	Supersedes the UK Biodiversity Action Plan (UK BAP), which fulfilled legal obligation under the Convention on Biological Diversity to identify and produce action plans for produce priority habitats and species.

22.3 Methodology

22.3.1 Survey Area

20. The survey area, as set out Section 22.1.3, included all standing water bodies within 250m of all proposed temporary works and within 500m of all proposed permanent works. The standing water bodies which comprise the survey area are shown on Figure 2, Annex A: Figures.

22.3.2 Survey Methodology

21. Great crested newt presence/absence surveys were undertaken between 17th April and 7th June 2017. A full calendar of the survey dates within this period is provided in Table 22.3 in section 22.3.4.

22. A total of 43 water bodies were surveyed in order to determine presence / likely absence of great crested newts. These 43 water bodies are drawn from the 82 water bodies identified during the Extended Phase 1 Habitat Survey and during the presence/absence surveys as requiring further survey due to being assessed as providing average or higher habitat suitability to support great crested newts. The remaining 34 water bodies identified as requiring further survey could not be surveyed in 2017 due to landowner access restrictions.

23. The Great Crested Newt Survey was undertaken in accordance with the protocol set out in the Great Crested Newt Mitigation Guidelines (English Nature, 2001) and

Natural England's Standing Advice for Great Crested Newts (Natural England, 2015). Each standing water body scoped into the survey was subject to four survey visits between mid-March and mid-June, with at least two visits during the peak season (mid-April to mid-May). During each visit, each standing water body was subject to three survey methods, including torching and bottle-trapping, and one of either netting or egg-searching. Each survey method was used to record number, sex, life-stage of all great crested newts founding during the surveys. All other amphibians found were also recorded.

24. If the presence of great crested newts was found during the 1-4 survey visits, two further survey visits were undertaken to calculate the great crested newt population size class estimate. The same survey methods as outlined above have been followed for these subsequent visits.

25. The Great Crested Newt Mitigation Guidelines (English Nature, 2001) were adhered to when using each survey method. Torching surveys were conducted using 500,000 candle torches and the full perimeter of each pond was subject to torching where possible. Where bottle trapping was used, traps were two-metres apart around the pond's perimeter with a maximum of 16 traps in any one pond. Where vegetation cover was too dense or the water too turbid to effectively using the torching method, netting was used. In these instances, at least 15 minutes of netting per 50m of shoreline was undertaken.

26. Weather conditions were recorded during each survey visit. No surveys were conducted if the night time temperatures were <5°C at the start of the survey, there was strong wind or heavy rain. The vegetation cover and turbidity of the water were also each recorded during each visit. A scale of 1-5 was used, with '1' representing no vegetation cover obscuring the pond surface, or low turbidity allowing visibility to the pond floor, and '5' being dense vegetation cover ensuring none of the pond is visible, or high turbidity resulting in zero visibility during torching.

27. For those water bodies where great crested newt presence was recorded during the Great Crested Newt Survey, a population size class assessment was carried out. This assessment provides an estimate of the population size class – not of the actual population size – of each great crested newt population found. The methodology for estimating the population size class followed the approach set out in the Great Crested Newt Mitigation Guidelines was followed (English Nature, 2001). The maximum count of great crested newts achieved during a single survey visit, using either the torching method or bottle trapping, was identified for each water body. This maximum count was then classified into 'high, 'medium' or 'low' population size class using the following categories:

- 'small' for maximum counts up to 10;
- 'medium' for maximum counts between 11 and 100; and
- 'large' for maximum counts over 100.

22.3.3 Surveyors

28. The Great Crested Newt Survey was undertaken by a team of four Royal HaskoningDHV ecologists. All survey teams contained at least one surveyor holding a great crested newt WML-CL08 Level 1 Class Licence for survey great crested newts.

29. The survey team was led by Gordon Campbell, BA. (Hons) MSc, Associate Member of CIEEM (ACIEEM). Gordon has 4 years' experience of great crested newt surveying and holds a WML-CL08 Level 1 Class Licence (Licence no. 2016-27219-CLS-CLS). The survey team included:

- Thomas Chillcott, BSc. MSc. Graduate Member of CIEEM (GradCIEEM), WML-CL08 licence (Licence no. 2015-10886-CLS-CLS);
- Charlotte Clements, BSc. Affiliate Member of the IEMA, WML-CL08 licence (Licence no. 2016-25773-CLS-CLS)
- Maria Walentek, BSc. MSc. Associate Member of the Institute of Environmental Assessment (AIEMA); and
- Jack Douglas, BSc. (Hons).

22.3.4 Weather Conditions

30. Table 22.3 summarises the weather conditions encountered during each of the survey visits within the surveying period. On two occasions, survey visits commenced during temperatures below 5°C.

31. Temperatures recorded at each individual water body are shown in the full survey results provided in Annex B: Full Survey Results.

Table 22.3 Weather conditions (*yellow indicates weather conditions which exceed survey guidelines*)

Visit	Date	Weather conditions	Temperature (°C) @ Survey Start	Temperature (°C) @ Survey finish
Visit 1	18th April 2017	Dry, overcast, mild, low wind	5.4	4.5
	19th April 2017	Dry, overcast, mild, low wind	5.1	4.0
	20th April 2017	Dry, overcast, mild, low wind	6.8	5.1
	24th April 2017	Dry, clear, cool, low wind	4.2	2.9
	25th April 2017	Dry, clear, cool, low wind	3.0	2.0

Visit	Date	Weather conditions	Temperature (°C) @ Survey Start	Temperature (°C) @ Survey finish
Visit 2	2nd May 2017	Dry, overcast, mild, low wind	7.0	5.2
	3rd May 2017	Dry, overcast, mild, low wind	8.2	7.8
	4th May 2017	Dry, overcast, mild, low wind	8.2	7.1
	8th May 2017	Dry, overcast, mild, low wind	8.2	8.0
Visit 3	15th May 2017	Damp, overcast, warm, low wind	16.0	14.2
	16th May 2017	Damp, overcast, warm, low wind	16.5	13.0
	22nd May 2017	Dry, overcast, warm, low wind	11.6	7.5
	23rd May 2017	Dry, overcast, warm, low wind	17.8	15.0
Visit 4	30th May 2017	Dry, overcast, warm, low wind	16.0	16.0
	31st May 2017	Dry, overcast, warm, low wind	15.5	9.9
	5th June 2017	Dry, overcast, warm, moderate wind	14.5	13.7
	6th June 2017	Heavy rain showers, mild, strong winds	12.0	12.0
	8th June 2017	Dry, overcast, warm, low wind	15.1	15.1
Visit 5	12th June 2017	Dry, clear, warm, no wind	14.9	14.9
	13th June 2017	Dry, clear, warm, no wind	19.4	16.4
Visit 6	19th June 2017	Dry, clear, hot, no wind	26.0	18.1

22.3.5 Survey Limitations

32. The survey team covered all land to which landowner access permission was granted. This included 43 of the 82 water bodies identified as suitable to support great crested newts (section 22.1.3). The remaining 39 water bodies, plus all water bodies which were not subject to habitat suitability assessment during the Extended Phase 1 Habitat Survey due to restricted landowner access. These water bodies will be surveyed during future survey seasons, when full landowner access is obtained.

33. In some cases, physical access to the entire pond perimeter was not possible due to dense vegetation cover. For these ponds, the surveys were conducted from the accessible areas of the perimeter only. Where vegetation was too dense to successfully torch or the water was too turbid (a vegetation or turbidity score of 4 or

above), netting was used. For some ponds, cattle were present in the field and so bottle trapping was not used in case of damage to the traps or at the request of the landowner. In these cases, alternative survey techniques (i.e. torching, netting and eggs searches) were used. The details of the limitations encountered against each individual water body are recorded within Annex B: Full Survey Results. The limitations encountered were not considered to prevent reliable survey results being obtained from any of the ponds surveyed.

34. Survey visit 4 on 5th June 2017 was undertaken during heavy rain showers and strong wind. Surveys in one area were postponed to the 8th June 2017 due to weather conditions. Surveys in a separate area were undertaken successfully due to good local conditions for surveying. The surveys undertaken on the 24th and 25th May 2017 were commenced during temperatures of less than 5°C. In both cases, there temperatures were not significantly lower than 5°C, and were surrounded by warmer evenings which came after an unusually cold early April. Given this, it was considered likely that great crested newts would still be active on these nights, given the truncated breeding period.

35. Whilst the survey team made the utmost effort to pick up all sightings of great crested newts present during the field survey, on occasion due to human error some sightings may be overlooked. However despite this, the data presented in this report is considered to provide an accurate description of the habitats within the survey area and provide a robust understanding of the survey area's great crested newt population.

22.4 Results

22.4.1 Survey results

36. Great crested newt presence was recorded in five water bodies during the Great Crested Newt Survey. Three of these water bodies were located within the project area, with the remaining two located within the wider great crested newt survey area.

37. The great crested newts breeding ponds found during the Great Crested Newt Surveys are considered to be part of three separate metapopulations.

38. Presence was not recorded in the remaining 38 water bodies surveyed.

39. Table 22.4 summarises the findings of Great Crested Newt Survey. Those water bodies where presence was recorded are shown on Figure 3, Annex A: Figures.

Table 22.4 Water bodies with great crested newt presence

Water body reference	Peak adult count using any method	Eggs found	Population size class assessment	Metapopulation
TF9010-50	2	No	Small	Metapopulation 1
TF9614-154	1	Yes	Small	Metapopulation 2
TF9614-155	12	No	Medium	Metapopulation 2
TF9614-157	0	Yes	Small	Metapopulation 2
TF0721-256	3	No	Small	Metapopulation 3

40. Other amphibians including smooth newts *Lissotriton vulgaris*, palmate newts *Lissotriton helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo* have been recorded widely throughout the survey area.

22.5 Recommendations

41. The results of the Great Crested Newt Survey outlined in section 22.4 showed that there are five standing water bodies within the survey area in which presence of great crested newts has been confirmed.

22.5.1 Potential Impacts

42. The Great Crested Newt Survey has been undertaken within a survey area sufficient enough to encompass the known project area at the time of survey inception. This project area covers a number of different site selection options for the project, comprising the potential development alternatives. Some of these options will be ruled out during the project design process, and as such the project area will continue to be refined during this process. As a consequence, this report will inevitably present survey results which are no longer relevant to the final project area when a detailed EIA and DCO application for the project is completed. For this reason, no site status assessment has been undertaken at this stage. This site status assessment will be undertaken based on the final project area once available, and be used to inform the project EIA and DCO application to be submitted in June 2018. As a result, the potential impacts discussed in this report are outline only and are presented in order to steer any future detailed mitigation for the project.

43. Given the great crested newts recorded during the Great Crested Newt Survey, consideration of the potential impacts of the project upon great crested newt populations will be required in order to ensure that adequate steps are taken to minimise the risk of killing or injuring any great crested newts, or damaging any great

crested newt aquatic or terrestrial habitat during construction. Specifically, the following potential impacts should be considered in detail:

- Mortality during site clearance and construction,
- Disturbance of resting sites during construction,
- Terrestrial and aquatic habitat loss and modification, and
- Habitat fragmentation and isolation.

44. If any impacts are identified, the options for mitigating these at the design stage will be considered. Options for avoiding known great crested newt breeding ponds will be considered in the first instance, followed by avoiding terrestrial great crested newt habitat. If neither of these options are available, on-site mitigation, and finally offsite mitigation will be considered.

45. If mitigation is required in order to ensure there is no adverse impact on the great crested newt population identified due to the project, the Great Crested Newt Mitigation Guidelines (English Nature, 2001) should be used to inform any mitigation design.

22.5.2 Further Surveys

46. For those water bodies surveyed during the Great Crested Newt Survey, no further surveys are recommended at this stage. Depending on the works planned within the survey area, pre-construction surveys may be required and an ecologist should be consulted.

47. For the 34 water bodies for which landowner access was not possible during the Great Crested Newt Survey, a great crested newt presence / likely absence survey will need to be undertaken prior to the start of construction in order to characterise the baseline environment. The methodology for these surveys will follow the methodology set out in section 22.3.

48. For the additional 212 standing water bodies that were not visited during the Extended Phase 1 Habitat Survey due to landowner access restrictions – and for which no habitat suitability assessment has been possible – a habitat suitability assessment in the first instance will be undertaken and if required great crested newt presence / likely absence surveys will be subsequently undertaken prior to any construction activity in order to ensure legal compliance along with informing any mitigation measures and/or licensing requirements.

22.6 Conclusions

49. A suite of great crested newt presence/absence surveys were conducted for 43 standing water bodies located within the survey area which comprises 250m

surrounding the onshore project area temporary works and 500m surrounding the onshore project area permanent works. This report presents the findings of these surveys.

50. Great crested newt presence was found in five standing water bodies within the survey area. Four of these water bodies were found to support populations within the 'low' population size class, and one was found to support a population in the 'medium' size class. Three of these water bodies were located within the project area, with the remaining two located within the great crested newt survey area. These results are considered to represent three separate metapopulations.

51. Due to the absence of landowner permission, a further 34 standing water bodies require great crested newt presence / likely absence surveys to be undertaken prior to the start of construction. In addition, 212 standing water bodies require a habitat suitability assessment to be undertaken and if required great crested newt presence / likely absence surveys subsequently undertaken.

22.7 References

Chartered Institute of Ecology and Environmental Management (CIEEM) (2016a) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester
Chartered Institute of Ecology and Environmental Management (CIEEM) (2016b) Professional Code of Conduct, Revised June 2016.
English Nature (2001) Great crested newt mitigation guidelines. August 2001
Institute of Environmental Assessment (1995)
Natural England (2015) Great Crested Newts: surveys and mitigation for development projects. Natural England Standing Advice.
Royal HaskoningDHV (2016) Norfolk Vanguard Offshore Wind Farm Environmental Impact Assessment Scoping Report
Royal HaskoningDHV (2017a) Norfolk Vanguard Offshore Wind Farm: Onshore Ecology and Onshore Ornithology Method Statement. Document Reference PB4476-003-029.
Royal HaskoningDHV (2017b) Norfolk Vanguard Offshore Wind Farm: Extended Phase 1 Habitat Survey Report. Document Reference PB4476-003-040.

22.8 Annex A: Figures

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630000 635000 640000

335000 330000

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0 1 2 km

Legend:

- Survey Area

Norfolk Vanguard Onshore Infrastructure

- Landfall Zone
- Cable Relay Station Search Zone
- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Survey Location (Map 1 of 5)

Figure: 1 | Drawing No: PB4476-004-0222-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	25/07/2017	LB	GC	A3	1:50,000

Co-ordinate system: British National Grid **EPSG:** 27700

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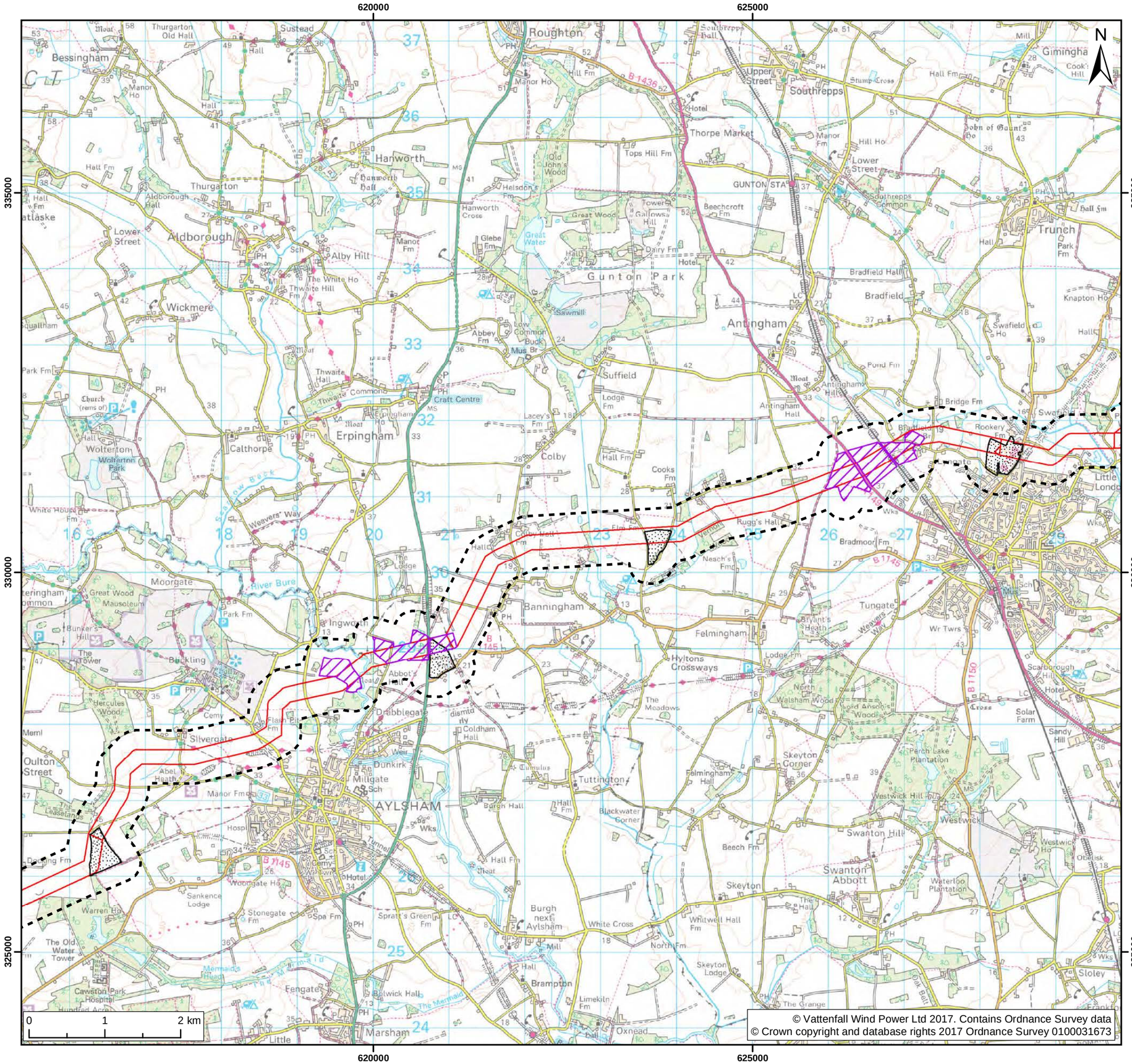

Legend:

- Survey Area

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Survey Location
(Map 2 of 5)

Figure: 1 | Drawing No: PB4476-004-0222-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	25/07/2017	LB	GC	A3	1:50,000

Co-ordinate system: British National Grid **EPSG:** 27700

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Legend:

- Survey Area

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Survey Location
(Map 3 of 5)

Figure: 1 | Drawing No: PB4476-004-0222-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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Legend:

Survey Area

Norfolk Vanguard Onshore Infrastructure

Onshore Cable Corridor

Horizontal Directional Drilling (HDD) Zone

Mobilisation Zone

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Survey Location
(Map 4 of 5)

Figure: 1 | Drawing No: PB4476-004-0222-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Legend:

- Survey Area

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone
- Project Substation Search Zone
- National Grid Substation Extension Zone
- Overhead Line Modification Zone

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Survey Location (Map 5 of 5)

Figure:	Drawing No:
1	PB4476-004-0222-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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331000 330000 329000

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TG3729-416

TG3729-414

TG3829-417A

TG3829-417

TG3829-418

TG3930-419

TG3930-421

TG3929-420

Happisburgh

Whimpwell Green

0 200 400 m

Legend:

Norfolk Vanguard Onshore Infrastructure

- Landfall Zone
- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 1 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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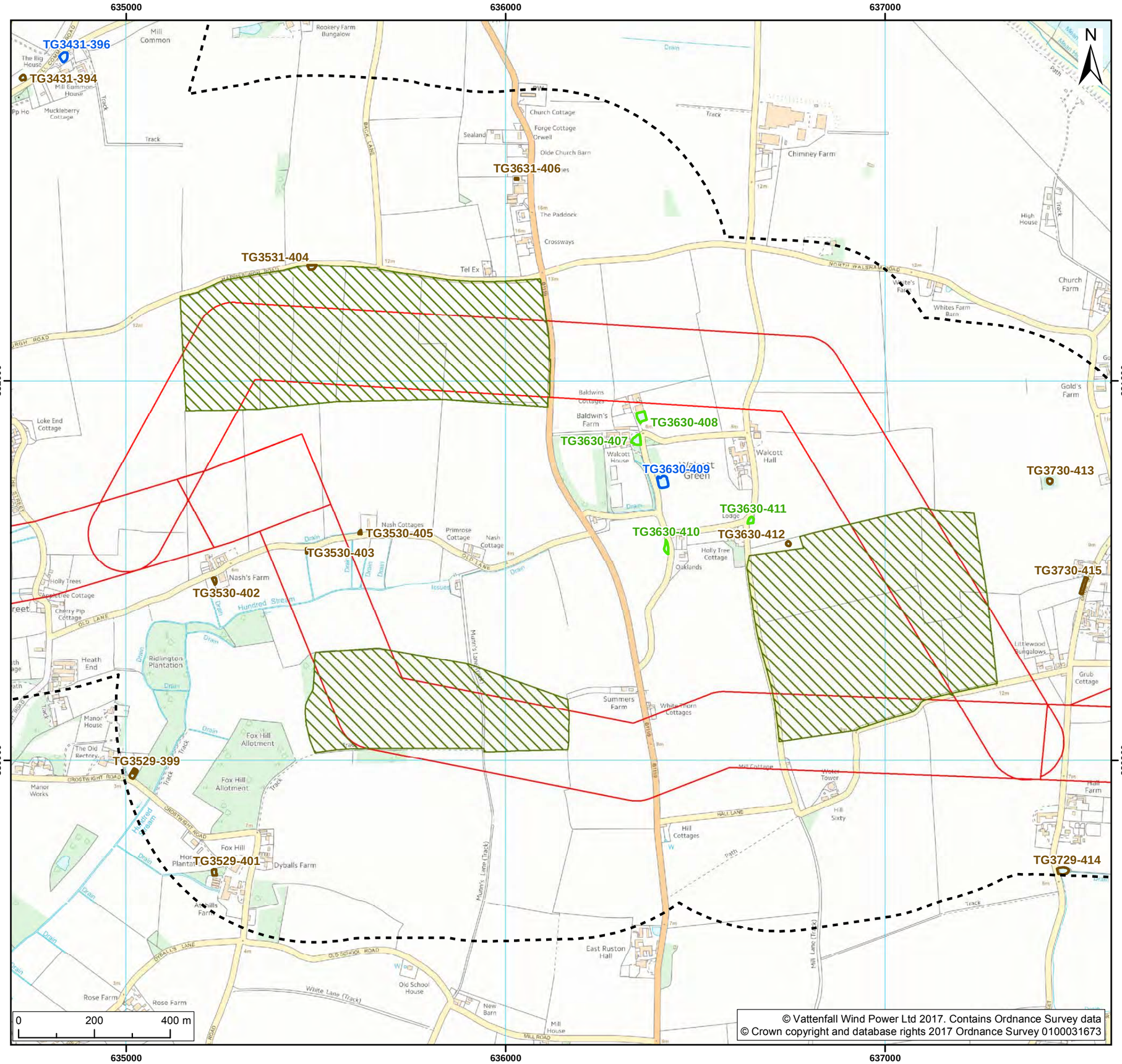

Legend:

Norfolk Vanguard Onshore Infrastructure

- Cable Relay Station Search Zone
- Onshore Cable Corridor

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 2 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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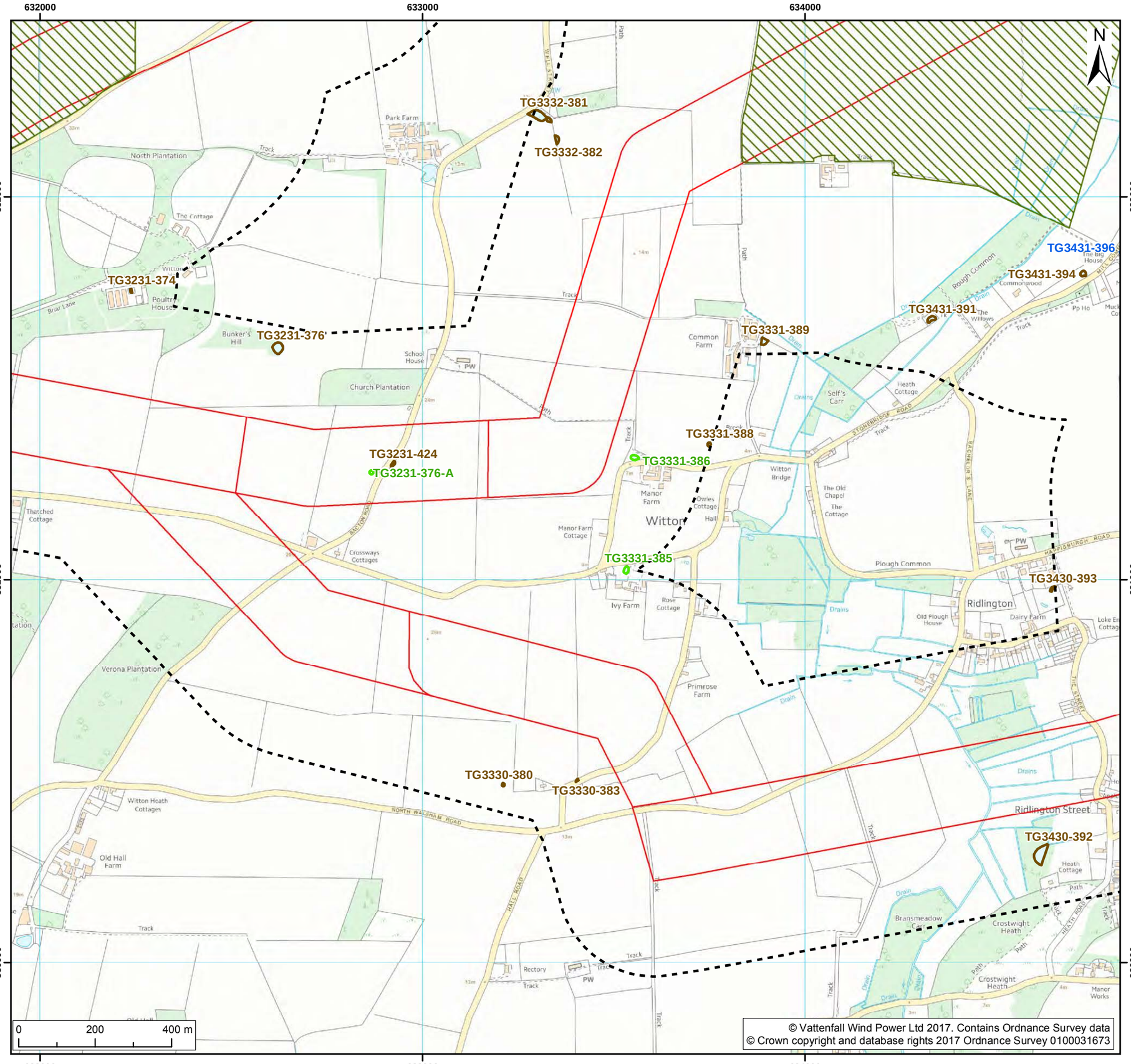

Legend:

Norfolk Vanguard Onshore Infrastructure

- Cable Relay Station Search Zone
- Onshore Cable Corridor

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 3 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

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Co-ordinate system: British National Grid **EPSG:** 27700

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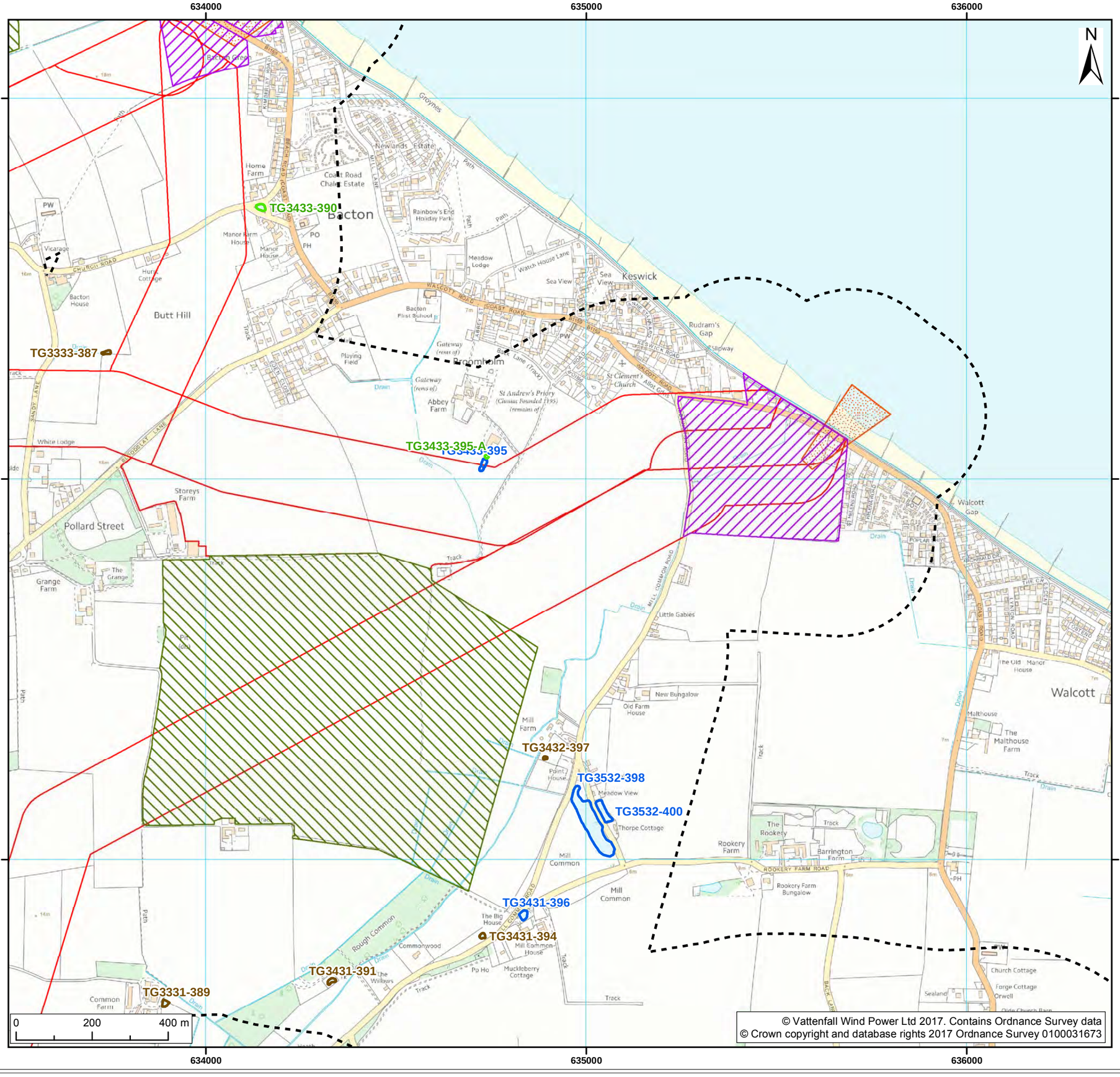

Legend:

Norfolk Vanguard Onshore Infrastructure

- Landfall Zone
- Cable Relay Station Search Zone
- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 4 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

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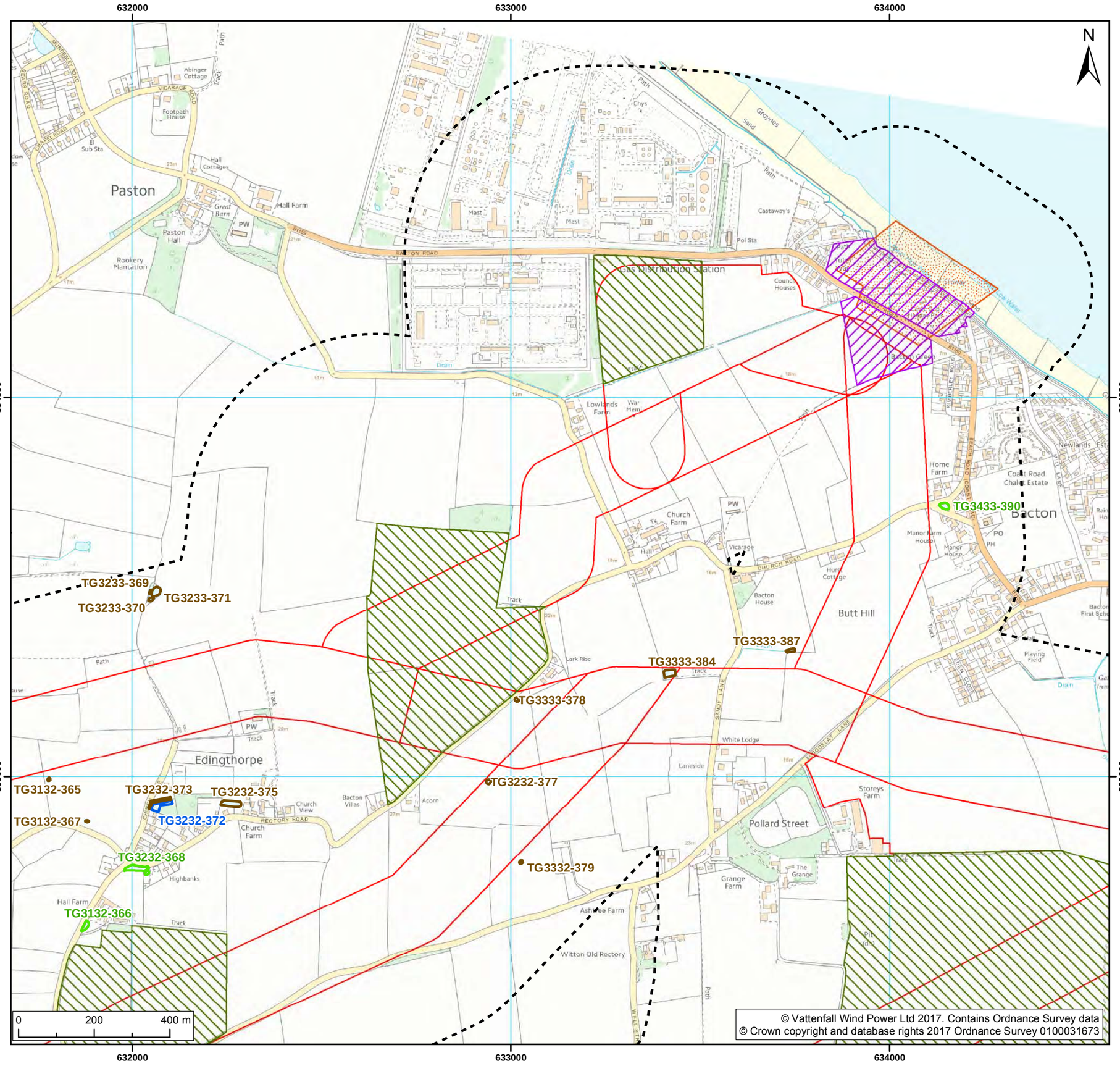

Legend:

Norfolk Vanguard Onshore Infrastructure

- Landfall Zone
- Cable Relay Station Search Zone
- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 5 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

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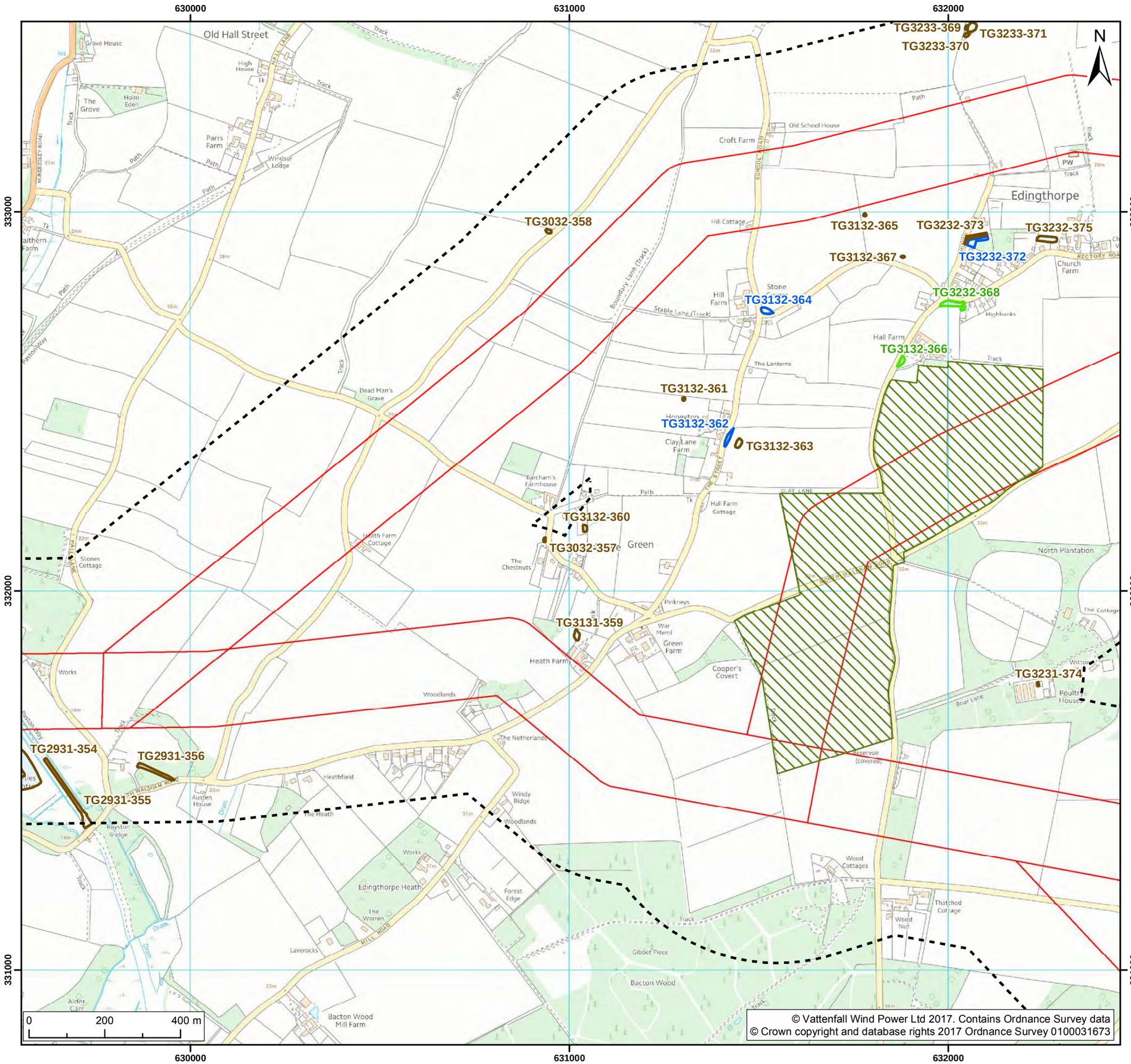

Legend:

Norfolk Vanguard Onshore Infrastructure

- Cable Relay Station Search Zone
- Onshore Cable Corridor

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Habitat Suitability Index Results
(map 6 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

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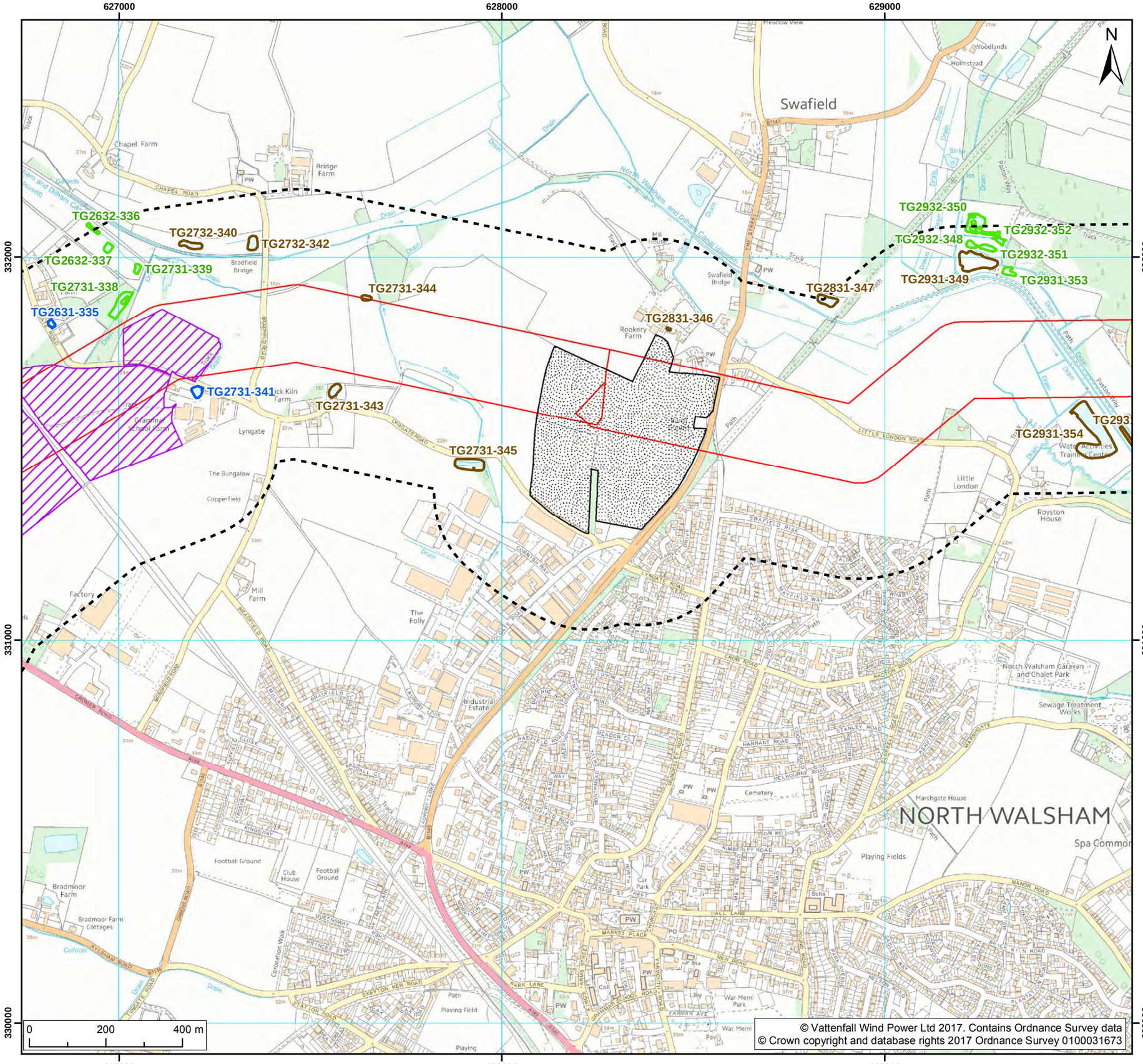

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 7 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

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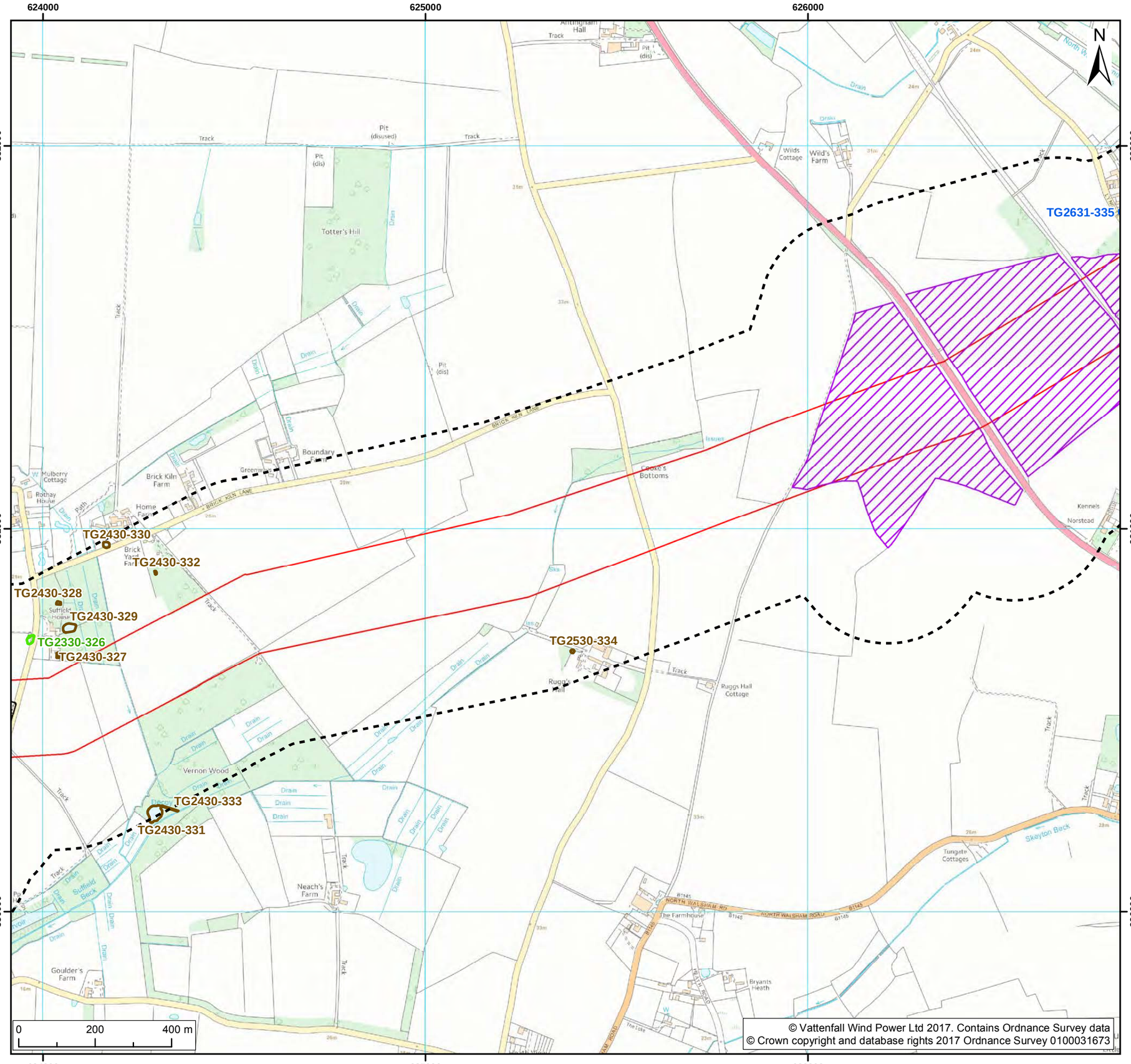

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Habitat Suitability Index Results
(map 8 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

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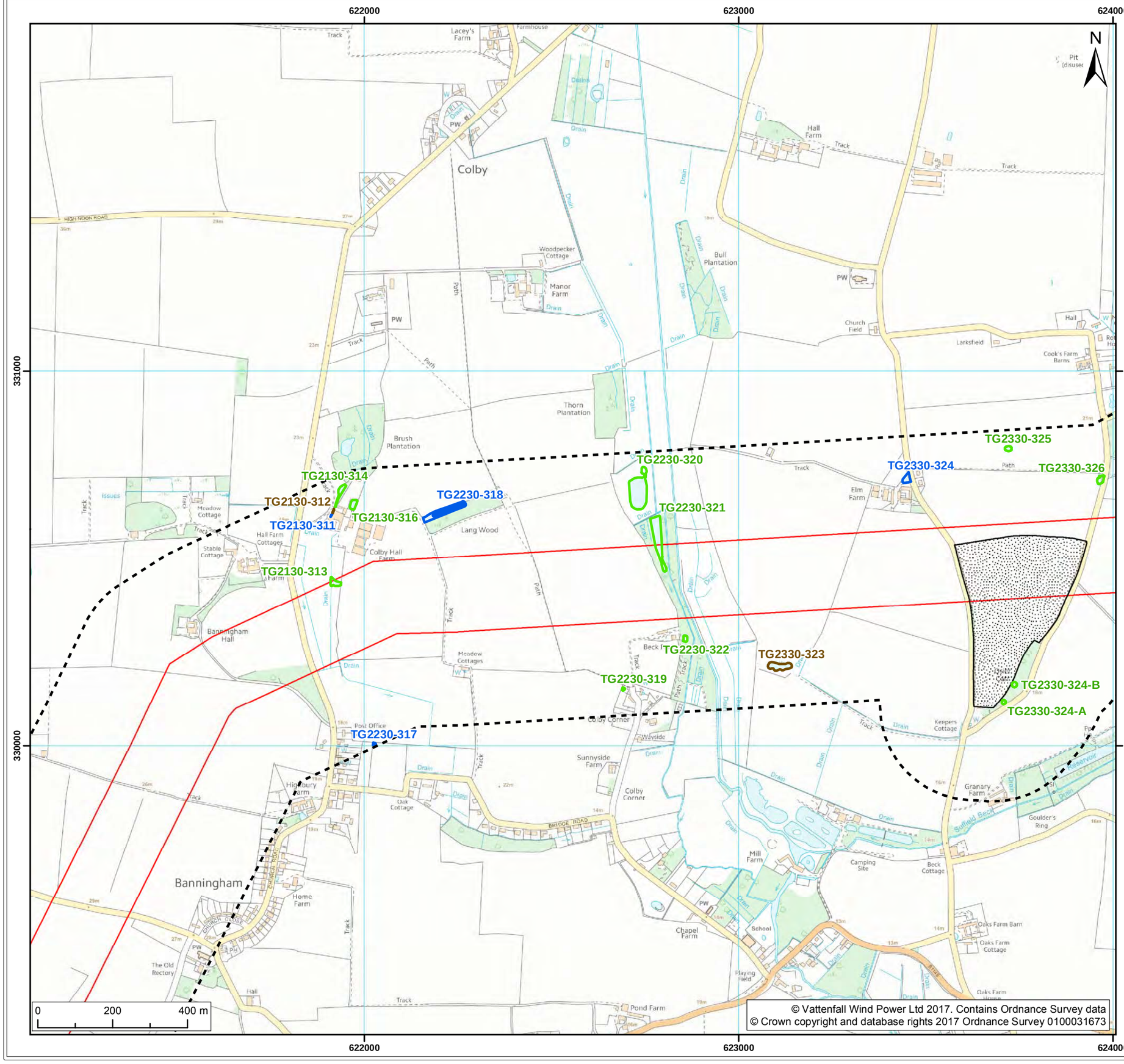

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 9 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

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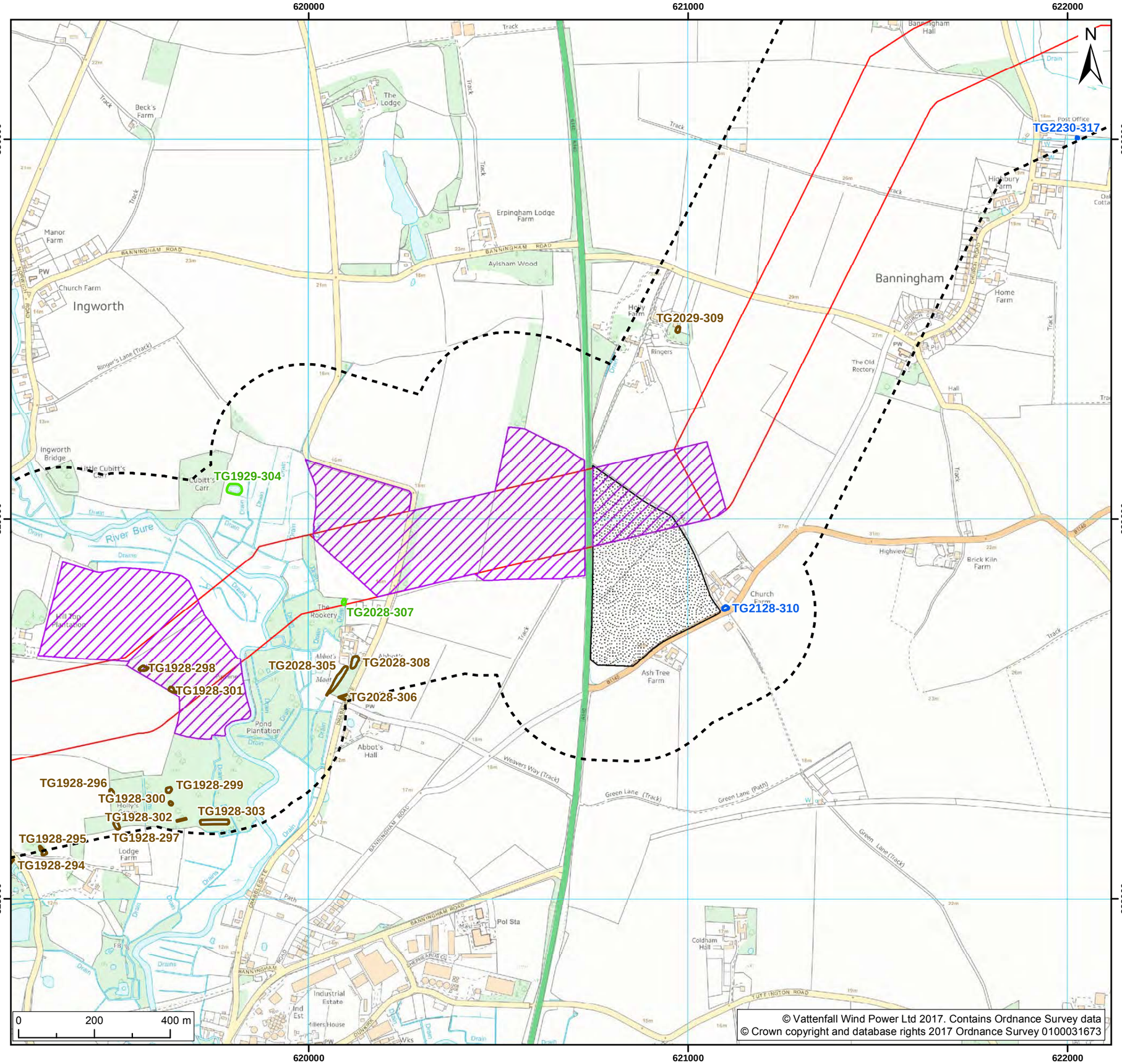

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 10 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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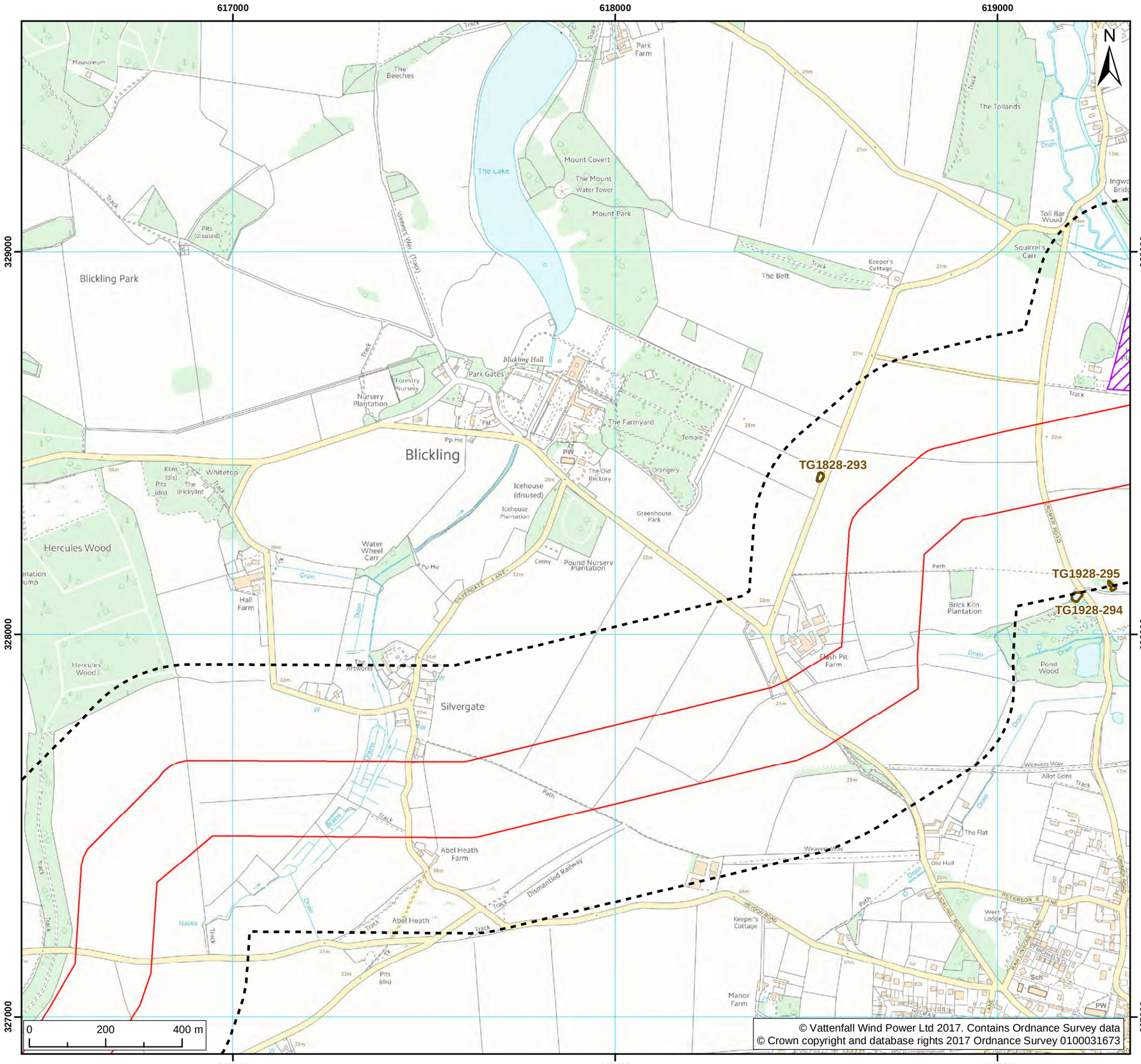

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 11 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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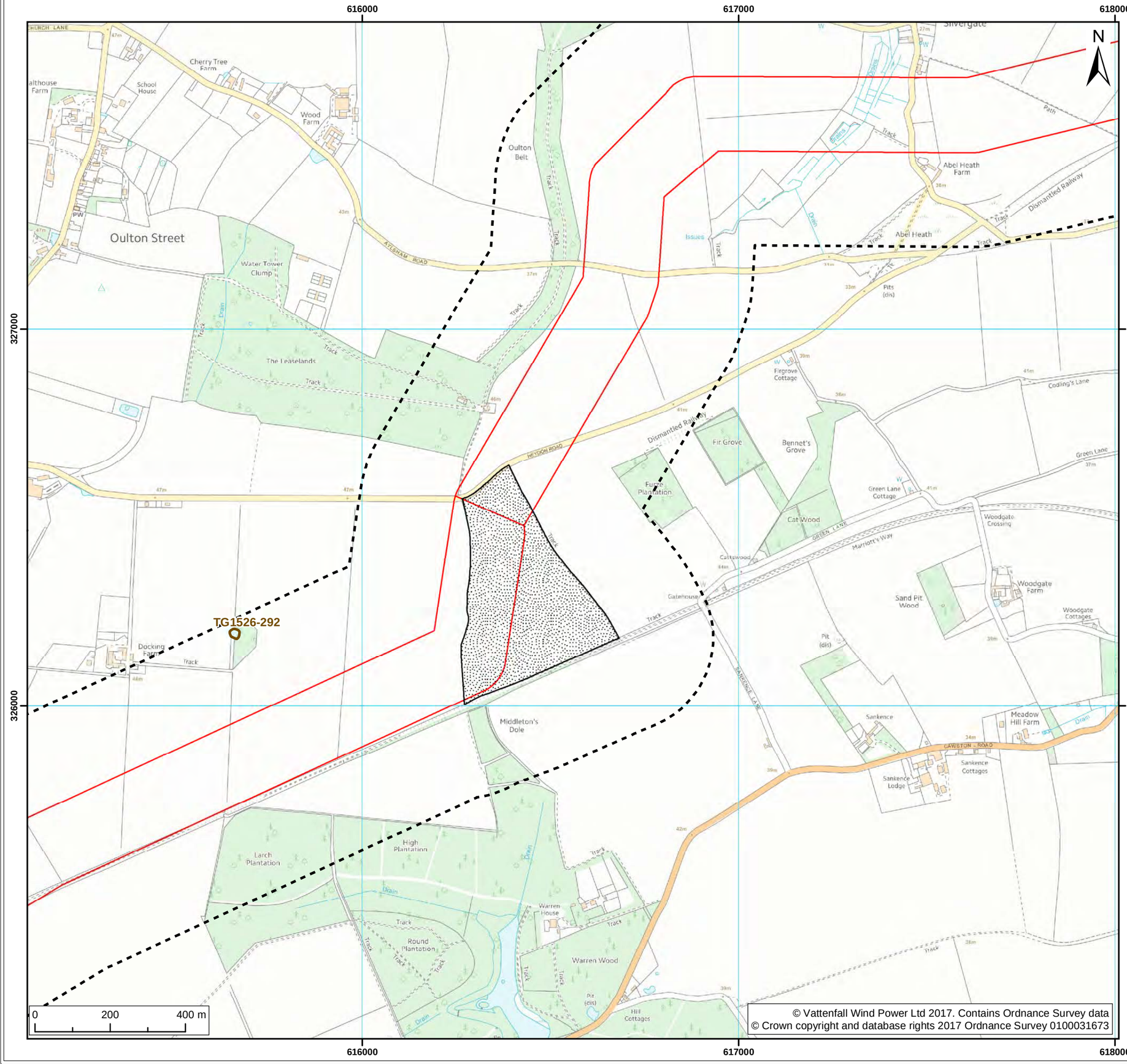

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 12 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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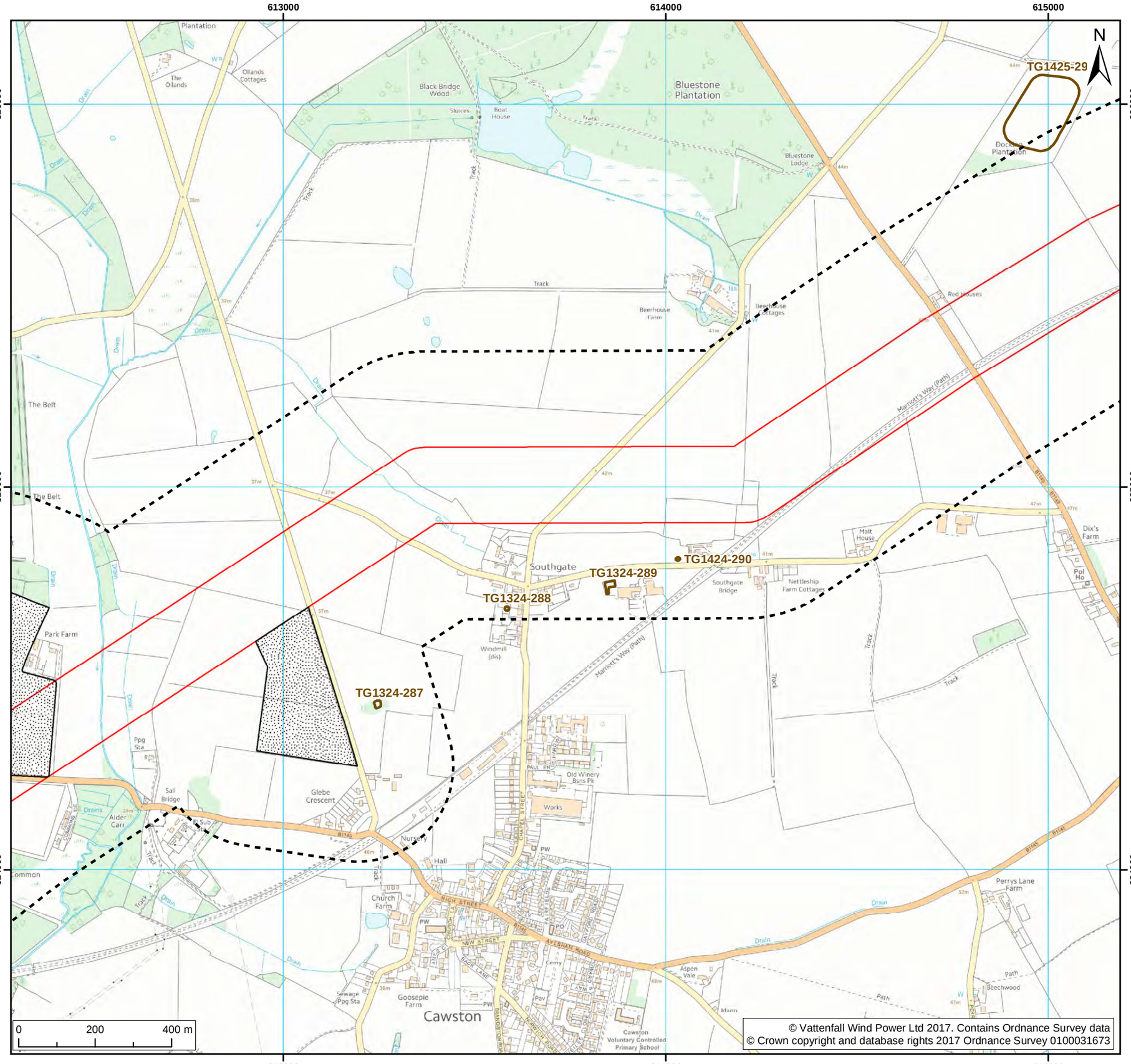

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 13 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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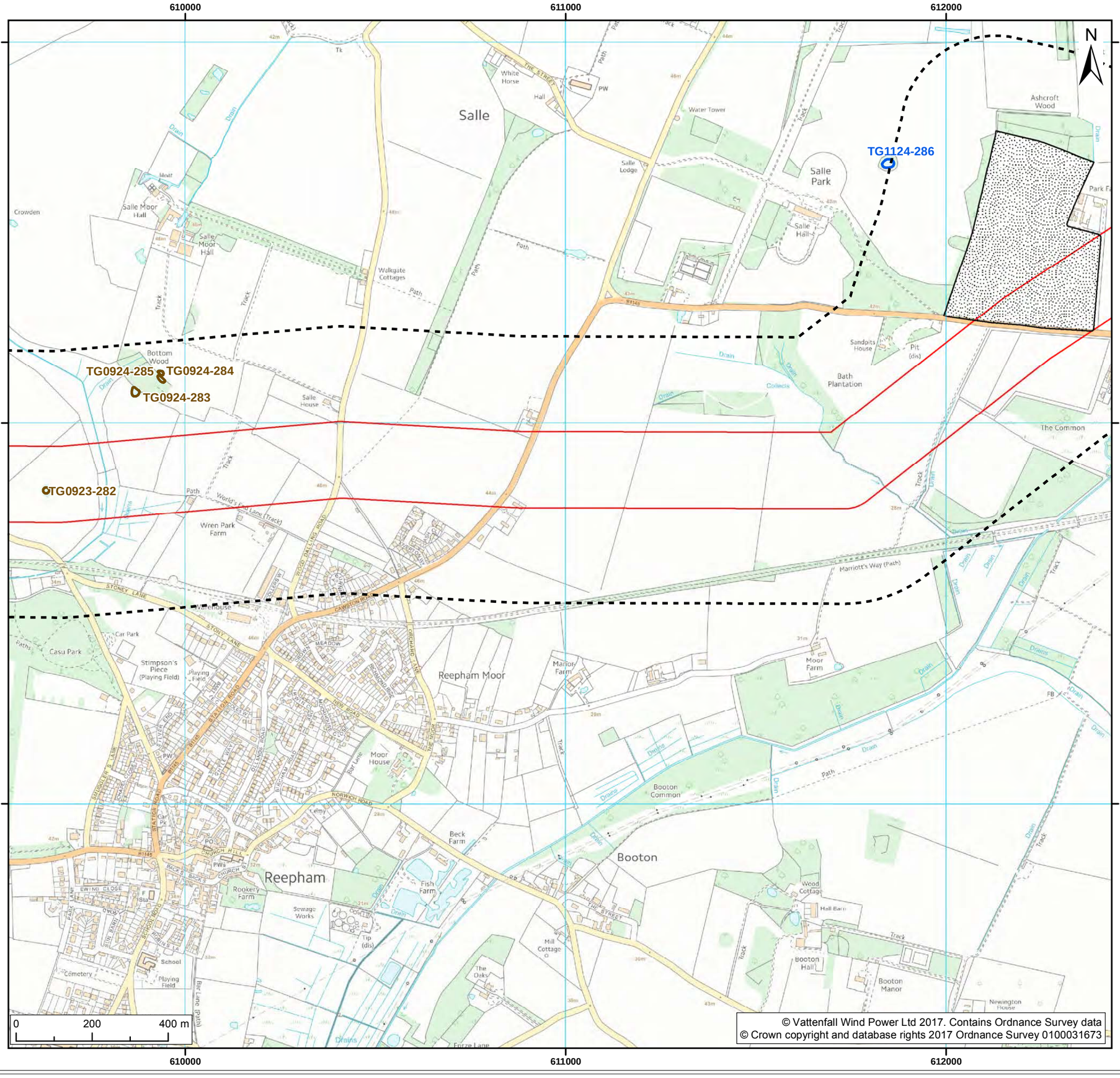

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 14 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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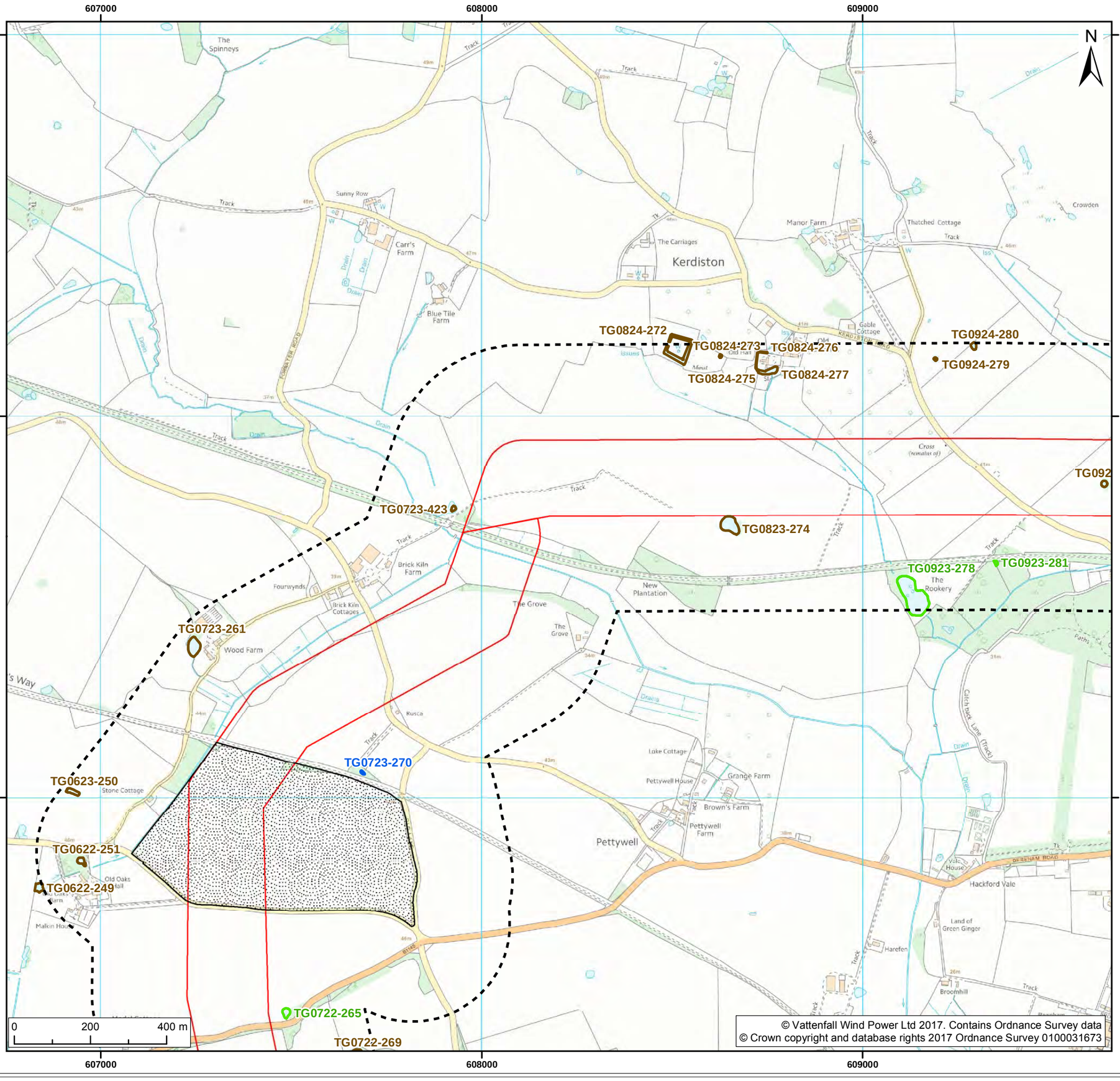

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 15 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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606000
607000
322000
321000
N
0 200 400 m
TG0722-265
TG0722-269
TG0722-252
TG0722-268
TG0722-255
TG0722-262
TG0722-271
TG0721-253
TG0721-264
TG0721-259
TG0721-257-A
TG0721-266
TG0721-267
TG0721-257
TG0721-258
TG0721-263
TG0721-256
TG0721-260
TG0721-254
TG0721-260-A
TG0720-422
TG0620-247
TG0620-248
TG0620-246
TG0520-243
TG0520-243-A
TG0520-239
TG0520-237
TG0520-242
TG0520-241
Foxley Wood
Kerdiston House Farm
Malkin Hou
Model Cottage Farm
Hackford Hall
Poultry Houses
Pightle Farm
Point House Farm
Wood Farm
The Shetlands
Jordan Green Farm
JORDAN LANE
REEPHAM ROAD
Sunnyside
Path
Oaks Farmhouse
The Orchard
Westbury
Wooffull Farm
Drain
Track
ROMAN ROAD
Common Lane (Track)
Horse Ponds Wood
Reservoir Wood
Reservoir
Valley Farm
Moat
Sparham House
Sparham Wood
Stud Groom Cottage
Playing Field
Big Wood
Manor Farm
Hall Lodge
Jordans Wood


Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 16 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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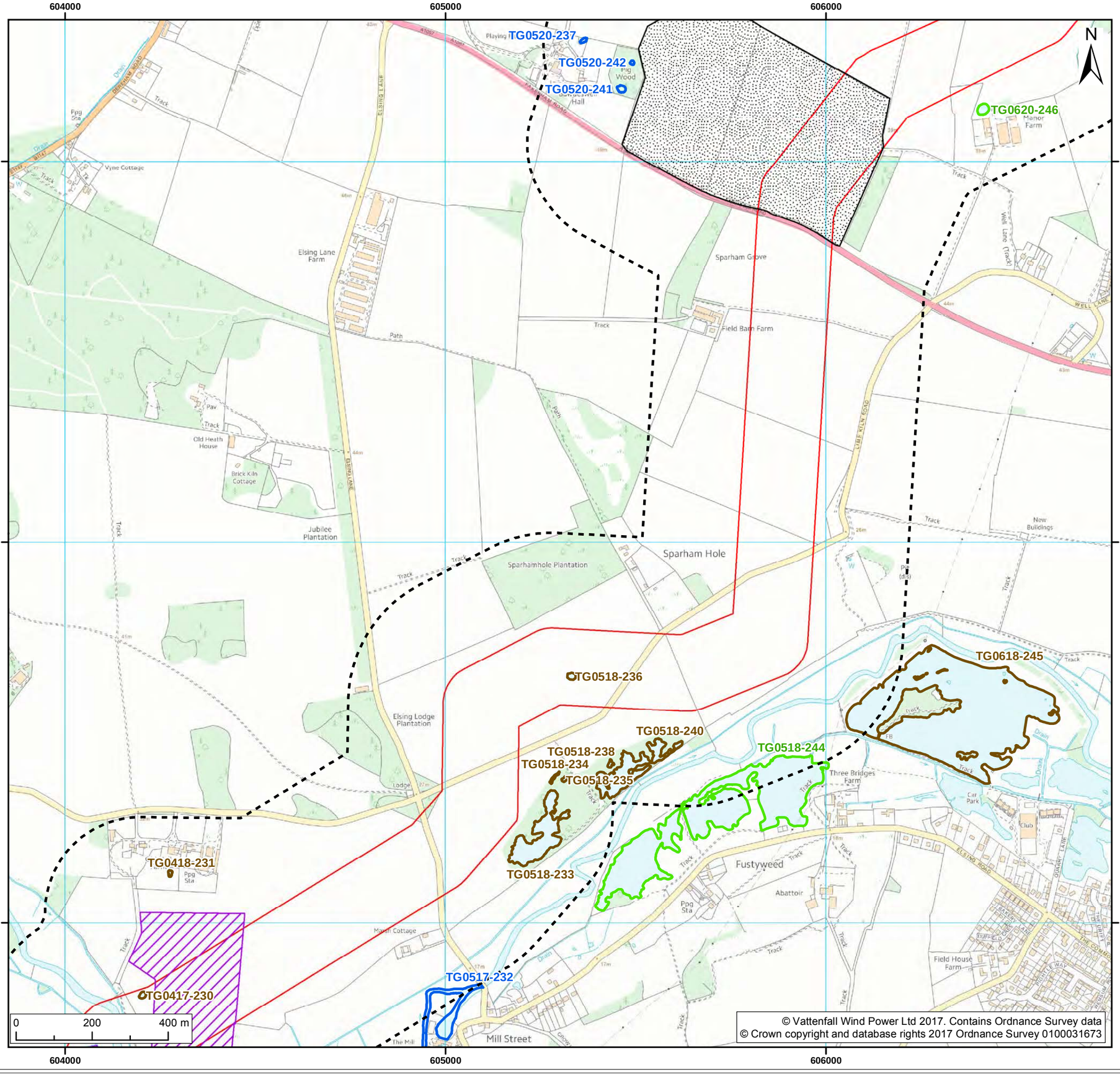

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 17 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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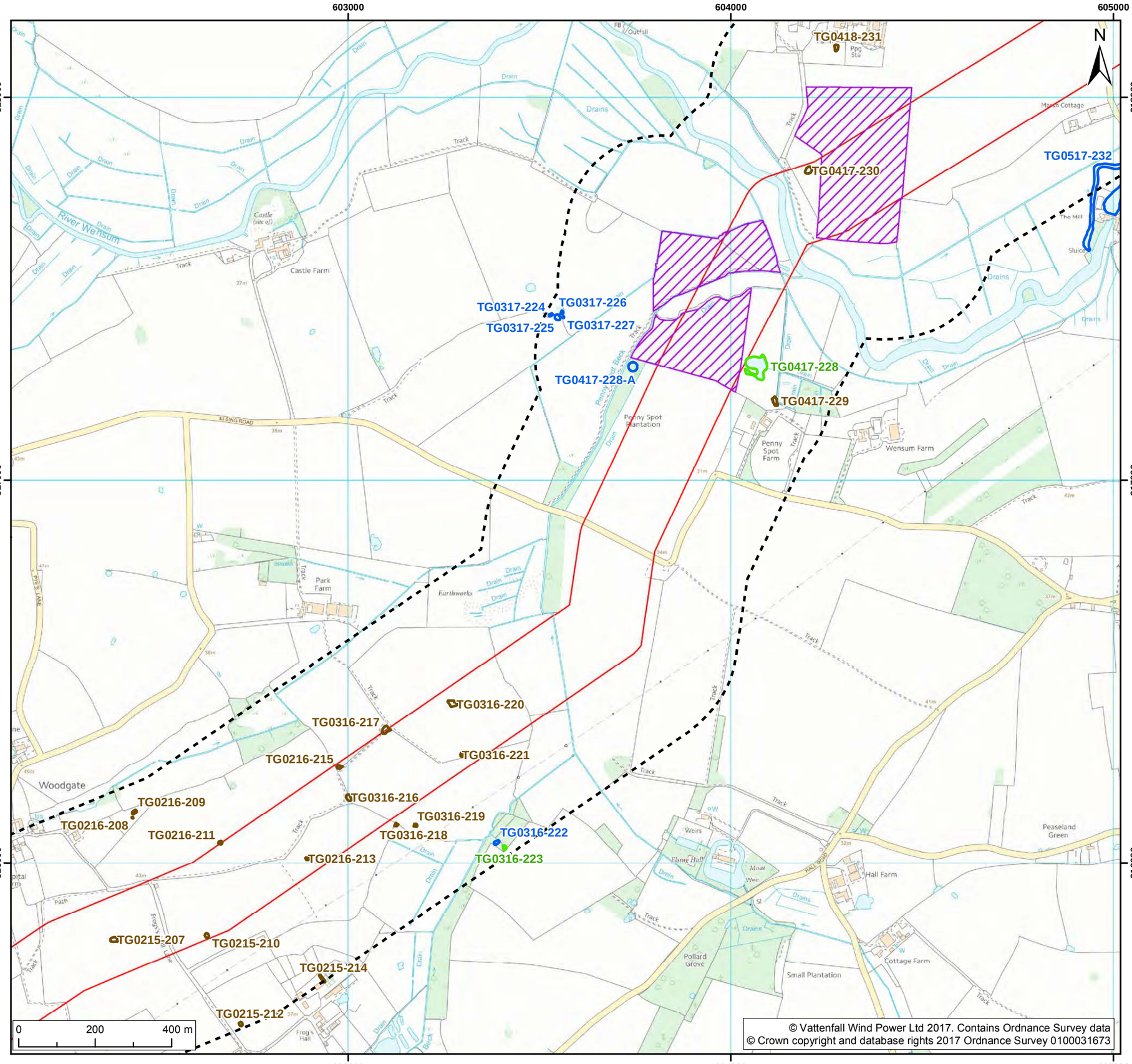

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 18 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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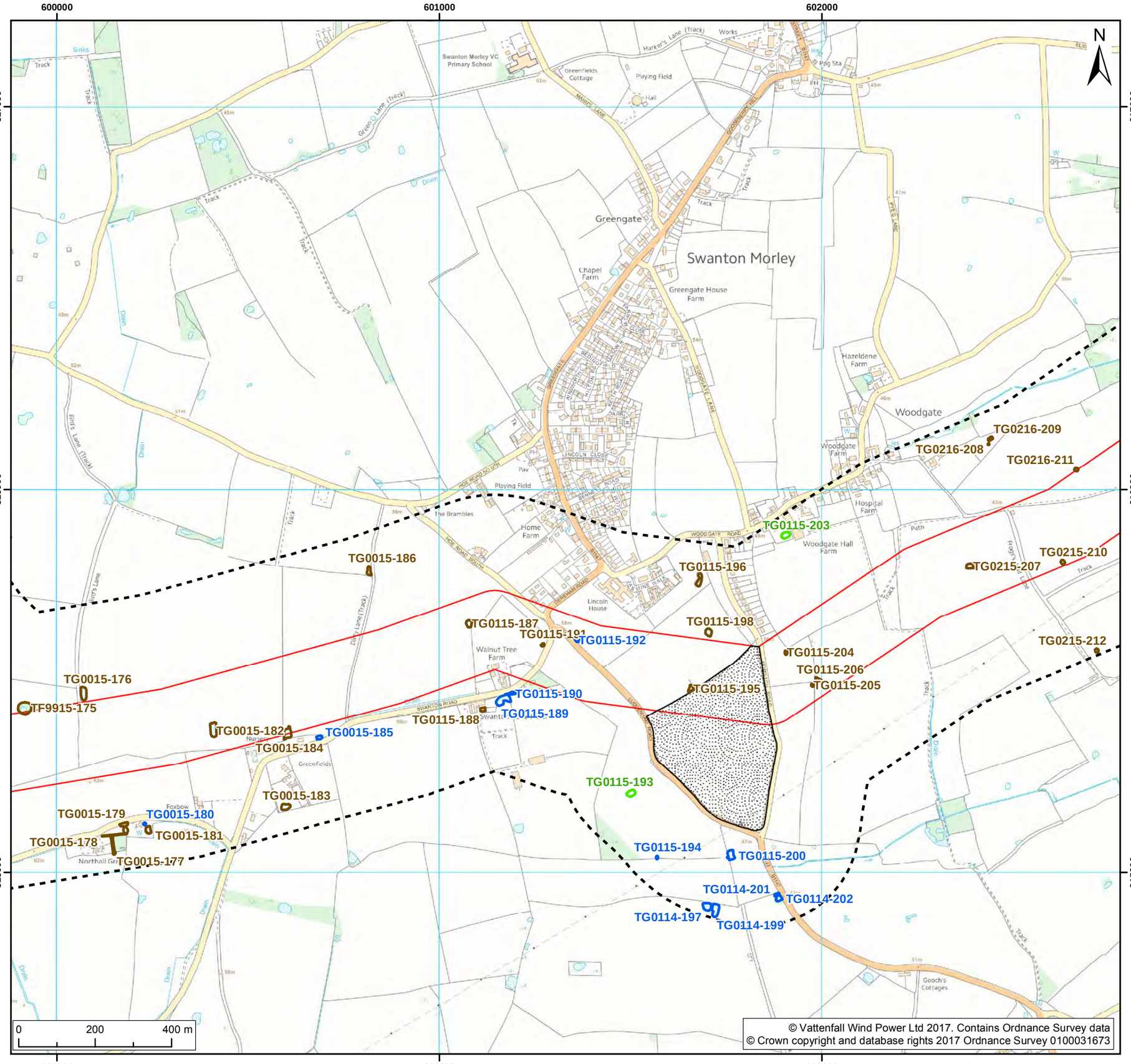

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 19 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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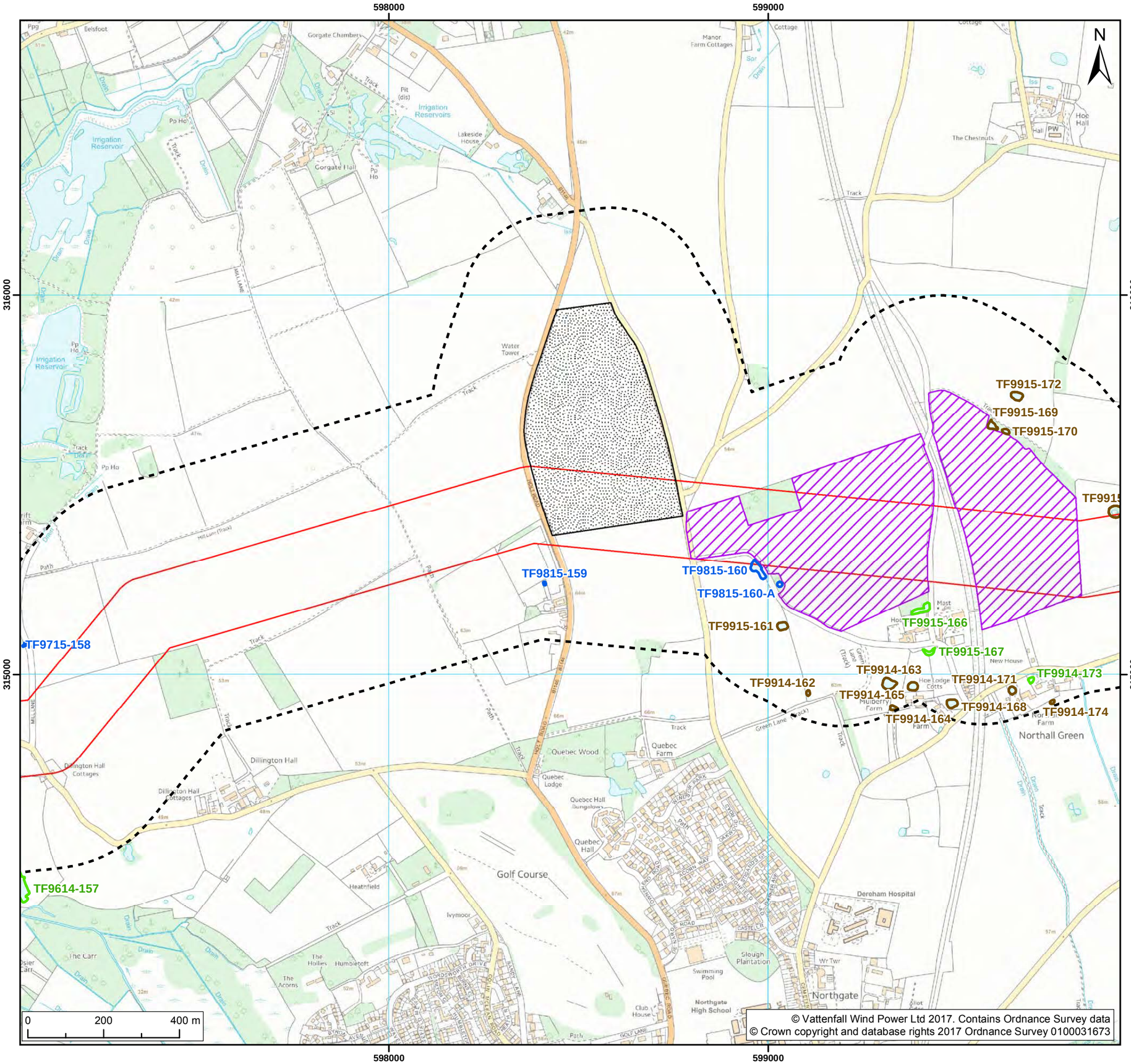

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Habitat Suitability Index Results
(map 20 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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595000 596000 597000

315000 314000 313000

N

TF9615-145 TF9615-146 TF9615-151 TF9615-148 TF9715-158 TF9615-149 TF9614-150 TF9614-152 TF9614-153 TF9514-144 TF9514-142 TF9614-154 TF9614-155 TF9514-137 TF9614-156 TF9514-135 TF9614-147 TF9614-157 TF9514-141 TF9514-136-A TF9514-126 TF9514-139 TF9514-143-A TF9514-134 TF9514-143 TF9514-128 TF9514-131 TF9514-138 TF9514-140 TF9414-121 TF9413-118 TF9513-133 TF9513-133-A TF9513-130 TF9513-132 TF9413-119 TF9513-129 TF9413-123 TF9513-127 TF9413-120

Gressenhall Old Brigg Sparrow Green Little Wood Old Carr Podmore

0 200 400 m

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 21 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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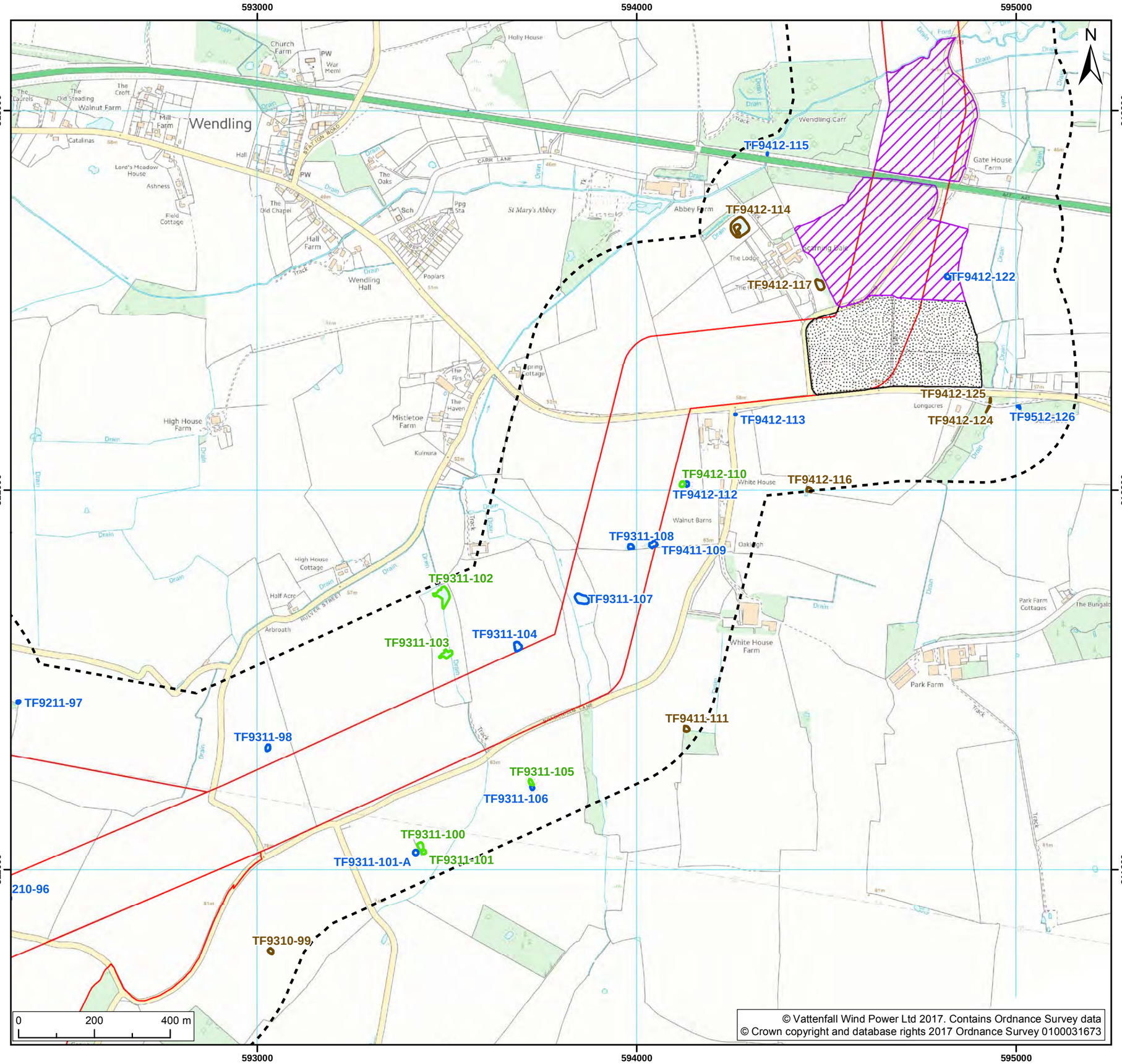

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 22 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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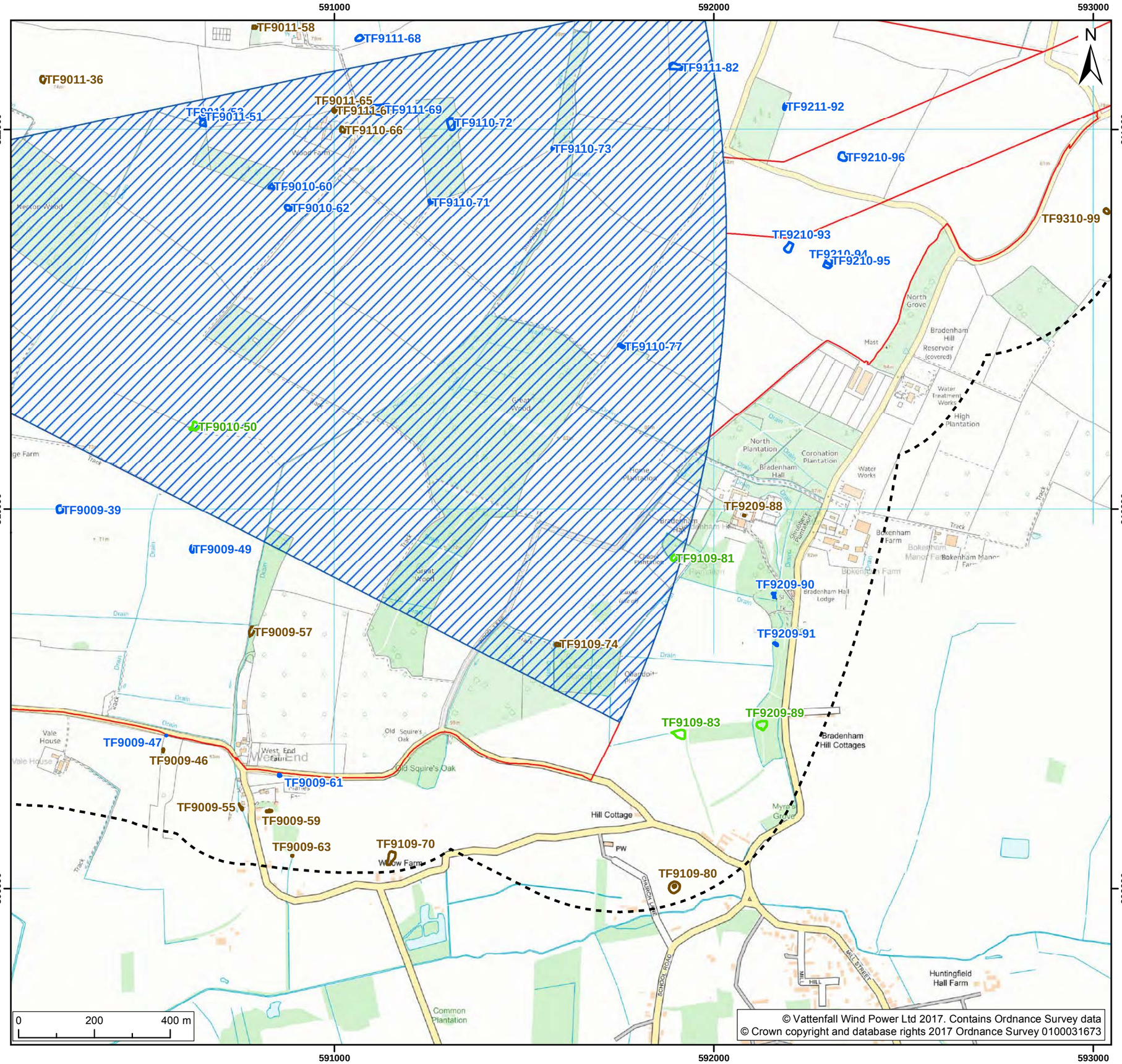

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Project Substation Search Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 23 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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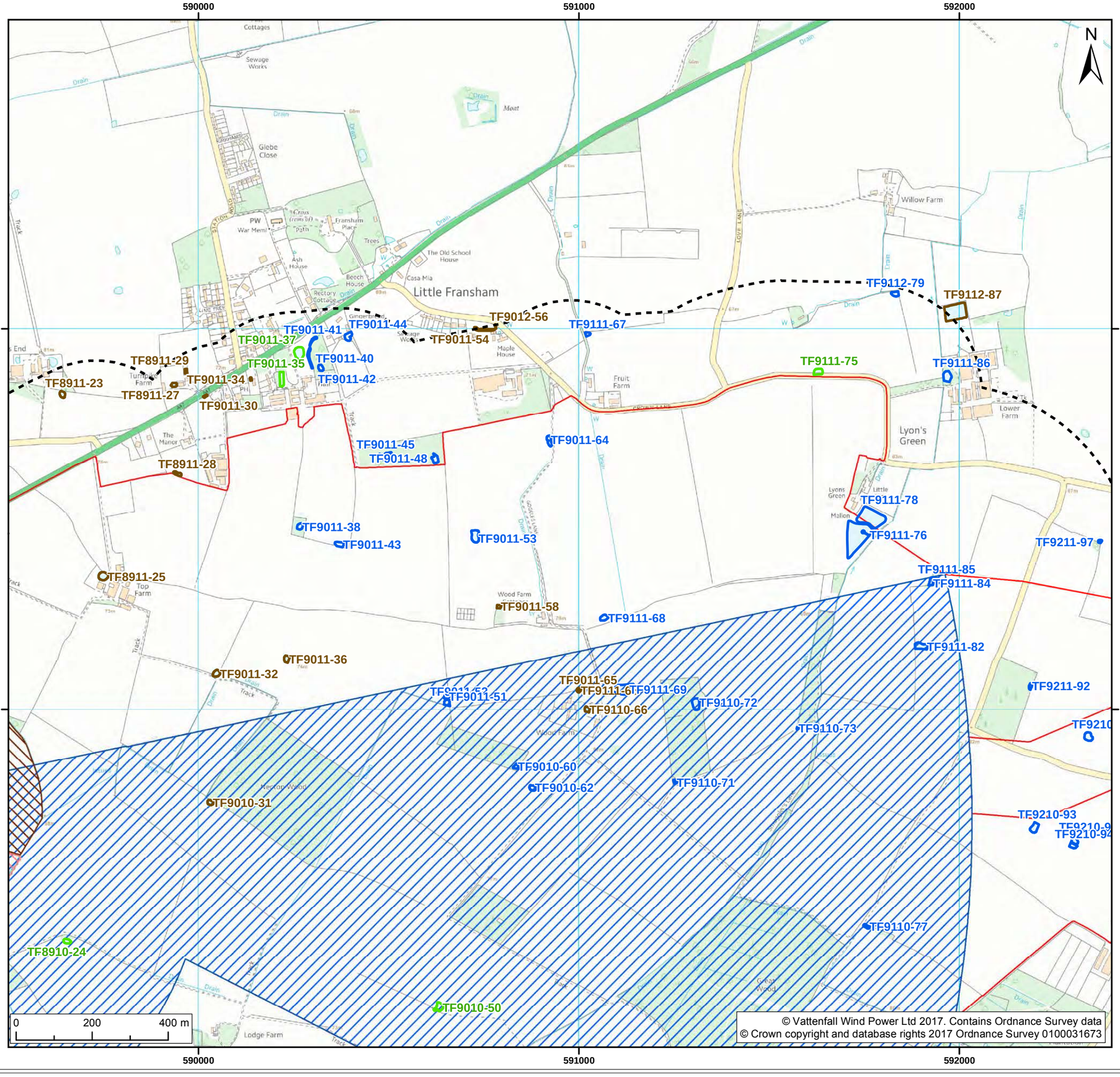

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Project Substation Search Zone
- National Grid Substation Extension Zone
- Overhead Line Modification Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 24 of 25)

Figure: 2 | Drawing No: PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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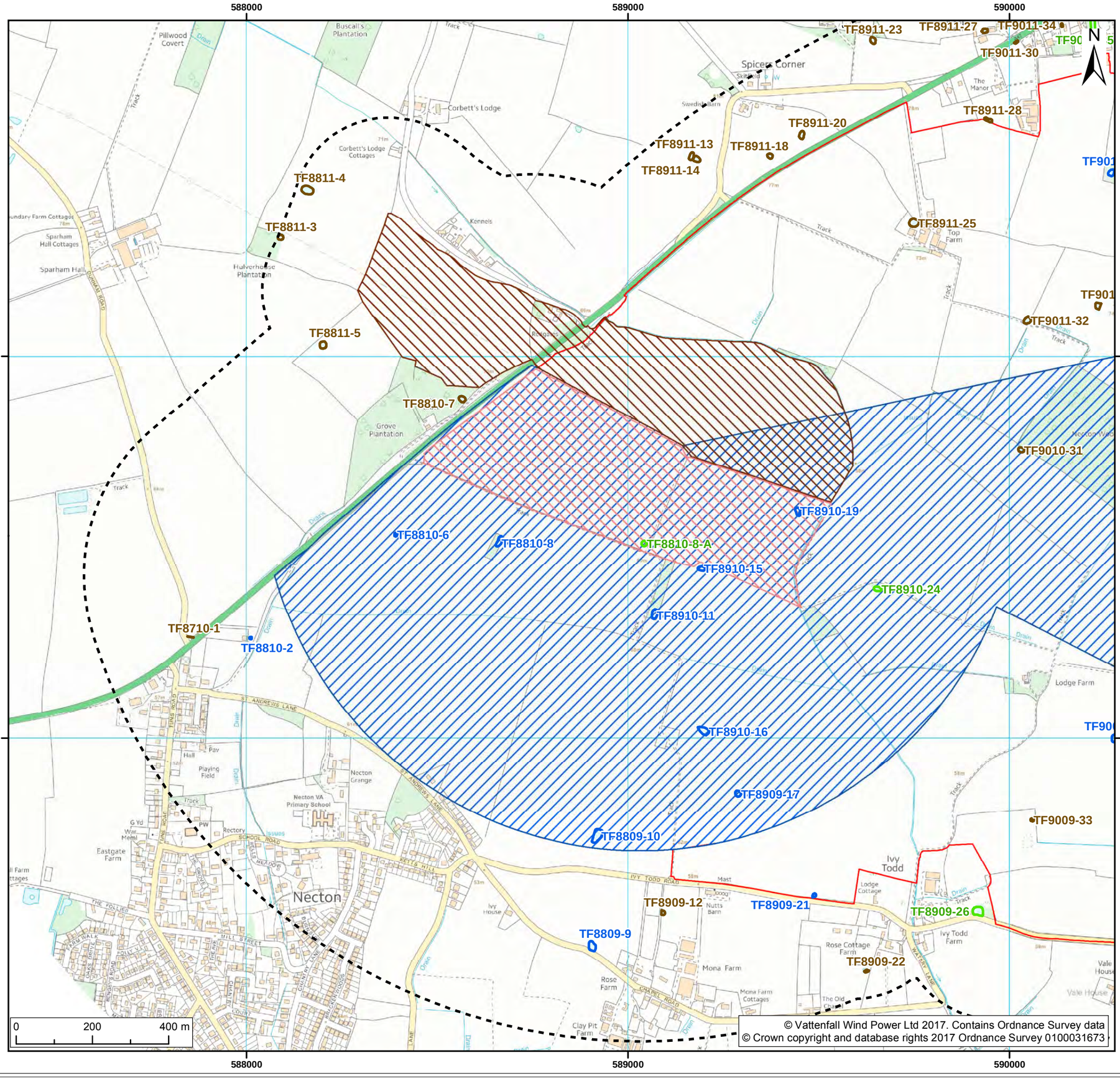

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Project Substation Search Zone
- National Grid Substation Extension Zone
- Overhead Line Modification Zone

Habitat Suitability Index Results

- Not surveyed for HSI
- HSI score of below 0.6 – scoped out of further surveys
- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Habitat Suitability Index Results (map 25 of 25)

Figure:	Drawing No:
2	PB4476-004-0222-002

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
01	25/07/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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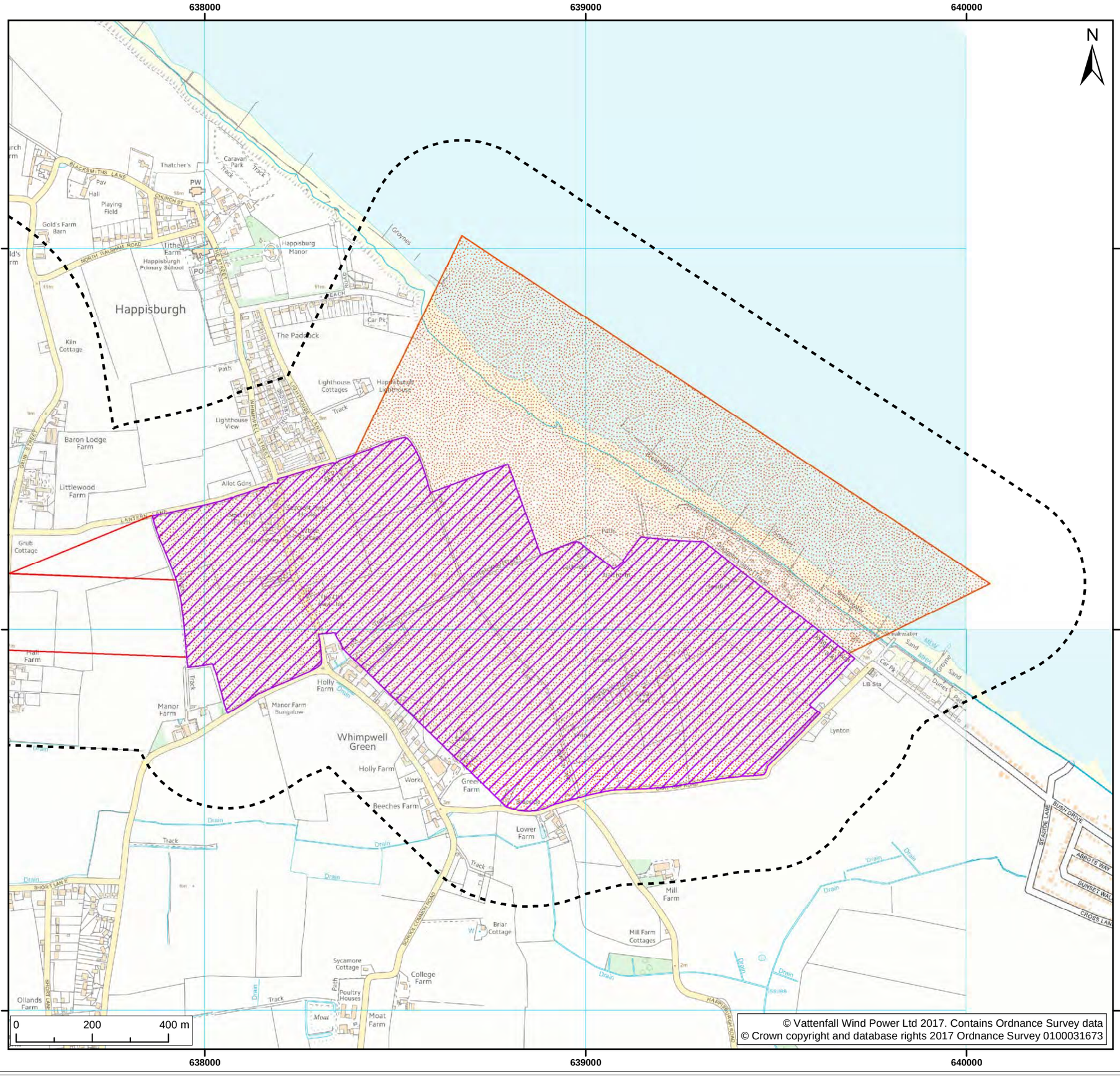

Legend:

Norfolk Vanguard Onshore Infrastructure

- Landfall Zone
- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 1 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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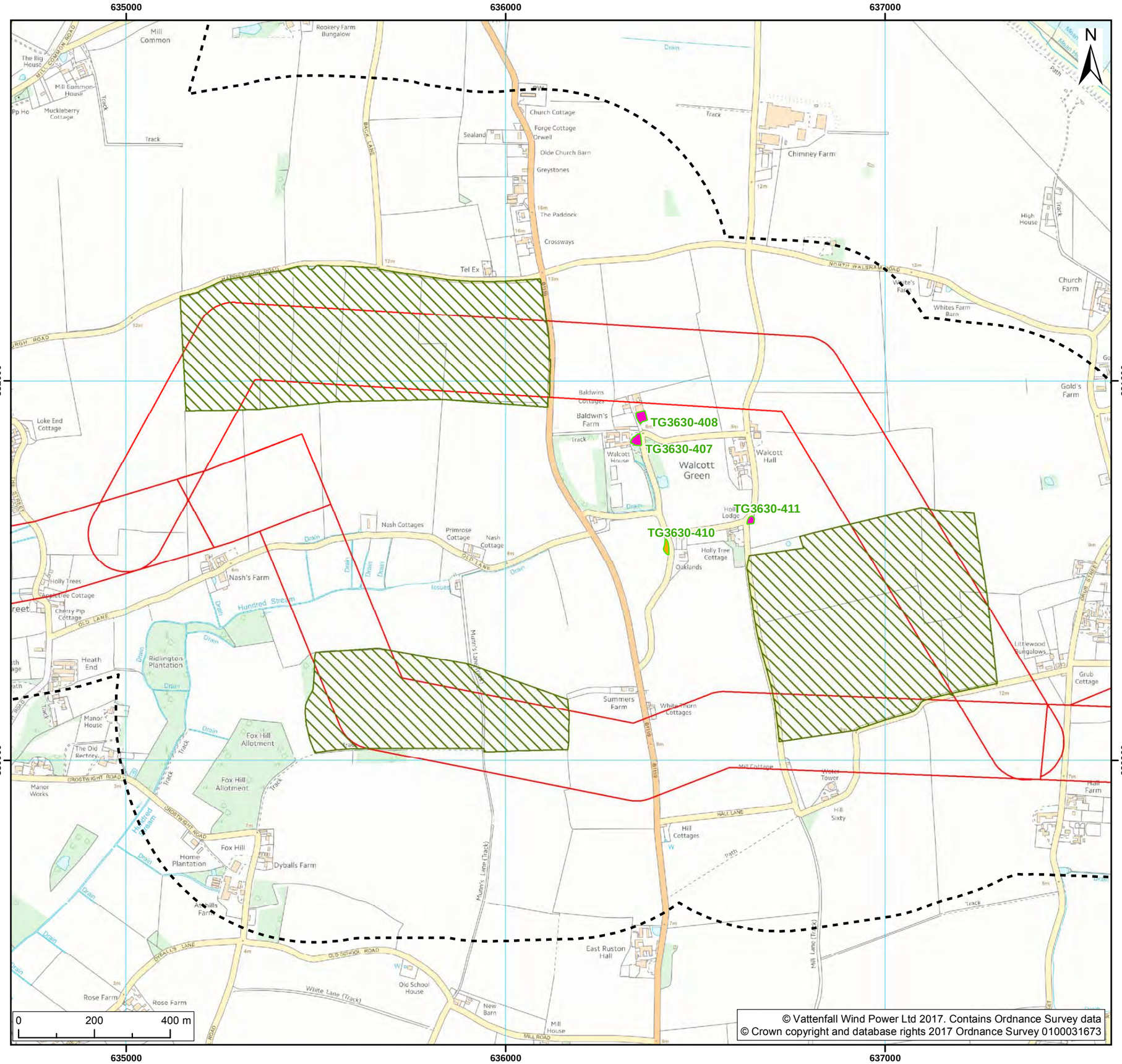

Legend:

Norfolk Vanguard Onshore Infrastructure

- Cable Relay Station Search Zone
- Onshore Cable Corridor

Presence/absence survey results

- Not surveyed
- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 2 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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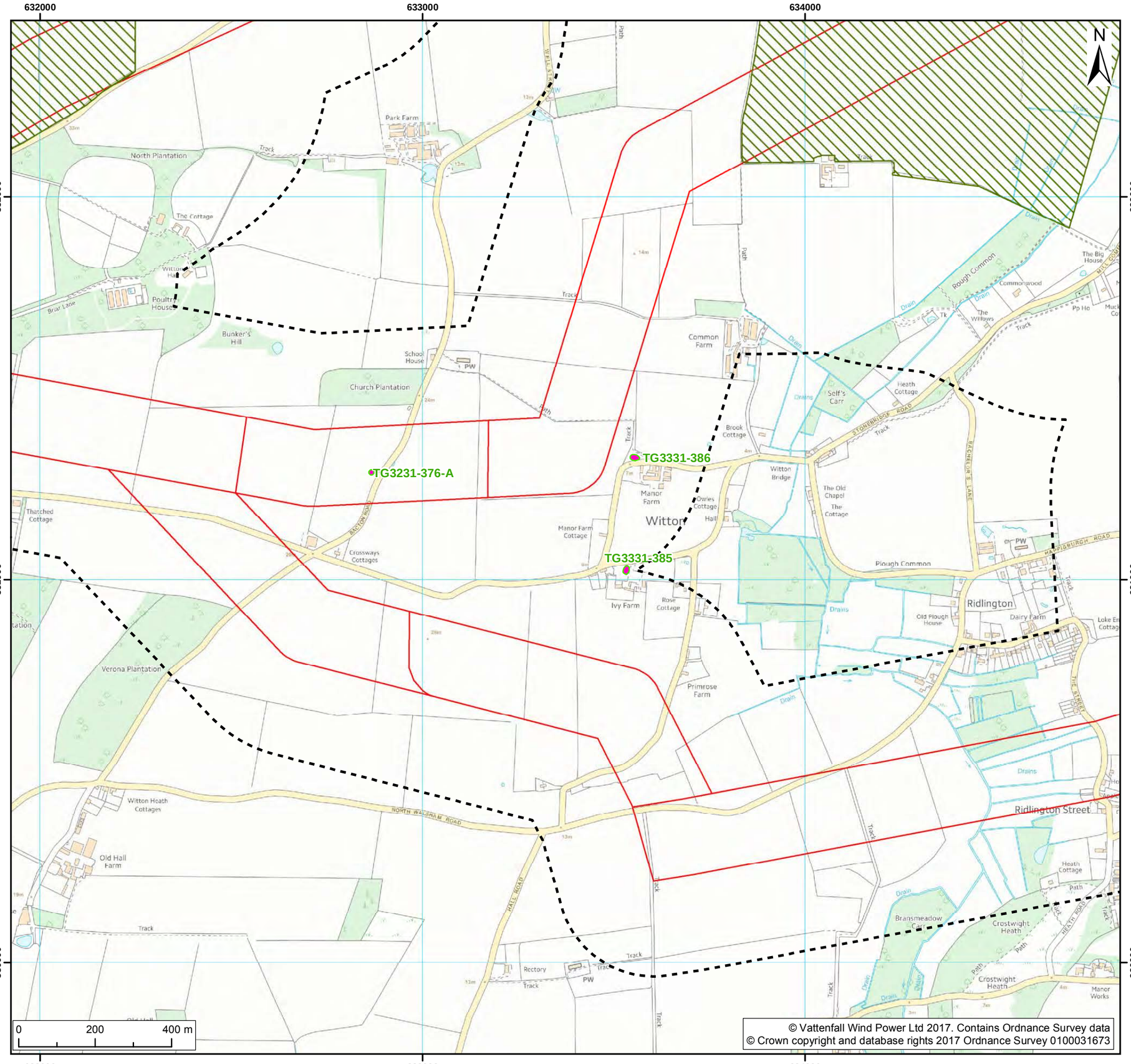

Legend:

Norfolk Vanguard Onshore Infrastructure

- Cable Relay Station Search Zone
- Onshore Cable Corridor

Presence/absence survey results

- Not surveyed

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 3 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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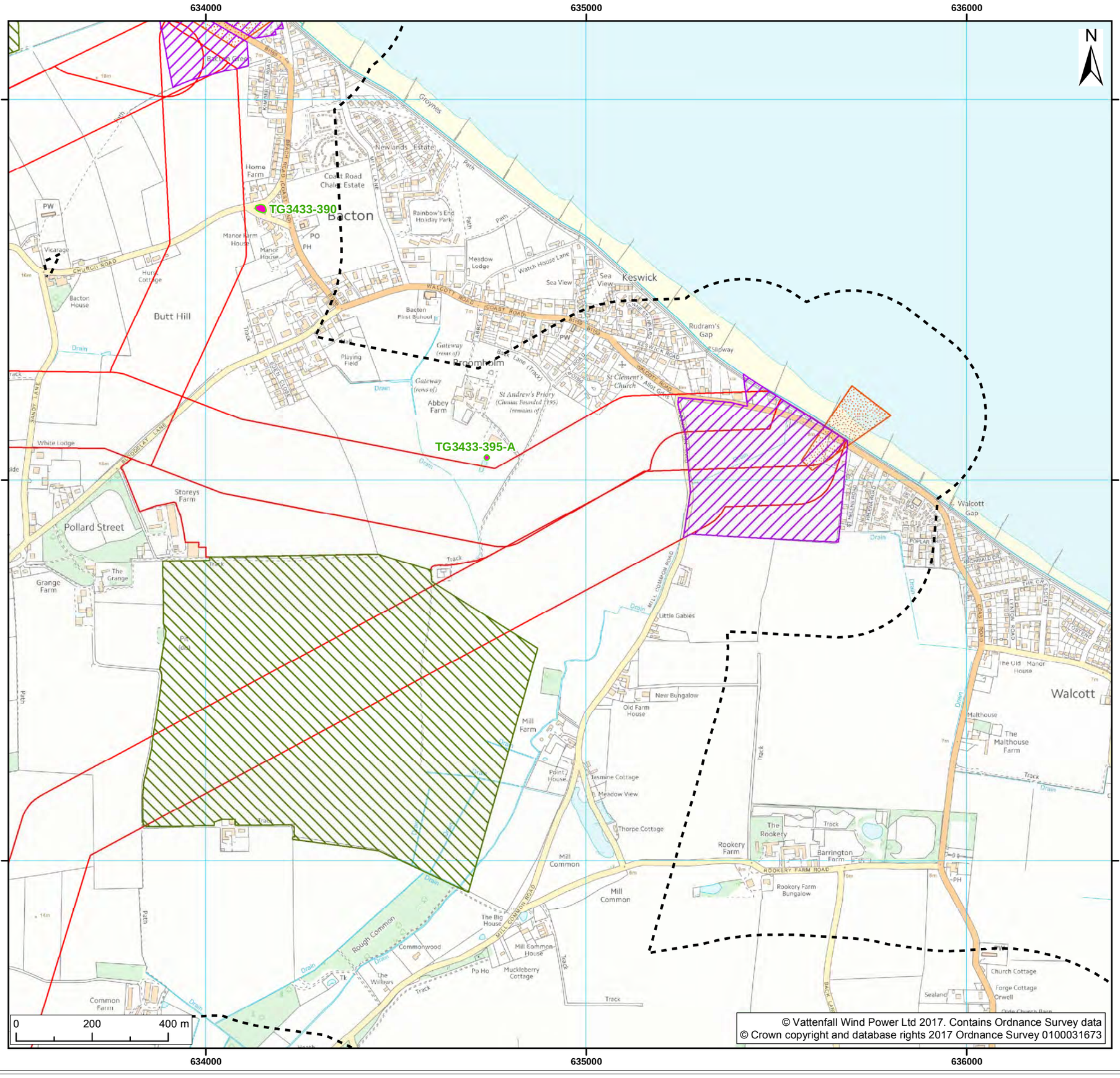

Legend:

Norfolk Vanguard Onshore Infrastructure

- Landfall Zone
- Cable Relay Station Search Zone
- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Presence/absence survey results

- Not surveyed

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 4 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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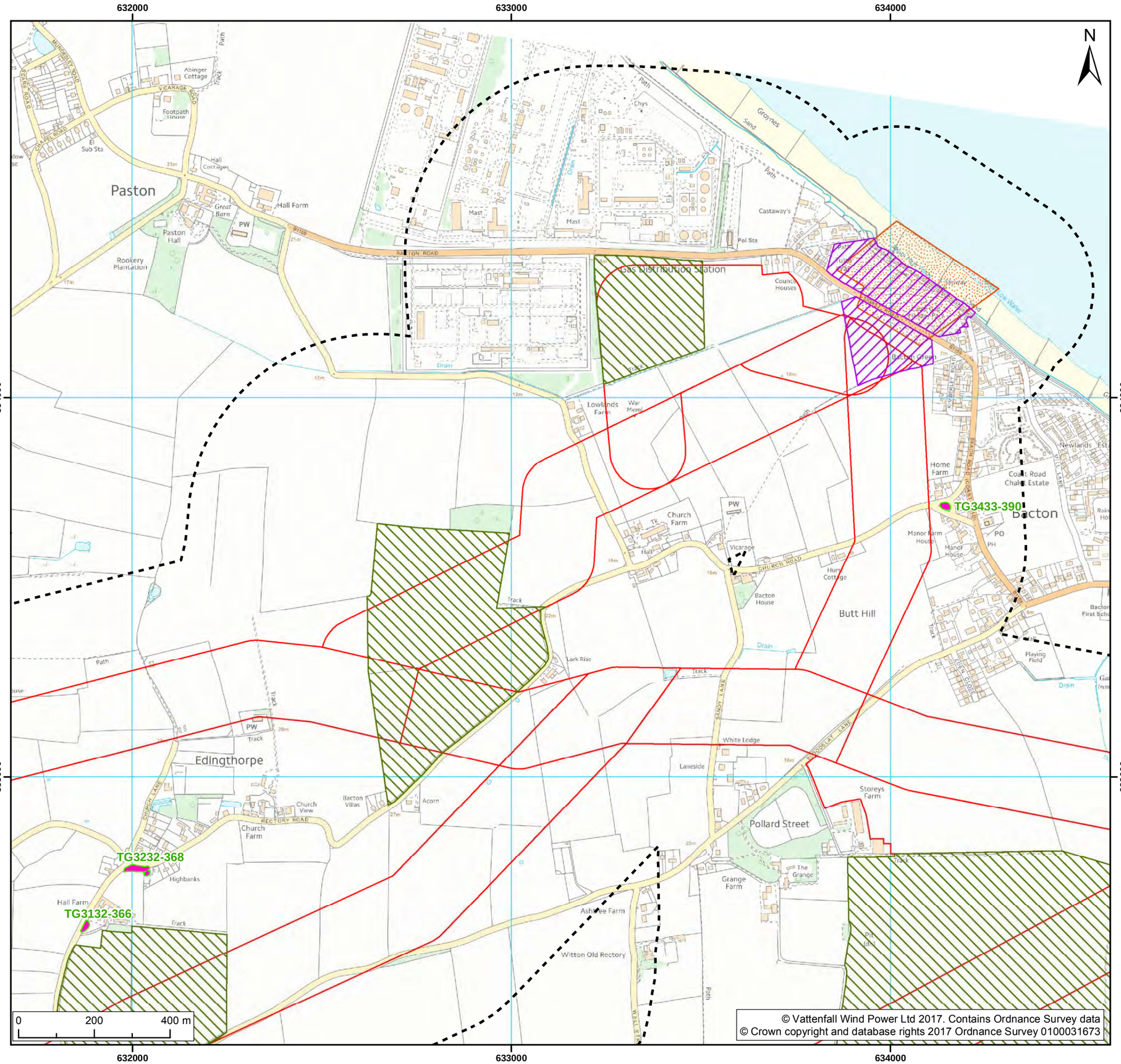

Legend:

Norfolk Vanguard Onshore Infrastructure

- Landfall Zone
- Cable Relay Station Search Zone
- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Presence/absence survey results

- Not surveyed

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 5 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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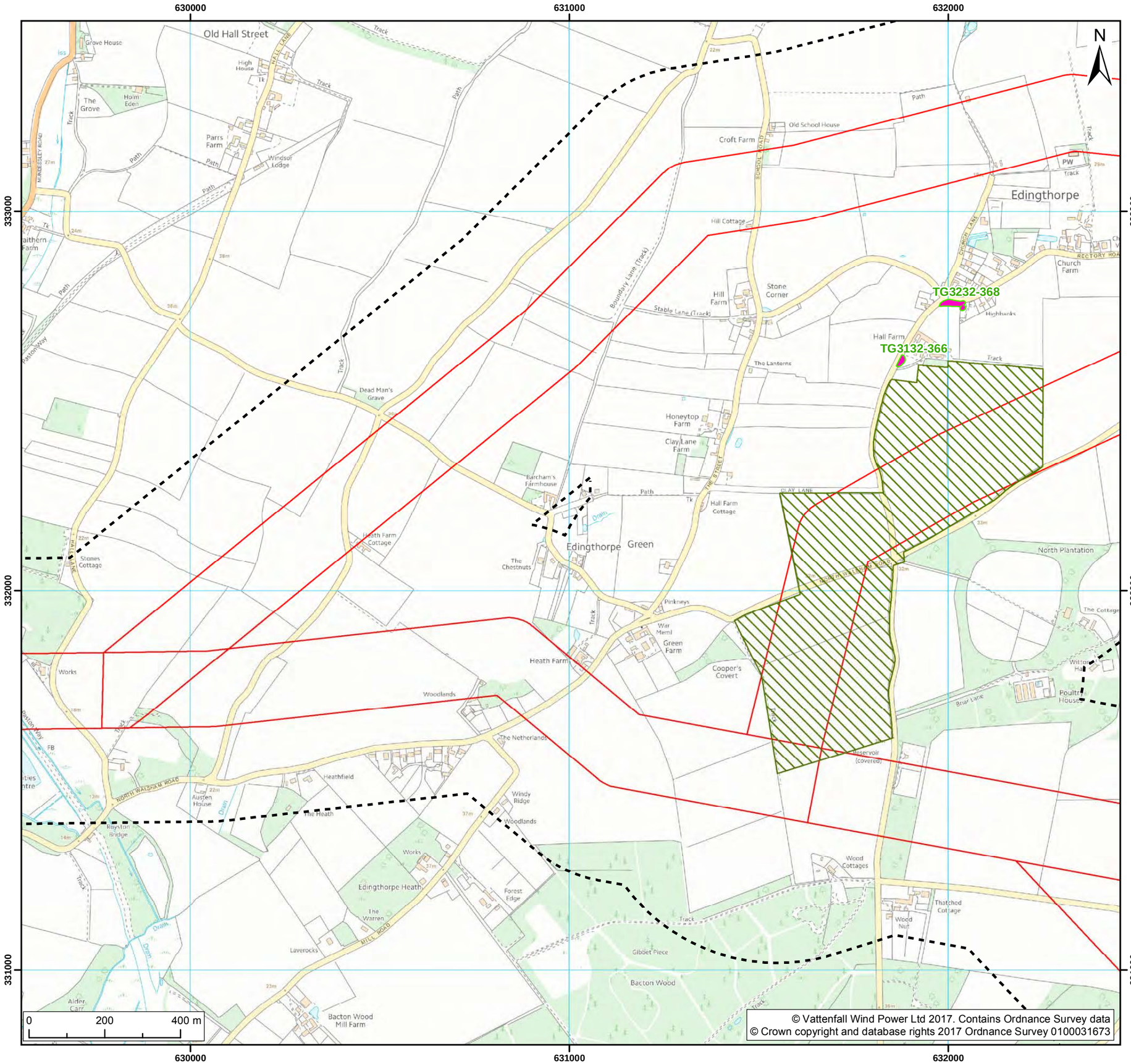

Legend:

Norfolk Vanguard Onshore Infrastructure

- Cable Relay Station Search Zone
- Onshore Cable Corridor

Presence/absence survey results

- Not surveyed

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 6 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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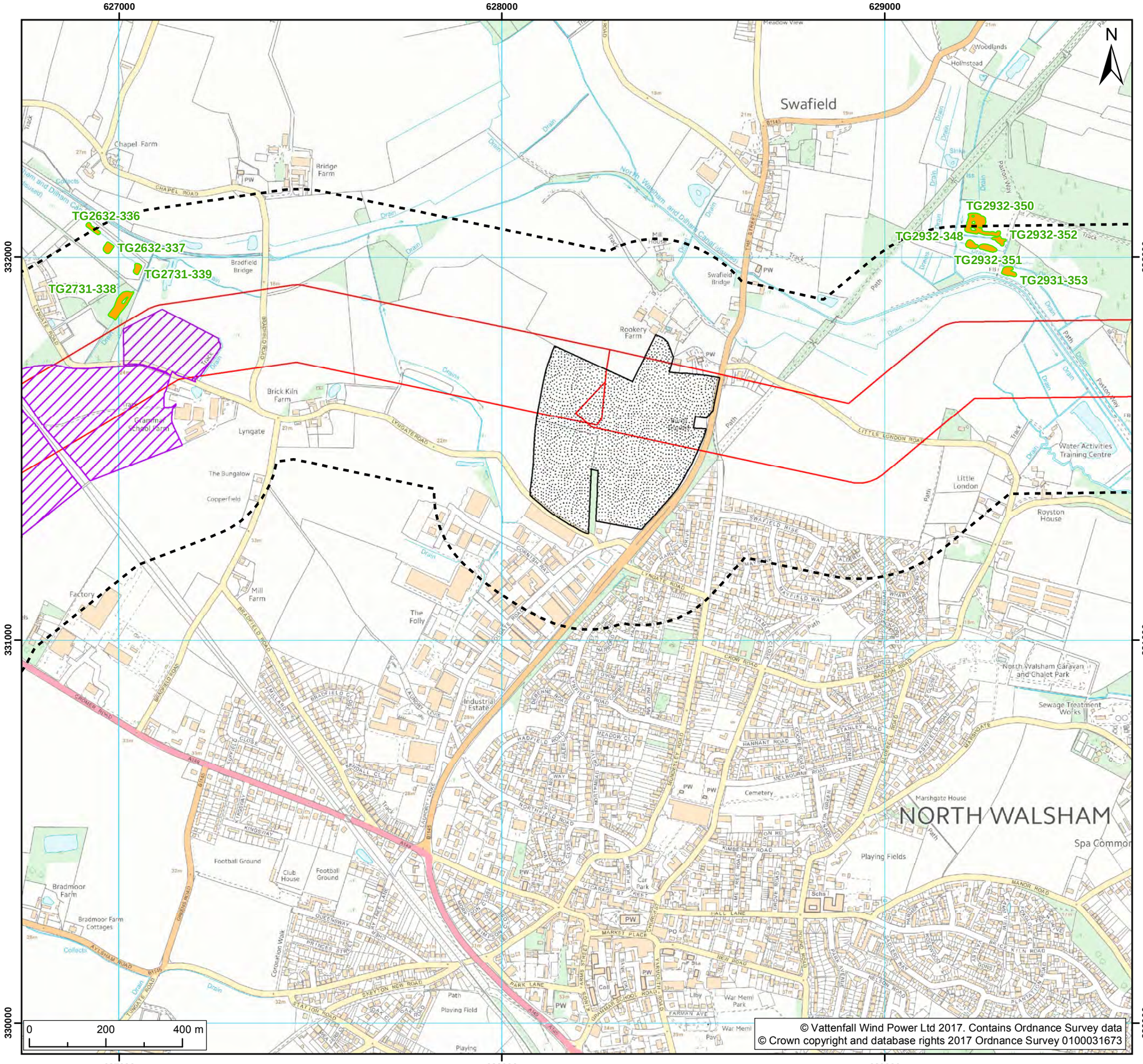

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Presence/absence survey results

- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 7 of 25)

Figure:	Drawing No:
3	PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

Royal HaskoningDHV
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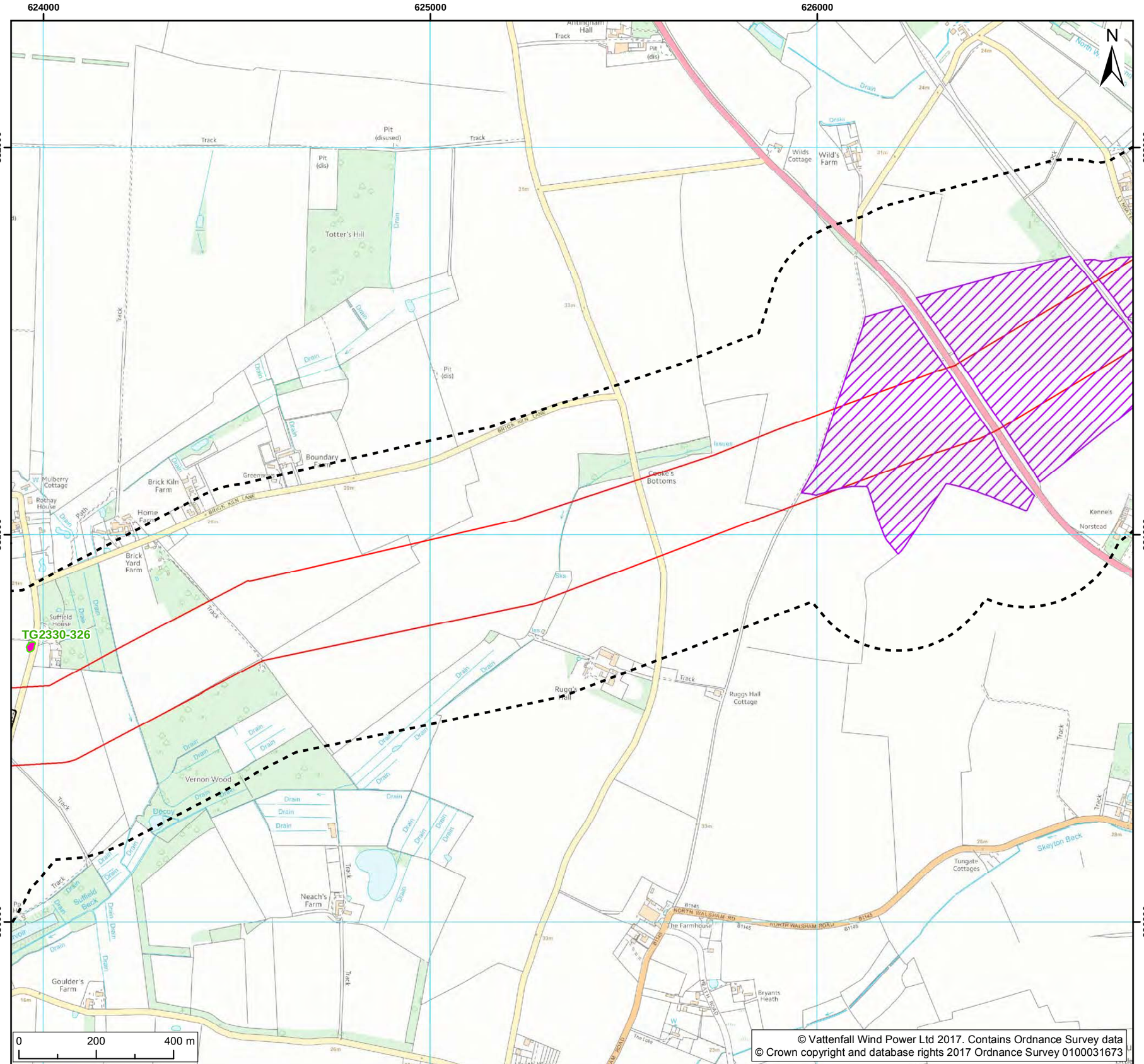

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Presence/absence survey results

- Not surveyed

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 8 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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622000 623000 624000

331000 330000

N

TG2130-314
TG2130-316
TG2130-313
TG2230-320
TG2230-321
TG2230-322
TG2230-319
TG2330-325
TG2330-326
TG2330-324-B
TG2330-324-A

Colby
Banningham

0 200 400 m

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Presence/absence survey results

- Not surveyed
- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 9 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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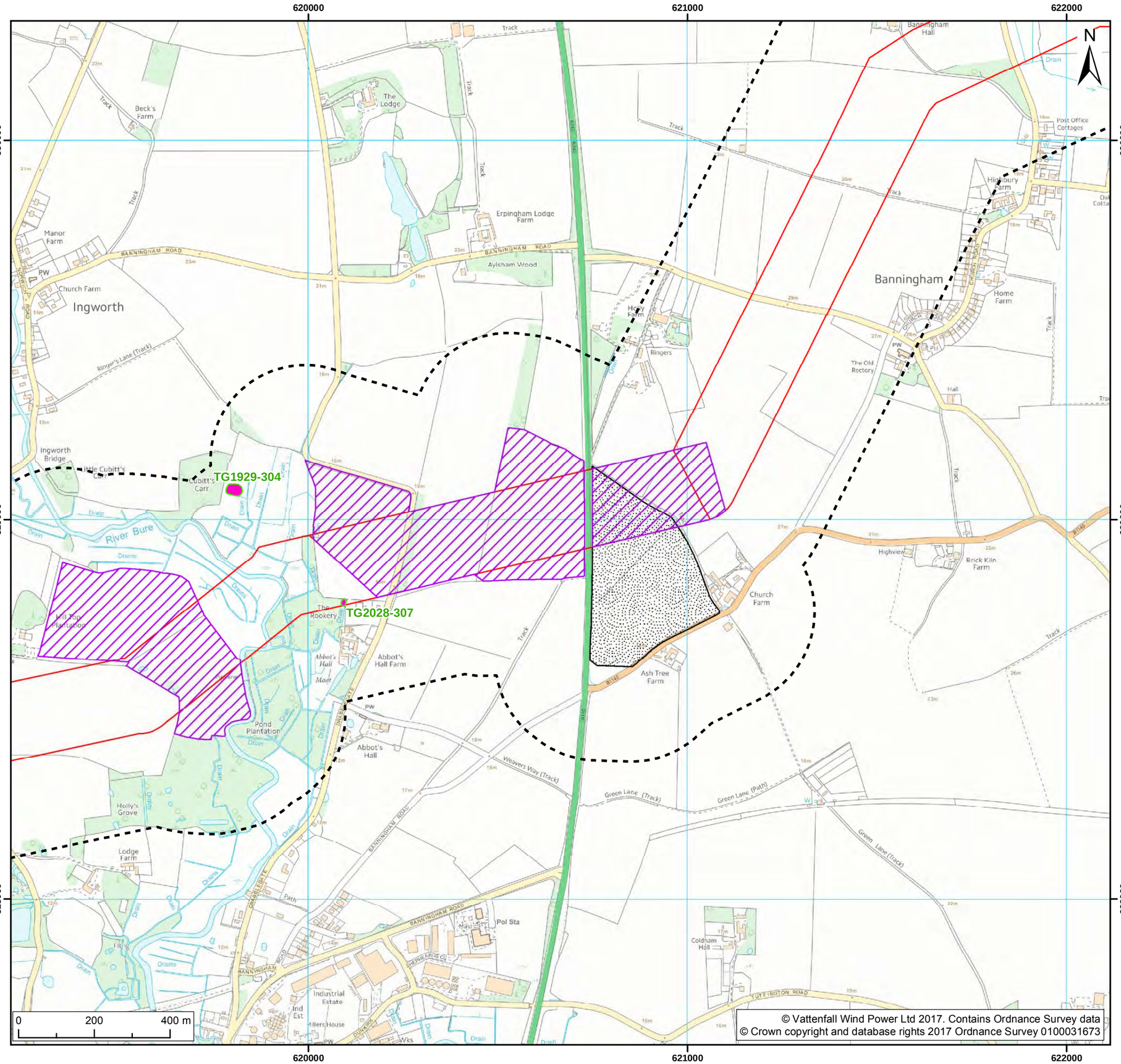

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Presence/absence survey results

- Not surveyed

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 10 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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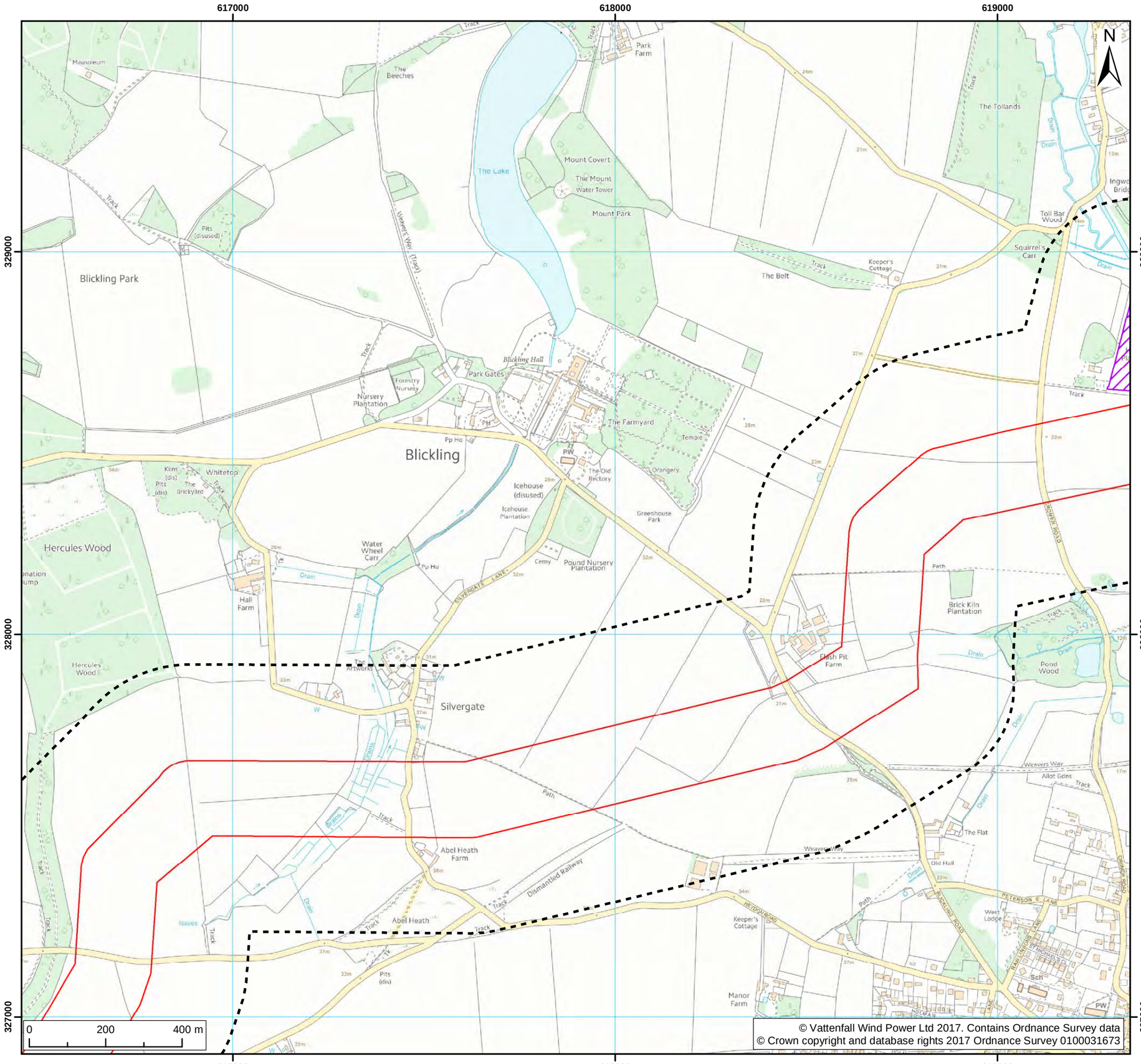

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 11 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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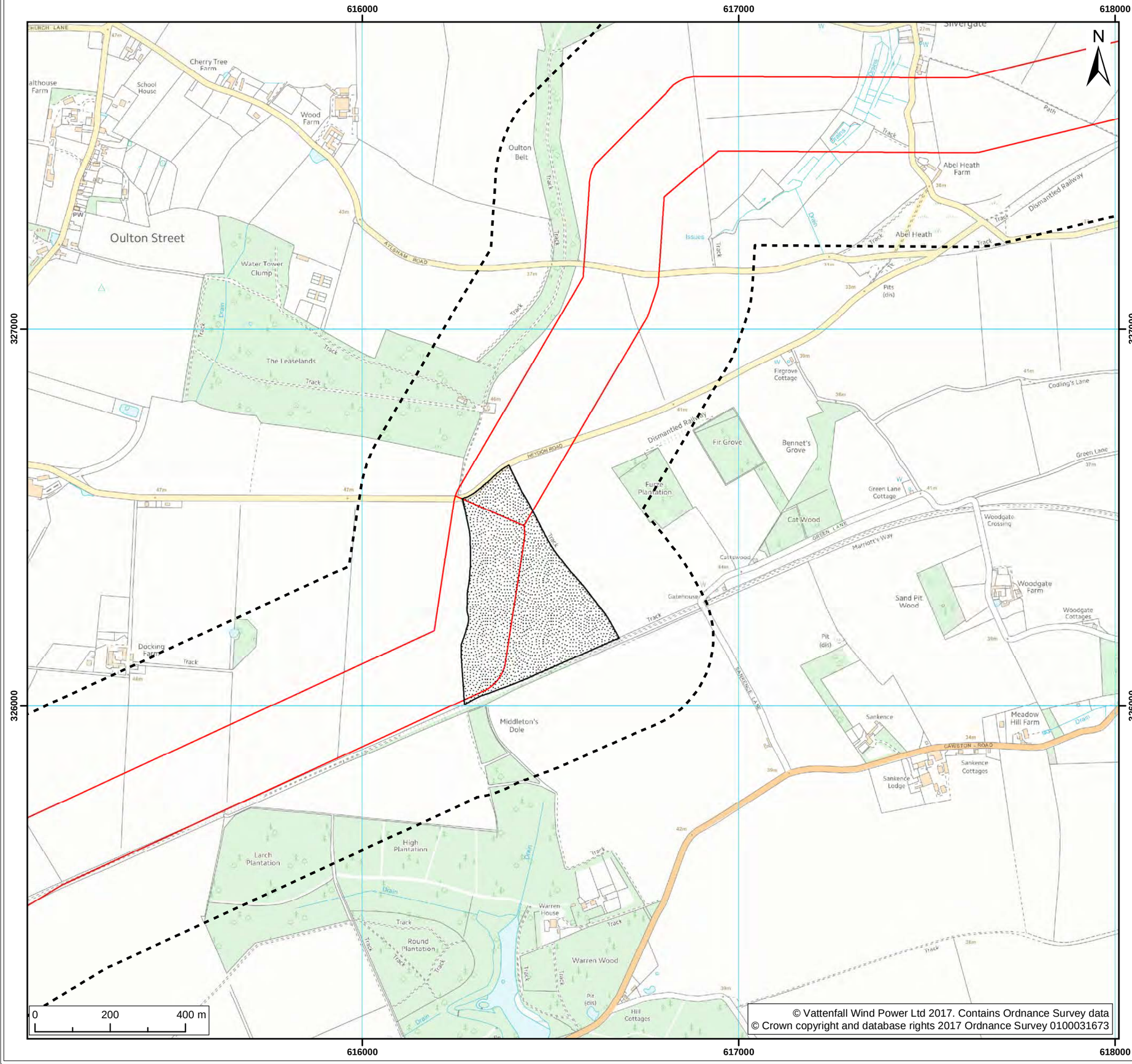

Legend:

Norfolk Vanguard Onshore

- Onshore Cable Corridor
- Mobilisation Zone
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 12 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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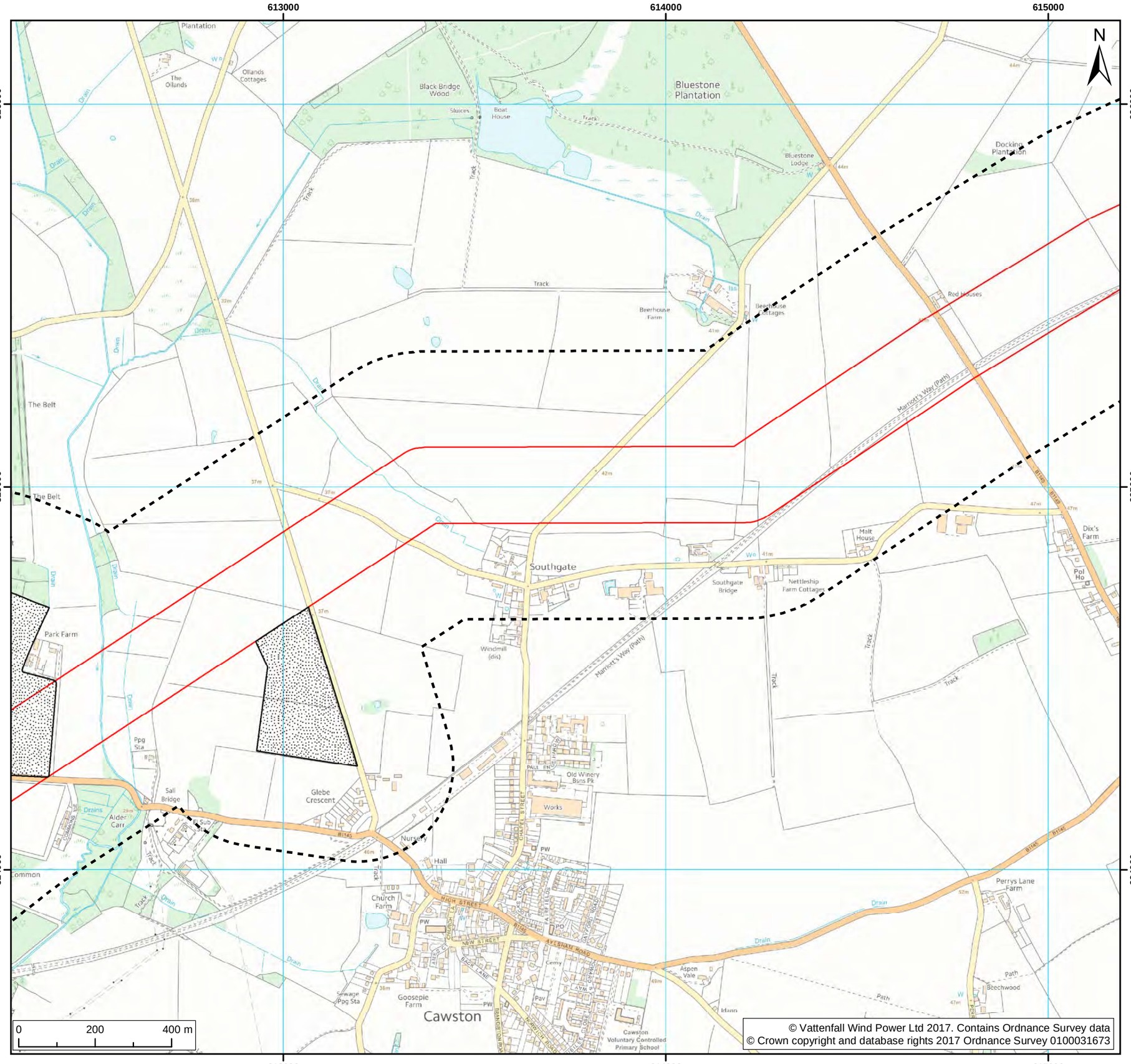

Legend:

Norfolk Vanguard Onshore

- Onshore Cable Corridor
- Mobilisation Zone
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 13 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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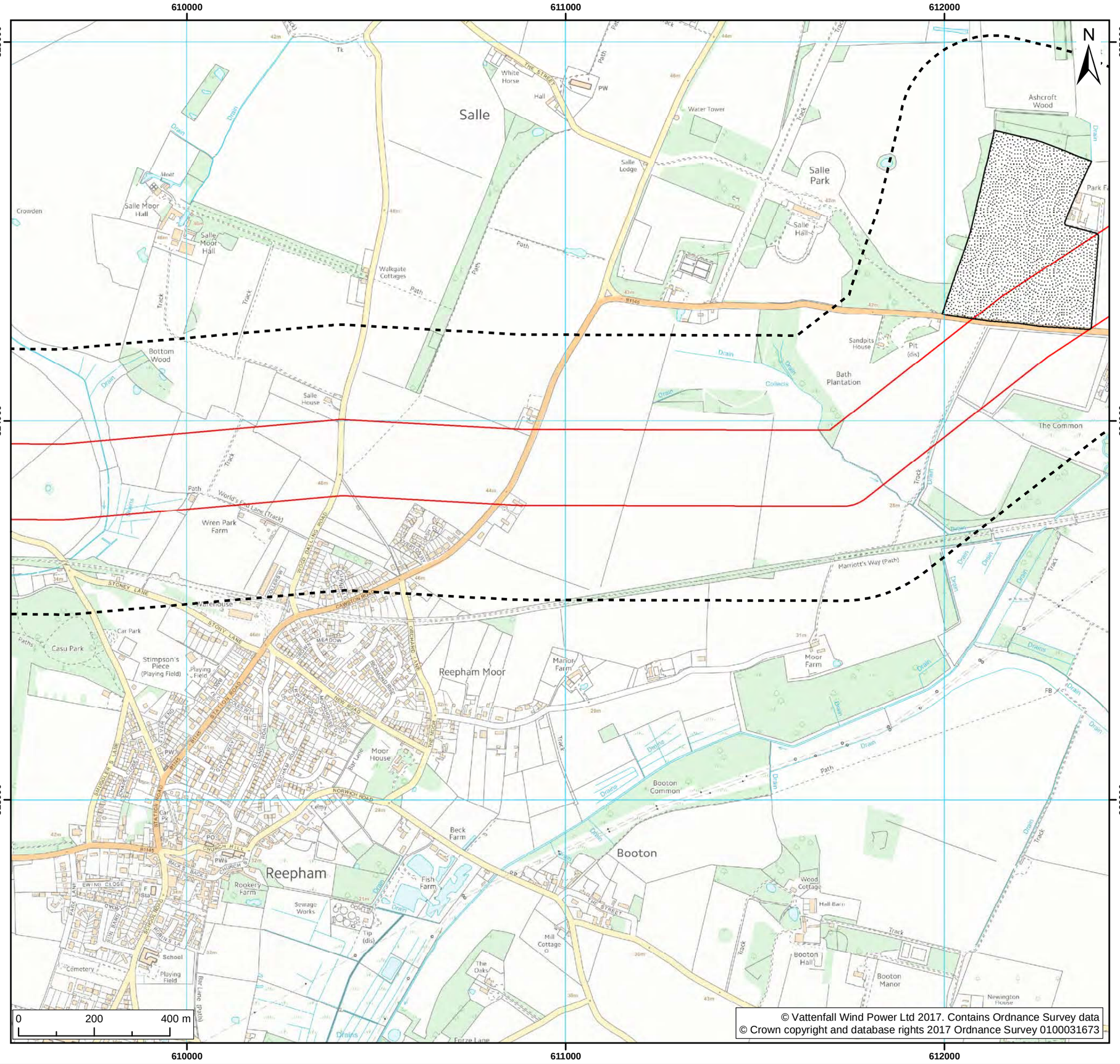

Legend:

Norfolk Vanguard Onshore

- Onshore Cable Corridor
- Mobilisation Zone
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 14 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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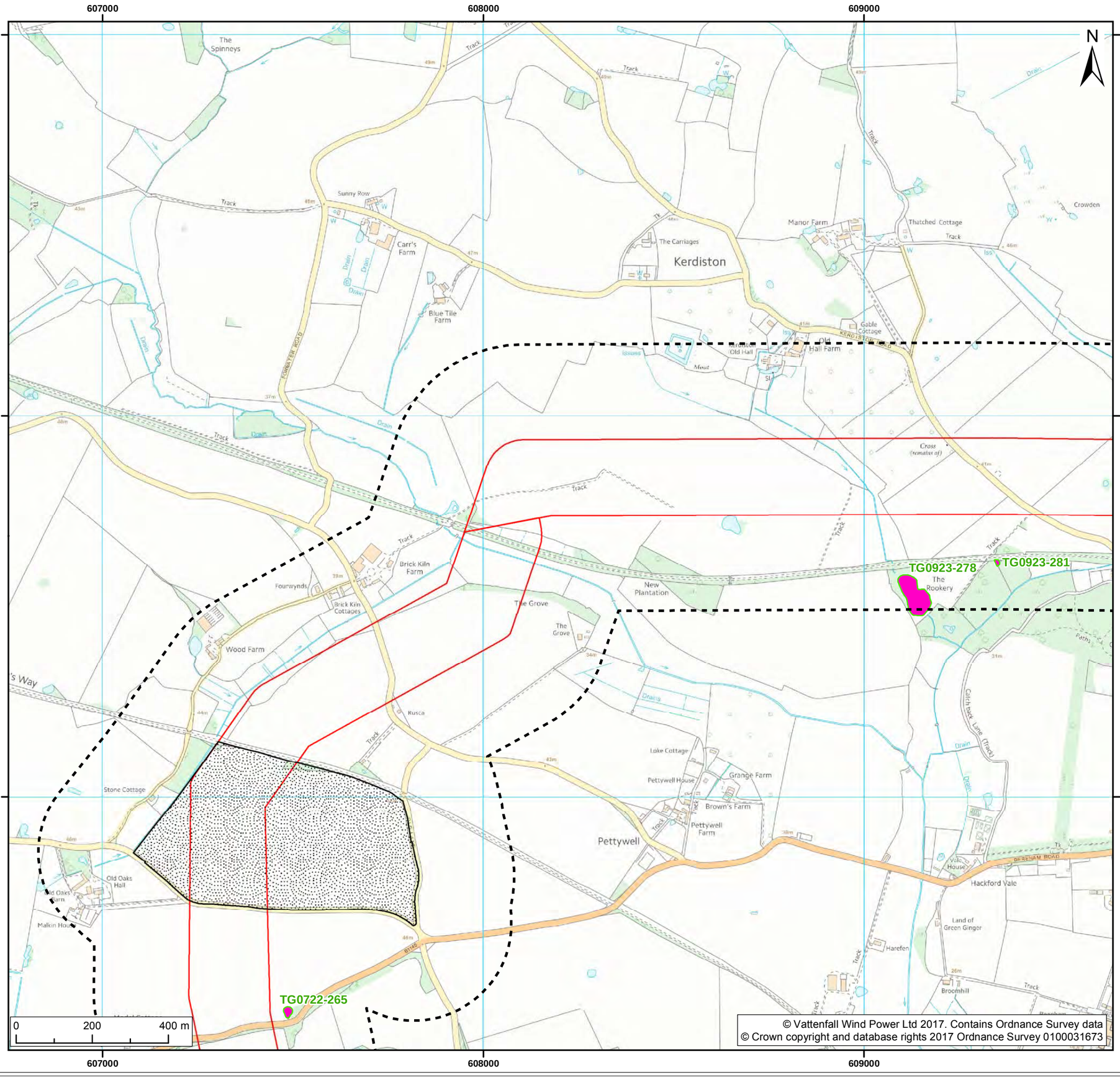

Legend:

Norfolk Vanguard Onshore

- Onshore Cable Corridor
- Mobilisation Zone

Presence/absence survey results

- Not surveyed

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 15 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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606000 607000 322000 321000

N

TG0722-265
TG0721-264
TG0721-257-A
TG0721-257
TG0721-256
TG0721-254
TG0620-247
TG0620-246

Foxley Wood
Kerdiston House Farm
Malkin House
Model Cottage Farm
Hackford Hall
Hall Lodge
Poultry Houses
Pightle Farm
Point House Farm
Wood Farm
The Shetlands
Jordan Green Farm
JORDAN LANE
REEPHAM ROAD
Sunnyside
Path
Oaks Farmhouse
The Orchard
Westbury
Wooffull Farm
Jordan House
Jordan Green
Jordans
Jordans Wood
ROMAN ROAD
Common Lane (Track)
Horse Ponds Wood
Reservoir Wood
Reservoir
Valley Farm
Moat
Sparham House
Sparham Wood
Stud Groom Cottage
Playing Field
Pig Wood
Bawdeswell Hall
Manor Farm
FAKENHAM ROAD
FIR LANE
Track
Drain
Drains

0 200 400 m

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Presence/absence survey results

- Not surveyed
- GCN absent
- GCN present

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 16 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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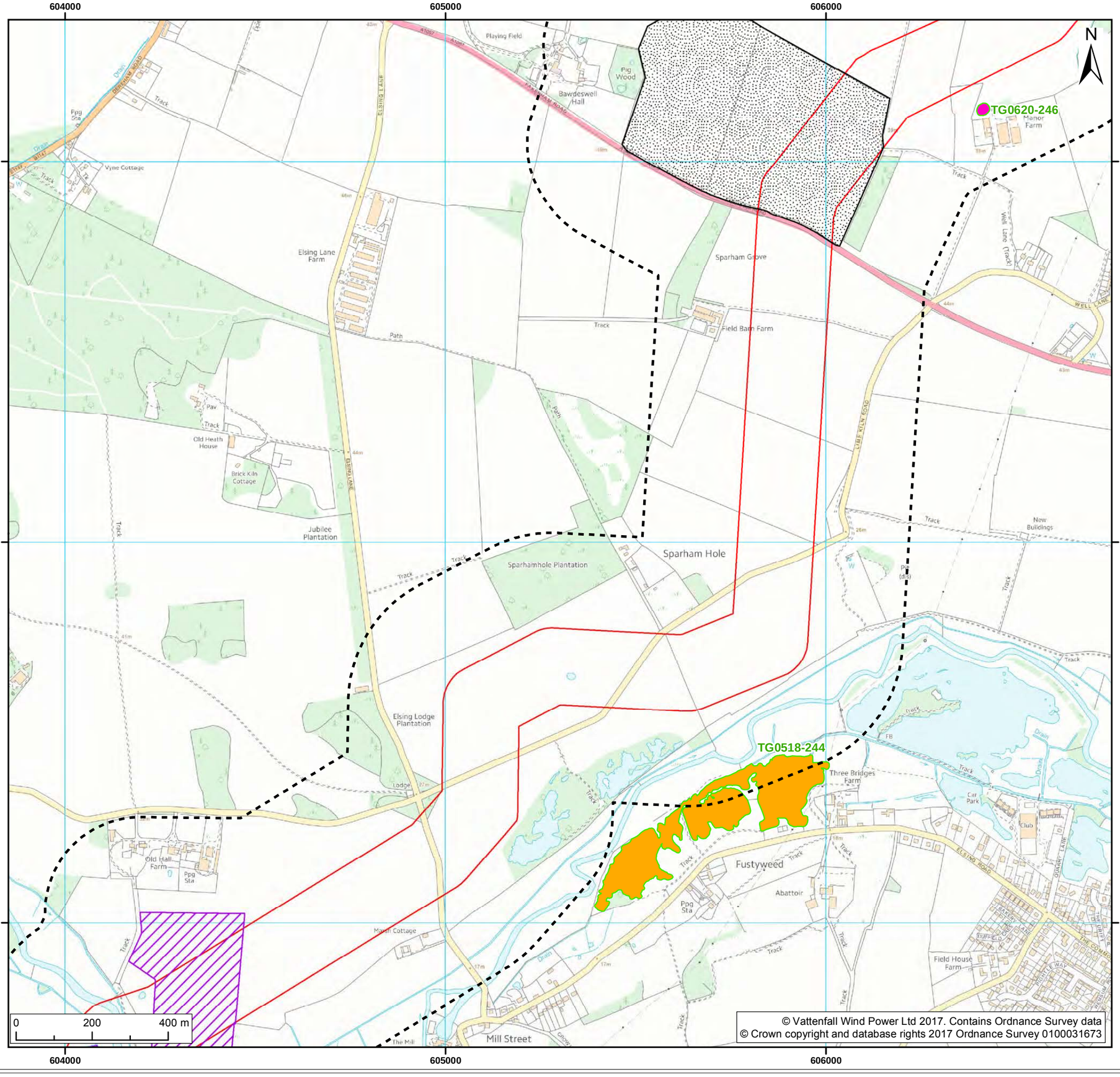

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Presence/absence survey results

- Not surveyed
- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project:	Report:
Norfolk Vanguard	Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 17 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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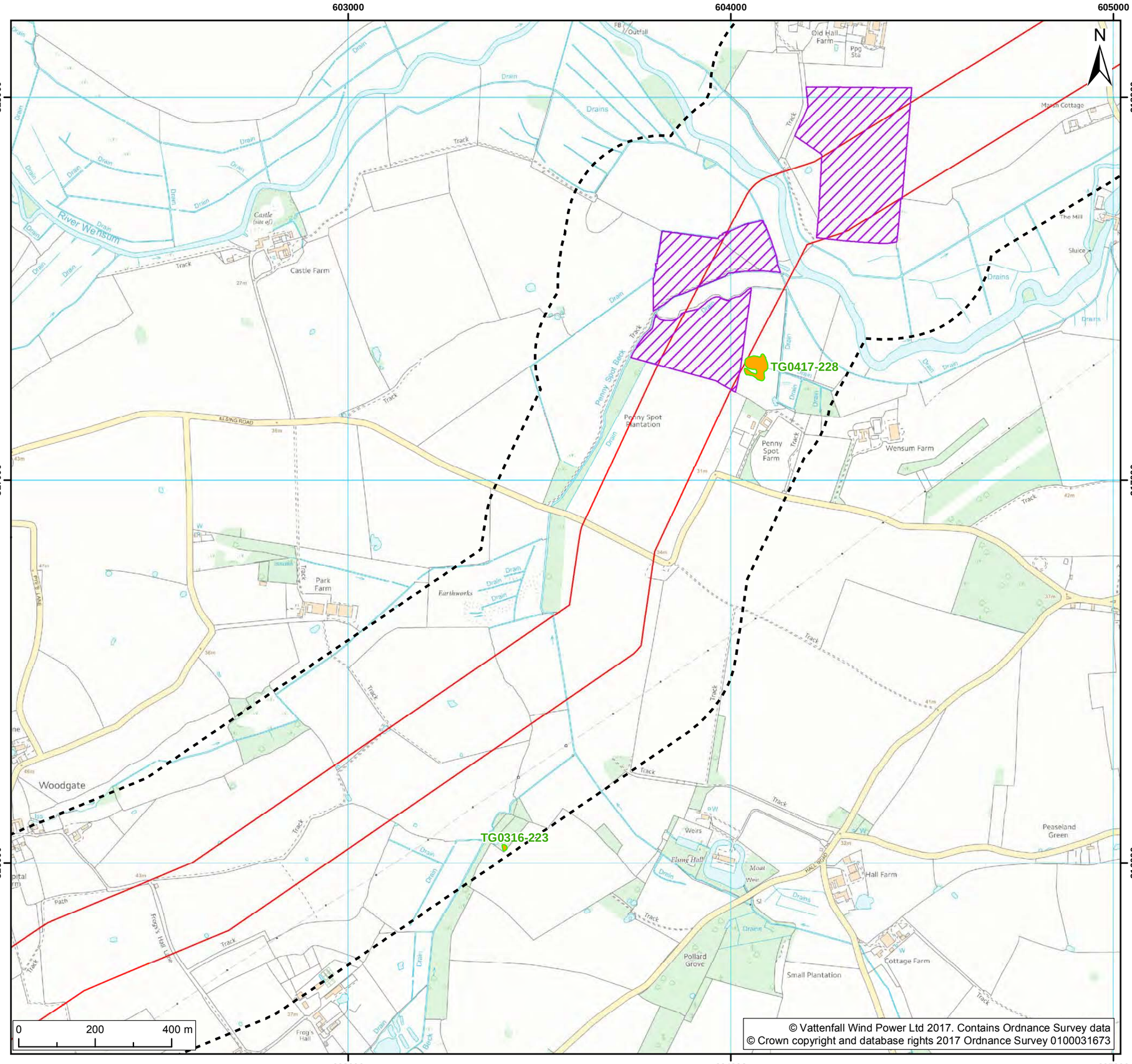

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Presence/absence survey results

- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 18 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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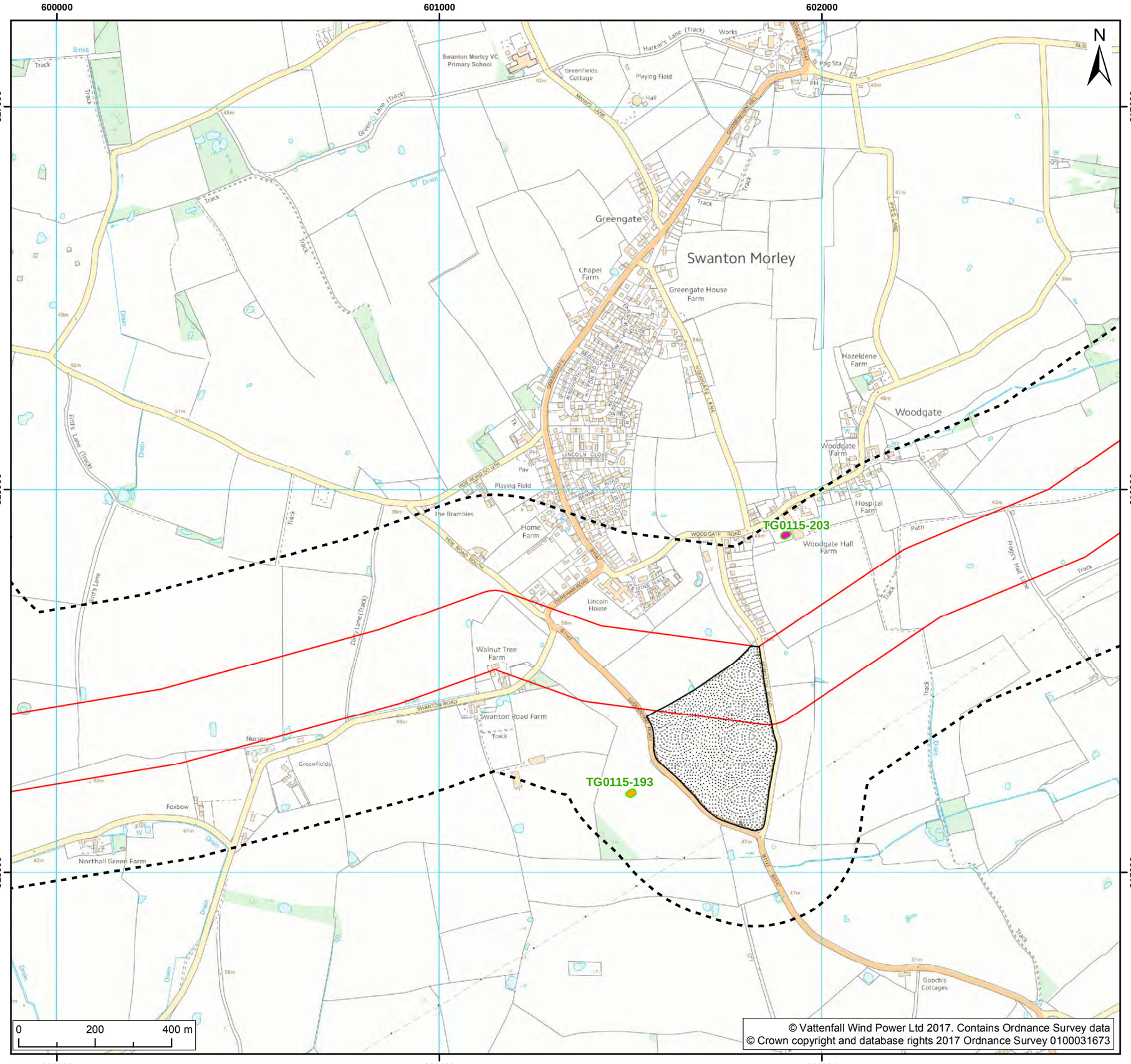

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone

Presence/absence survey results

- Not surveyed
- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 19 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

VATTENFALL

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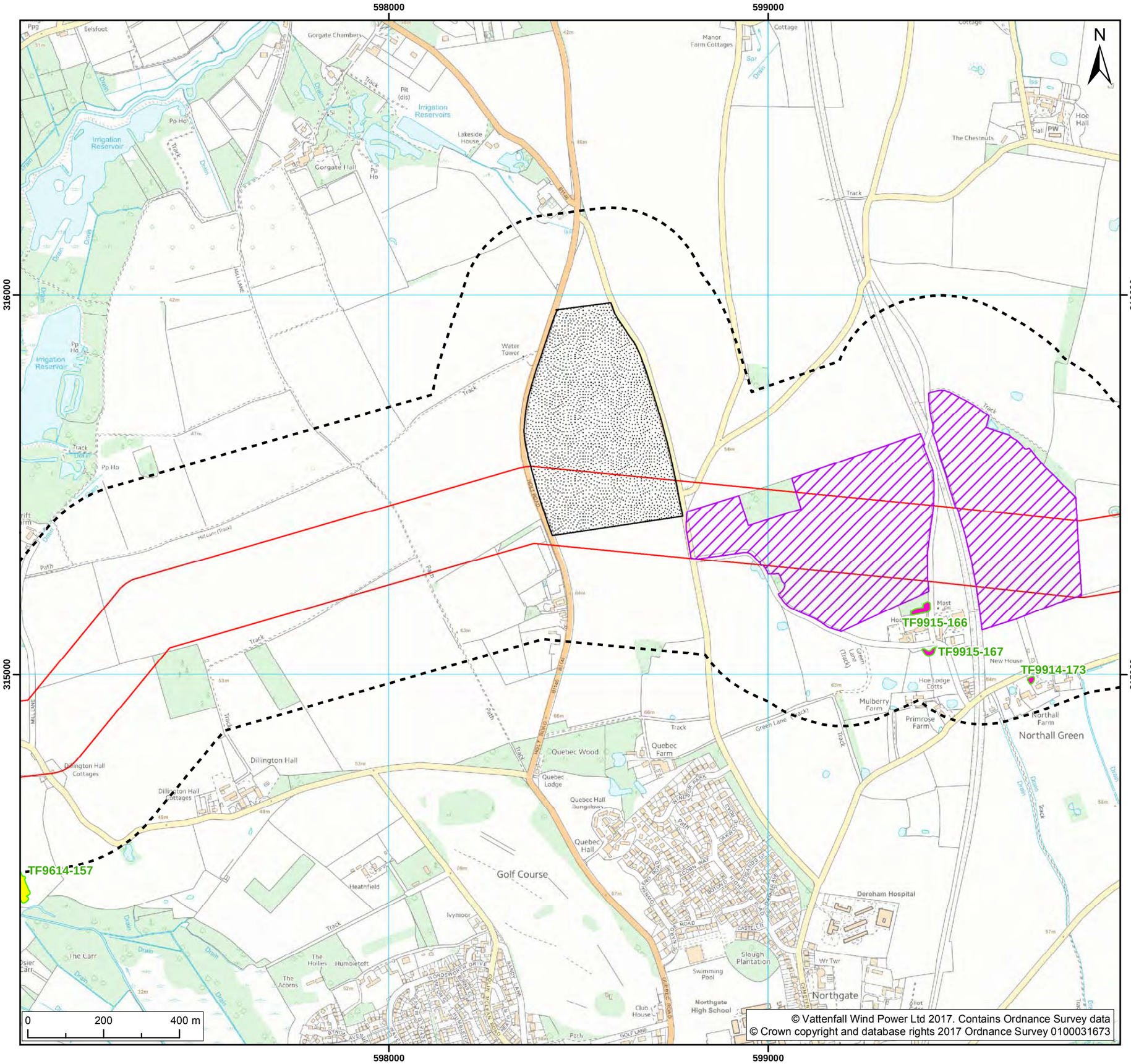

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Presence/absence survey results

- Not surveyed
- GCN present

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 20 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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595000 596000 597000

315000 314000 313000

N

TF9615-145
TF9615-146
TF9614-154
TF9614-155
TF9614-156
TF9614-157
TF9514-134
TF9514-143
TF9514-138

0 200 400 m

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone

Presence/absence survey results

- Not surveyed
- GCN absent
- GCN present

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 21 of 25)

Figure:	Drawing No:
3	PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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593000 594000 595000

313000 312000 311000

N

TF9412-110
TF9311-102
TF9311-103
TF9311-105
TF9311-100
TF9311-101

0 200 400 m

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Horizontal Directional Drilling (HDD) Zone
- Mobilisation Zone

Presence/absence survey results

- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project:	Report:
Norfolk Vanguard	Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results
(map 22 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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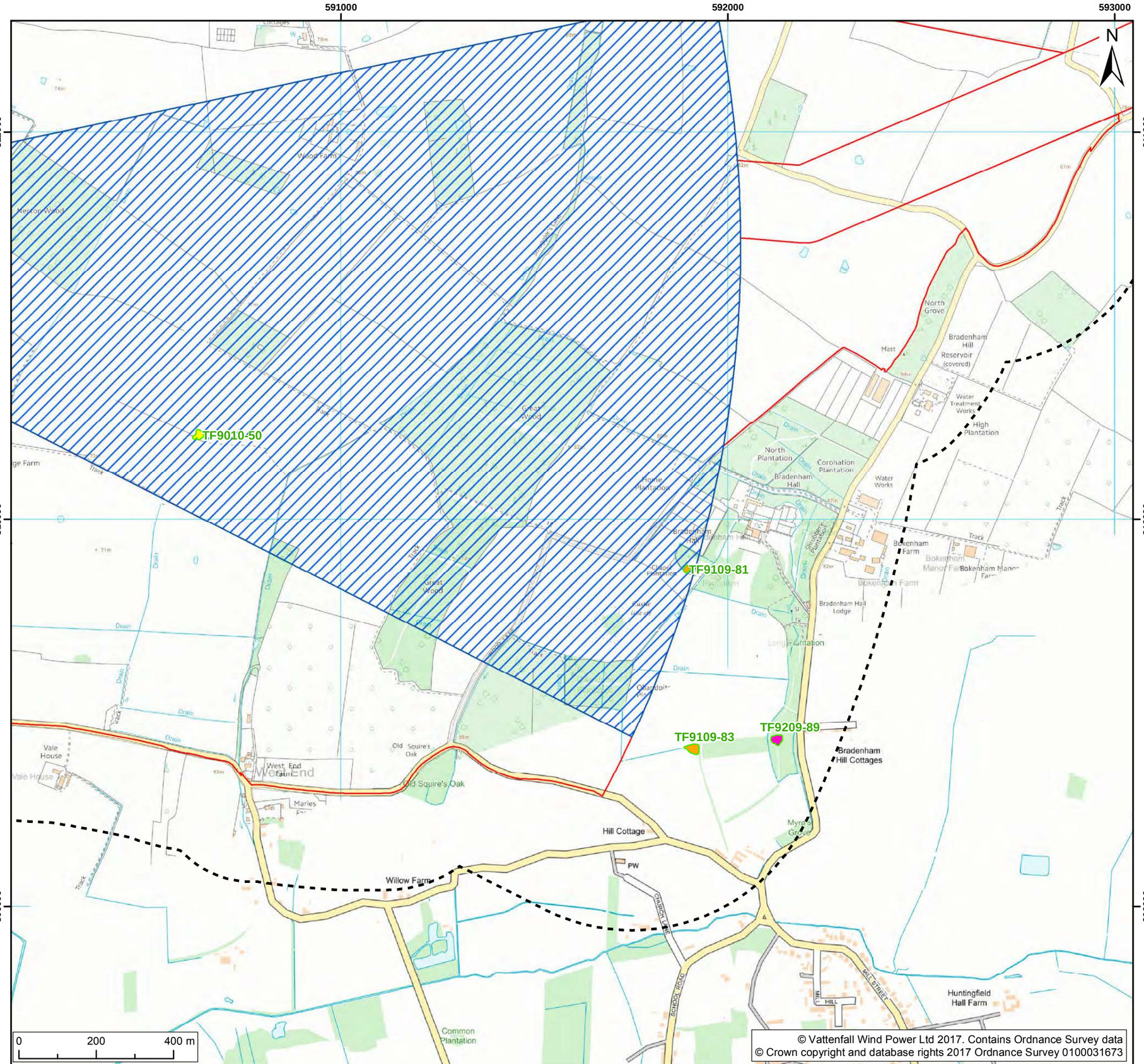

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Project Substation Search Zone

Presence/absence survey results

- Not surveyed
- GCN absent
- GCN present

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 23 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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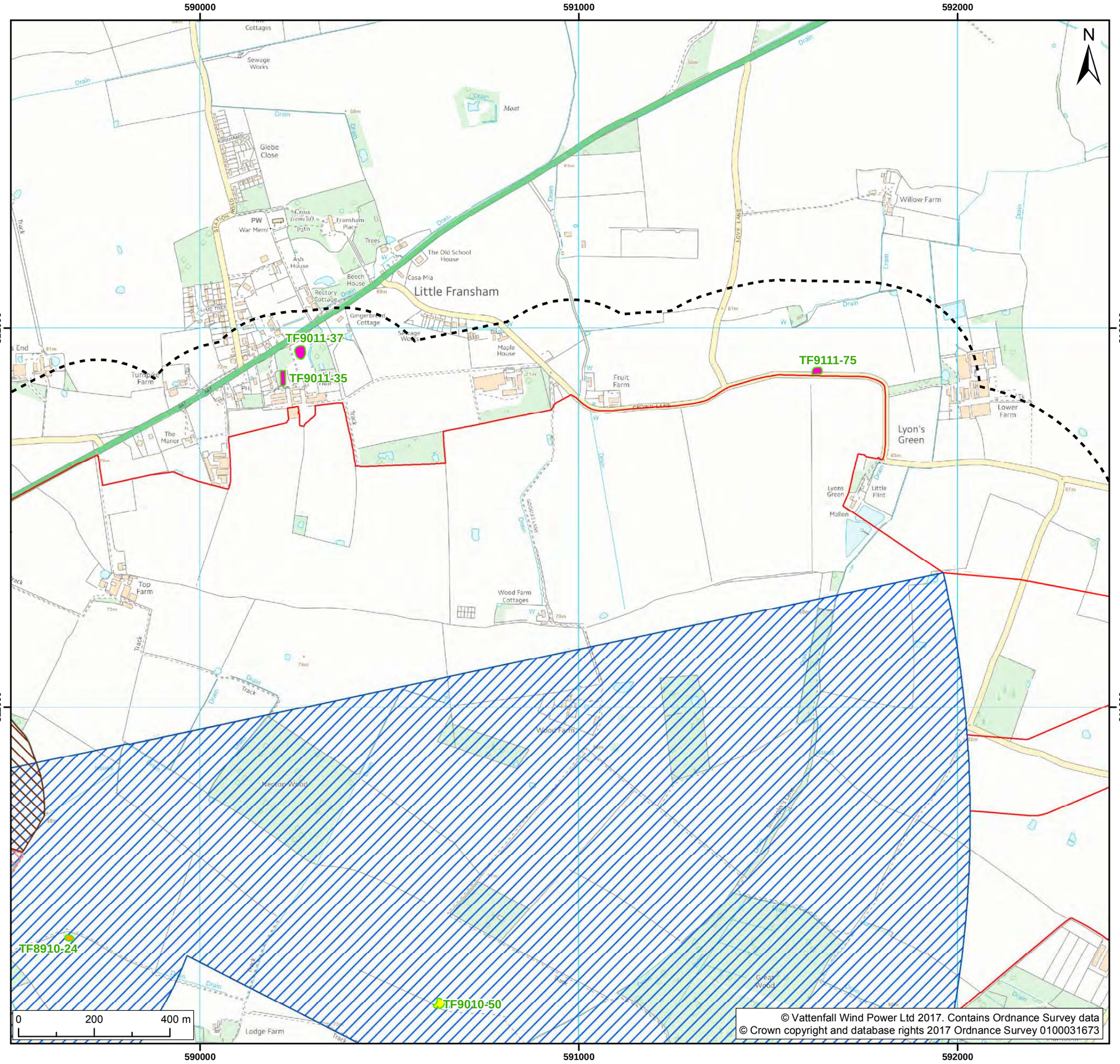

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Project Substation Search Zone
- National Grid Substation Extension Zone
- Overhead Line Modification Zone

Presence/absence survey results

- Not surveyed
- GCN absent
- GCN present

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Presence / Absence Survey Results (map 24 of 25)

Figure: 3 | Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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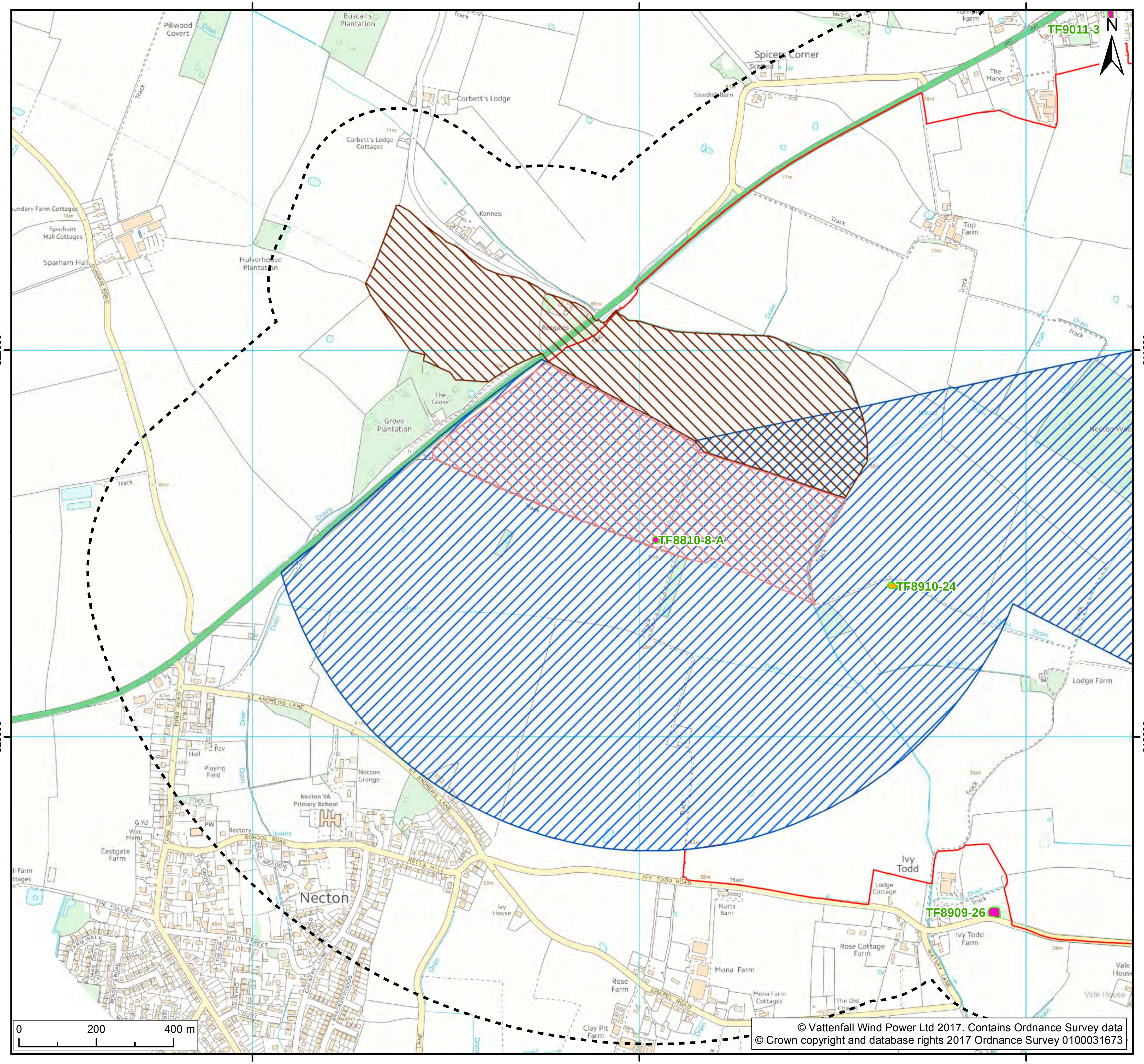

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Project Substation Search Zone
- National Grid Substation Extension Zone
- Overhead Line Modification Zone

Presence/absence survey results

- Not surveyed
- GCN absent

Habitat Suitability Index Results

- HSI score of 0.6 or above – scoped into further surveys
- Survey Area

Project:	Report:
Norfolk Vanguard	Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Presence / Absence Survey Results (map 25 of 25)

Figure: 3 Drawing No: PB4476-004-0222-003

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	11/09/2017	GC	GC	A3	1:10,000
02	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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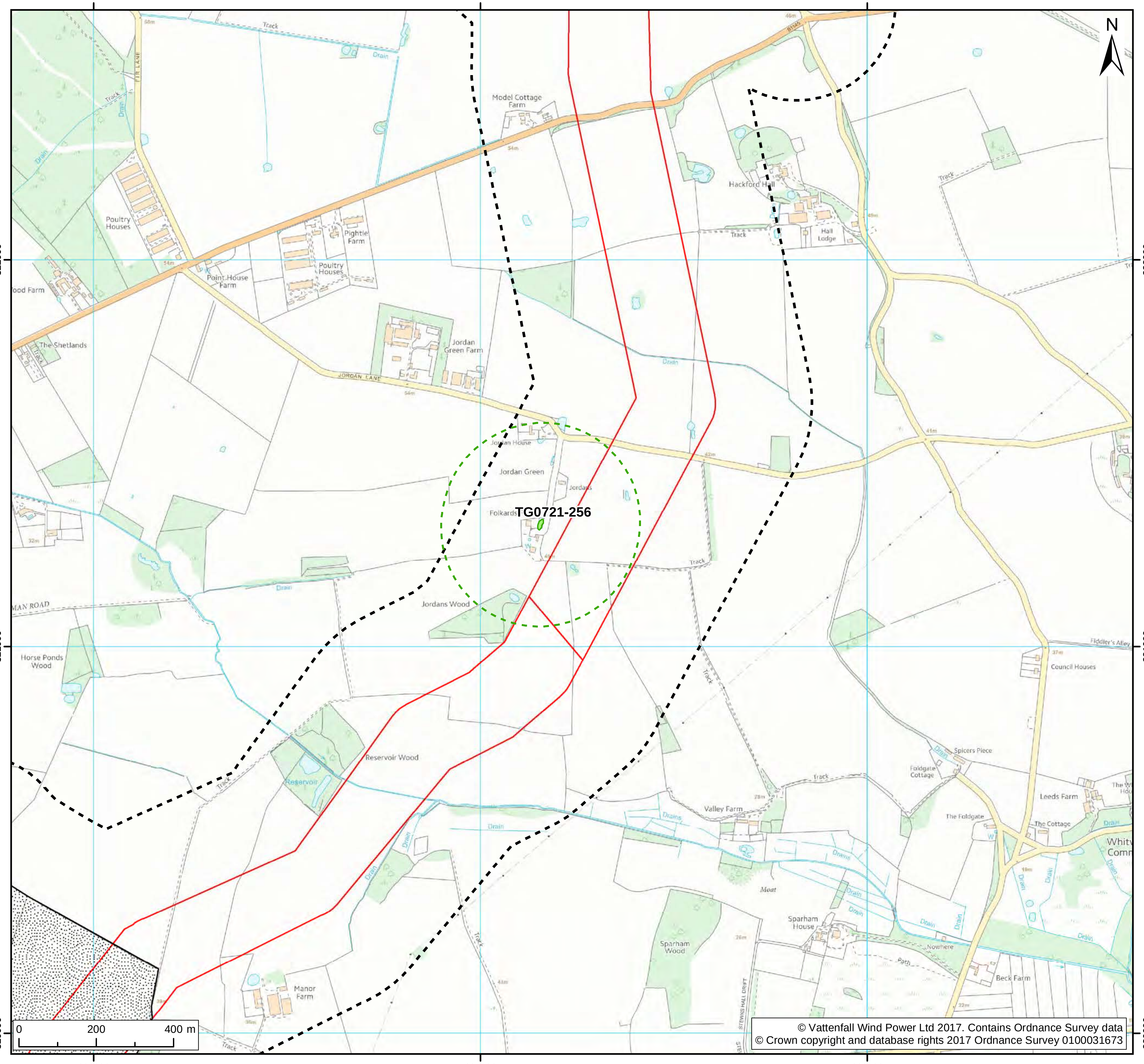

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Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone
- Survey Area
- GCN Presence
- Metapopulations (250m buffer)

Project:	Report:
Norfolk Vanguard	Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title:

Metapopulations (map 1 of 3)

Figure: 4 Drawing No: PB4476-004-0222-004

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	07/09/2017	LB	GC	A3	1:10,000
01	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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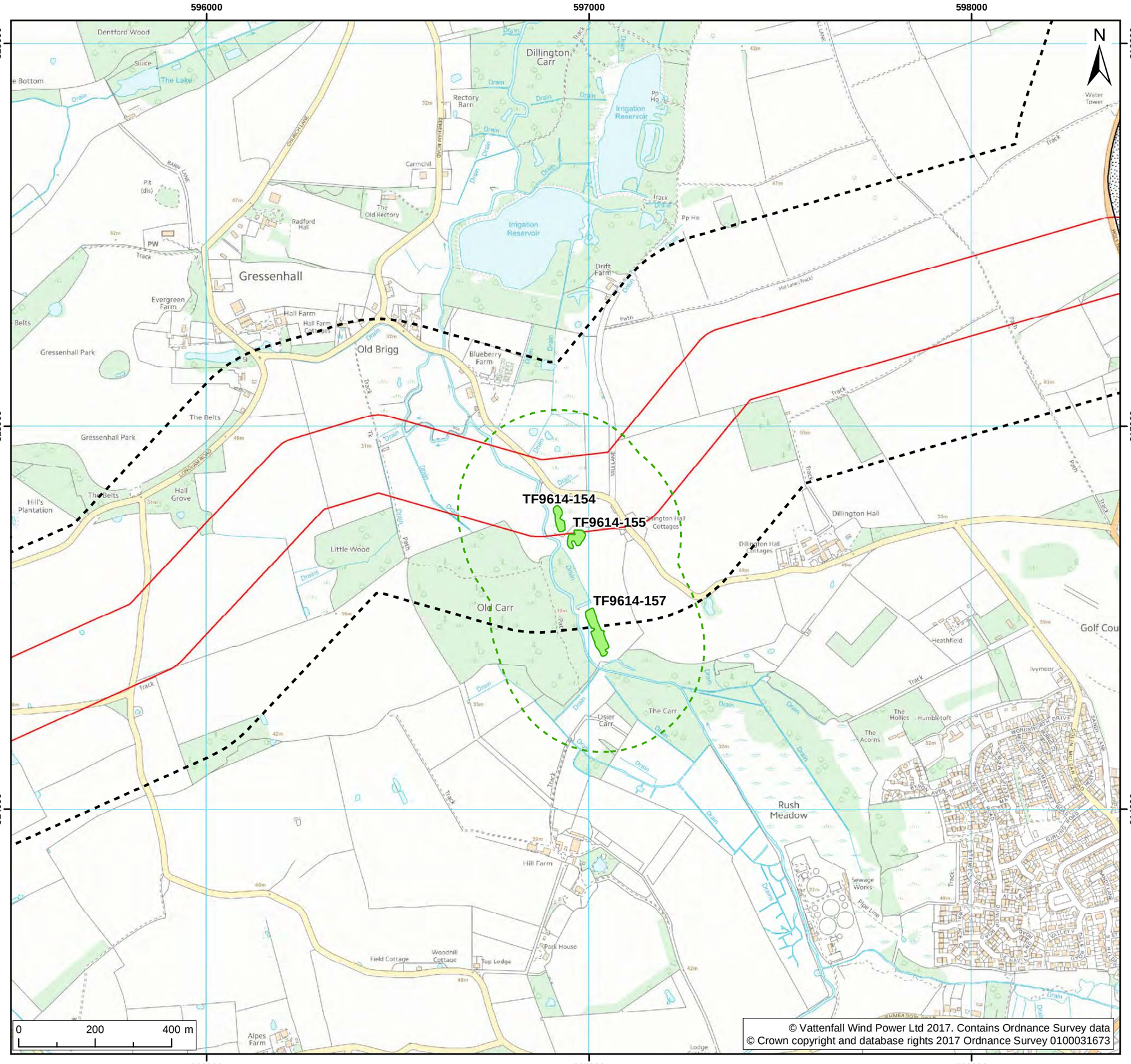

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Mobilisation Zone
- Survey Area
- GCN Presence
- Metapopulations (250m buffer)

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Metapopulations (map 2 of 3)

Figure: 4 | Drawing No: PB4476-004-0222-004

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	07/09/2017	LB	GC	A3	1:10,000
01	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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590000 591000 592000

311000 310000 309000

N

TF9010-50

0 200 400 m

Legend:

Norfolk Vanguard Onshore Infrastructure

- Onshore Cable Corridor
- Project Substation Search Zone
- National Grid Substation Extension Zone
- Overhead Line Modification Zone
- Survey Area
- GCN Presence
- Metapopulations (250m buffer)

Project: Norfolk Vanguard	Report: Preliminary Environmental Information Report: Great Crested Newt Presence / Absence Survey

Title: Metapopulations (map 3 of 3)

Figure: 4 | Drawing No: PB4476-004-0222-004

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
02	07/09/2017	LB	GC	A3	1:10,000
01	01/09/2017	LB	GC	A3	1:10,000

Co-ordinate system: British National Grid **EPSG:** 27700

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22.9 Annex B: Great Crested Newt Survey: Full Survey Results

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF8910-24					Torch power:			No. of traps used in pond:							larvae found? (any method)
No. of survey visits to this pond:	4				500,000			10						eggs found?	
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.		
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0		N
18.04.17	6.4	3	0	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
02.05.17	6.7	3	0	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
15.05.17	15.4	3	0	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
30.05.17	14.9	3	0	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1- water shallow enough to walk out to bottle trap

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										
	palmate	1									
	common frog										
	common toad						20+				
	other_____										
2	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
3	**smooth**				1F						
	palmate										
	common frog										
	common toad										
	other_____										
4	**smooth**				1M						
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9010-50					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			6		500,000			2							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
18.04.17	6.4	3	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
02.05.17	6.7	3	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	1	1		0	1	0	N	N
15.05.17	15.4	3	3	Adult totals:	0			2			1				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
30.05.17	14.9	3	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
12.06.12	14.9	3	3	Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity		0	0	0	1	0	0	0	0	0	N	N
19.06.17	18.1	3	3	Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								2							

Comments and constraints:

1- access to pond only at one location. Minimal circum. of pond surveyed.
2- further entry points discovered, 6 bottle traps set

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
2	**smooth**	1M 1F									
	palmate										
	common frog										
	common toad										
	other_____										
3	**smooth**	2M			4F						
	palmate										
	common frog										
	common toad										
	other_____										
4	**smooth**	1M							1M		
	palmate										
	common frog										
	common toad										
	other_____										
5	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
6	**smooth**										
	palmate										
	common frog										
	common toad										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
Tf9109-81					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			4		500,000			8							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
18.04.17	6.4	2	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
02.05.17	10.5	2	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
15.05.17	15.4	2	2	Adult totals:	0			0			0				
(4) Date:	Air temp		Turbidity		0	0	0	0	0	0	0	0	0	N	
30.05.17	16.4	3	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1- access from south.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate	1									
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth							1			
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth				1M						
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9109-83					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			4		500,000			4							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
18.04.17	6.4	1	4	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
02.05.17	10.5	1	4	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
15.05.17	15.4	1	4	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
30.05.17	16.4	1	4	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - access from north through hedge, banks steep and heavily vegetated.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG0417-228					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			4		500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
20.04.17	7.5	2	0	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
03.05.17	10.3	2	0	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
16.05.17	20.2	2	0	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
31.05.17	13.5	2	0	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - netted vegetation and egg search. BT spaced around edges where substrate soft enough to penetrate

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**				3 (F)						

	palmate										
	common frog			20+			20+				
	common toad			20+			20+				
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth	1F									
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG0417-229					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
20.04.17	7.5	3	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
03.05.17	10.3	3	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
16.05.17	20.2	3	1	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n	
31.05.17	13.5	3	1	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - 16 fish caught in bottle traps

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog	1		20+			20+				
	common toad			20+			20+				
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG0518-244					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			4		500,000			8							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
20.04.17	7.5	1	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
03.05.17	9.9	1	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
16.05.17	20.2	1	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
31.05.17	11.4	1	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - to be netted next time. Spoke to fisherman had caught several large fish (carp). Gamekeeper mentioned shallower, more vegetated further round

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG0721-256					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		6			500,000			14							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	1	0	0	0	0	0	N	
20.04.17	7.5	4	3	Adult totals:	0			1			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
03.05.17	10.4	4	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	1	0	0	0	0	0	N	
16.05.17	18.4	4	3	Adult totals:	0			1			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
31.05.17	13.4	4	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity		0	1	0	1	2	0	0	0	0		
13.06.17	18.4	3	3	Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity		0	0	0	1	1	0	0	0	0		
19.06.17	26	3	3	Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								1							

Comments and constraints:

Visit 1: 8 bottle traps used only
Visit 5 - less duckweed cover at southern end of pond

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate	2F									
	common frog										
	common toad										
	other_____										
3	smooth	6M 1F			6M 3F						
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth	1F									
	palmate										
	common frog										
	common toad										
	other_____										
5	smooth	1M									
	palmate										
	common frog										
	common toad										
	other_____										
6	smooth	2M									
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG0721-264					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000										
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity												
20.04.17	7.5	5	5	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity												
03.05.17	10.4	5		Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity												
*	*	*	*	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity												
*	*	*	*	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints:

1 -- unable to torch, net or bottle trap due to insufficient water depth. Pond comprises only mud.
2 -- no water, overgrown with nettles – no survey

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG0316-223					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:			4		500,000			12							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
20.04.17	7.5	2	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
03.05.17	9.9	W	4	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
16.05.17	16.4	2	4	Adult totals:				0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	n	
31.05.17	9.9	1	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints:

1 - Lots of algae covering pond surface, difficult to torch
4 - No algae present, pond drying

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**				1						

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth				1M 1F						
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG1324-288					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			0							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0							N	
02.05.17	11.5	3	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0							N	
16.05.17	20.2	3	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0							N	
31.05.17	15.5	3	1	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0							N	
13.06.17	19.4	3	1	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - small ornamental pond in private garden. Lined and shallow no BT. No netting because of damage to plants/pond

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**	8M 6F									

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth	10M 2F									
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth	6M 4F									
	palmate										
	common frog	1									
	common toad										
	other_____										
4	smooth	2M 2F									
	palmate										
	common frog	1									
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2130-314					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			0							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
19/04/2017	5.1	3	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	N	N
04.05.17	9.8	3	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	N	N
22.05.17	16.7	3	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	N	N
05.06.17	13.7	4	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Banks too steep - BT not possible.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	Stickleback							1			
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate	1									
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2130-316					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			8							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
19/04/2017	5.1	2	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
04/05/2017	9.8	2	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
22.05.17	16.7	2	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	N
05.06.17	13.7	2	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Majority of perimeter not accessible. BTs set out adjacent to bridge.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	Stickleback	8									
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth				1M 1F						
	palmate				1F						
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate	1F									
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2230-322					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			N/A			13							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity					0	0	0	0	0	0	No	No
19/04/2017	4	5	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity					0	0	0	0	0	0	No	No
04/05/2017	9.1	5	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity					0	0	0	0	0	0	No	No
22.05.17	14.7	5	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity					0	0	0	0	0	0	No	No
05.06.17	14.5	5	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints:

1 - Cover completely with duckweed. Torching not possible.
4 - Pond dry, consisting of solely mud, duckweed and vegetation.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog						20+				
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2230-321					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16 - visit 1 only							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
19/04/2017	4	3	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
04/05/2017	9.1	3	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
22.05.17	14.7	3	1	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	N	N
05.06.17	14.5	3	1	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Dead water shrew found during visit 1. Do NOT use BTs on future visits.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	Great diving beetle				1						
	Stickleback	2									
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2230-320					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			12							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	
19/04/2017	4	3	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	
04/05/2017	9.1	3	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	
22.05.17	14.7	3	1	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
05.06.17	14.5	3	1	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Most of margin too shallow to BT.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog						1				
	common toad										
	Stickleback	2									
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog					50					
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2932-348					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:	0														
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity												
24.04.17	7.8			Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1- pond has dried, no further surveys

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2932-350					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4						16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0		No
24.04.17	7.8	4	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
08.05.17	9.9	4	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
23.05.17	19	4	1	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
08.06.17	15.1	4	1	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - 3 stickleback recorded in bottle traps

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog						100+				
	common toad						100+				
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth	1M			1M		20+				
	palmate				1M						
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2932-351					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4						10							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
24.04.17	7.8	3	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
08.05.17	9.9	4	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
23.05.17	19	4	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
08.06.17	15.1	5	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints:

1 - 2 stickleback recorded in bottle trap.
4 - 5 BT only due to increased vegetation cover and nearby nesting swan.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad						2				
	other_____										
2	smooth	1M									
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog					5+					
	common toad					20+					
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2932-352					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4						14							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
24.04.17	7.8	2	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
08.05.17	9.9	3	4	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
23.05.17	19	3	4	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	
08.06.17	15.1	3	4	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - 1 stickleback recorded in bottle trap

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad						2			10+	
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth						20+				
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2931-353					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:	0														
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity												
24.04.17	7.8			Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - pond inaccessible due to dense marginal vegetation not allowing access to water body. No further surveys

Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
2	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
3	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										
4	**smooth**										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:					Torch			Bottle-trap						Egg search	Larvae
Tf9311-100					Torch power:		500,000	No. of traps used in pond:		12					
No. of survey visits to this pond:		4		Method:							Net				larvae found? (any method)
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
19.04.17		1	3	Adult totals:		0			0			0			
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
02/05/2017	7	1	3	Adult totals:		0			0			0			
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
15/05/2017	16	1	3	Adult totals:		0			0			0			
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
30/05/2017	16	1	3	Adult totals:		0			0			0			
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints:

1 - access from edge closest to pylon3 3-- water levels dropped sharply since visit 2

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
	smooth										
	palmate										
	common frog										
	common toad										
1	**other_____**										
	smooth	2(f)									
	palmate										
	common frog										
	common toad										
2	**Great diving beetle**	1									
	smooth										
	palmate										
	common frog										
	common toad										
3	**other_____**										
	smooth				10(m)						
	palmate										
	common frog										
	common toad										
4	**other_____**										

Pond reference - enter in box below:					Torch			Bottle-trap						Egg search	Larvae
TF9311-101					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond: 4				Method:			500,000			10	Net				
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	No
19.04.17		3	2	Adult totals:		0			0			0			
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
02/05/2017	7	3	2	Adult totals:		0			0			0			
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
15/05/2017	16	4	2	Adult totals:		0			0			0			
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
30/05/2017	16	3	2	Adult totals:		0			0			0			
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 3: veg cover greater - netting also undertaken. Water levels dropped sharply since previous visit.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
	smooth										
	palmate										
	common frog			3+			3				
	common toad			3+							
1	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad										
2	**Great diving beetle**				1						
	smooth										
	palmate										
	common frog										
	common toad						2				
3	**other_____**				1						
	smooth										
	palmate										
	common frog						4				
	common toad										
4	**other_____**										

Pond reference - enter in box below:					Torch			Bottle-trap						Egg search	Larvae
TF9311-102					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4		Method:			500,000			0	Net				
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0							No	No
19.04.17		1	3	Adult totals:		0			0			0			
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0							No	No
02/05/2017	5.6	1	2	Adult totals:		0			0			0			
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0							No	No
15/05/2017	15	1	2	Adult totals:		0			0			0			
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0							No	No
30/05/2017	17	1	2	Adult totals:		0			0			0			
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 1 - pond looks to be drying, currently just mud with shallow water. No netting as water v clear, water too shallow to bottle trap. Minimal vegetation for egg search. Visit 3: water levels dropped, but survey still possible. Visit 4: water levels dropped further, but survey still possible.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
	smooth										
	palmate										
	common frog										
	common toad										
1	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad										
2	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad	1									
3	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad										
4	**other_____**										

Pond reference - enter in box below:					Torch			Bottle-trap						Egg search	Larvae
TF9311-103					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		2		Method:			500,000			16	Net				
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	N	No
19.04.17		3	2	Adult totals:		0			0			0			
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
02/05/2017	5.6	4	4	Adult totals:		0			0			0			
(3) Date:	Air temp	Veg cover	Turbidity											No	
15/05/2017	*	*	*	Adult totals:		0			0			0			
(4) Date:	Air temp	Veg cover	Turbidity											no	
30/05/2017	*	*	*	Adult totals:		0			0			0			
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:		0			0			0			
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 2: water level low. BTs sat in v shallow water. Leeches found. Visit 3: pond now complete dry. No survey possible. Egg search was conducted on previously submerged vegetation. Visit 4: same as previous.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
	smooth										
	palmate										
	common frog						5			5+	
	common toad						3			5+	
1	**other_____**										
	smooth										
	palmate										
	common frog			50			25				
	common toad						25				
2	**Dragonfly larvae**				1						
	smooth										
	palmate										
	common frog										
	common toad										
3	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad										
4	**other_____**										

Pond reference - enter in box below:					Torch			Bottle-trap			Net			Egg search	Larvae
TF9311-105					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4		Method:	500,000			5							
Sex/life stage:					Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
19.04.17		2	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0		No	No
02/05/2017	5.6	2	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
15/05/2017	14.2	3	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
30/05/2017	16	4	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 1 - limited access due to dense veg and steep banks. No egg search as limited suitable submerged veg available

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
	smooth										
	palmate										
	common frog										
	common toad										
1	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad										
2	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad						1				
3	**other_____**										
	smooth										
	palmate										
	common frog										
	common toad										
4	**other_____**										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9412-110					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			6							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
24/04/2017	2.9	2	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
02/05/2017	5.2	2	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
15/05/2017	14.2	2	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
30/05/2017	16	2	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Only small section (in two separate areas) of pond can be surveyed due to dense vegetation.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	Great diving beetle				1						
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth				2 (M) 1 (F)						
	palmate										
	common frog										
	common toad										
	other_____				5						
4	smooth										
	palmate										
	common frog	1									
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9615-145					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
20/04/2017	6.8	3	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
03/05/2017	8.2	3	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
16/05/2017	16.5	4	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
31/05/2017	13	3	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Vegetation dense in places therefore netting also used. Visit 3: veg cover now very denser, some part of pond not accessible.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**				2 (M)						

	palmate										
	common frog			50			5				
	common toad			200			200		200		
	Stickleback				5						
2	**smooth**										
	palmate										
	common frog	1					15				
	common toad			100							
	other_____										
3	**smooth**	1 (F)				1 (F)					
	palmate					3 (M)					
	common frog					25					
	common toad	1		200							
	Stickleback					1					
4	**smooth**				1						
	palmate										
	common frog	1					2				
	common toad										
	Stickleback				1						

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9614-154					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		6			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				Yes	No
24/04/2017	5.1	2	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				N/A	No
03/05/2017	7.8	2	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				N/A	No
16/05/2017	14.4	2	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				N/a	No
31/05/2017	12	2	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				N/a	No
12/06/2017	14.9	2	2	Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity		0	1	0	0	1	0				N/a	No
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Aggressive cows in field - call before visit to ensure the have been moved out of survey area.
Visit 4 - water lower

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**				2 (M)						

	palmate										
	common frog			50			30				
	common toad	1									
	Great diving beetle				1						
2	smooth	1 (F)									
	palmate										
	common frog			50			20				
	common toad										
	Dragonfly larvae						1				
	Great diving beetle			3							
3	smooth	1 (F)									
	palmate										
	common frog		1	20			15				
	common toad	3									
	Dragonfly larvae						1				
	Stickleback	20					10				
	Great diving beetle	5									
4	smooth										
	palmate										
	common frog	1					25				
	common toad										
	Stickleback				4						
5	smooth	1									
	palmate										
	common frog	2									
	common toad	1	1								
6	smooth	1(F)									
	palmate										
	common frog	9									
	common toad										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9614-155					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		6			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	1	1	0	0				Yes	No
24/04/2017	5.1	2	2	Adult totals:	0			1			0				
(2) Date:	Air temp	Veg cover	Turbidity		2	3	0	0	0	0				N/A	No
03/05/2017	7.8	2	2	Adult totals:	5			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		6	6	0	3	3	0				N/A	No
16/05/2017	14.6	2	2	Adult totals:	12			6			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	2	0	1	0	0				N/a	No
31/05/2017	12	2	2	Adult totals:	2			1			0				
(5) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				N/a	No
12.06.17	14.9	2	2	Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				N/a	No
19.06.17	20	2	2	Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								12							

Comments and constraints: Aggressive cows in field - call before visit to ensure the have been moved out of survey area. Visit 1: Partial sighting of GCN - sex indeterminate. Small, so recorded as immature (although unlikely to be a 2017 juvenile). Visit 2: Male GCN spotted during torching had unusual coloration- orange pattern extended right up its flanks to the crest.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										Y

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth	2 (F)									
	palmate										
	common frog										
	common toad										
	Dragonfly larvae			2							
	Great diving beetle	1		1							
3	smooth	4 (F)									
	palmate										
	common frog	1									
	common toad										
	Dragonfly larvae			1							
	Great diving beetle	4			1						
4	smooth	2f									
	palmate										
	common frog	4									
	common toad	1									
	Stickleback				1						
5	smooth										
	palmate										
	common frog		4								
	common toad	1									
6	smooth										
	palmate										
	common frog										
	common toad										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9614-156					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			10							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
20/04/2017	6.5	3	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
03/05/2017	8	3	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
16/05/2017	13.2	3	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
31/05/2017	12	3	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: 6 BT only used during visit 1. Need to climb barbed wire fence to access. Dense vegetation in some areas, so netting also used.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**	1 (F)									

	palmate										
	common frog						3				
	common toad										
	Stickleback				3			1			
2	smooth										
	palmate										
	common frog										
	common toad										
	Great diving beetle				3	3					
	Stickleback				2						
3	smooth										
	palmate										
	common frog						5				
	common toad										
	Stickleback	15									
4	smooth				2						
	palmate										
	common frog	1									
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TF9614-157					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:	6				500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
20/04/2017	6.5	4	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				Yes	No
03/05/2017	8	4	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0							N/A	No
16/05/2017	13	4	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
31/05/2017	12	3	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
12.06.17	14.9	3	3	Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
19.06.17	20	3	3	Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 2: GCN eggs found at southern end of pond. Visit 3: water vole observed.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog						5				
	common toad										
	Stickleback	5			5						
2	smooth										
	palmate										
	common frog						10				
	common toad										
	Great diving beetle				3						
	Stickleback	2			1						
3	smooth				2 (M) 1 (F)						
	palmate										
	common frog	1		20	30						
	common toad				5						
	Dragonfly larvae				1						
	Stickleback	50			4						
4	smooth										
	palmate										
	common frog	2		30+							
	common toad						30+				
	Stickleback	1									
5	smooth										
	palmate										
	common frog		30+								
	common toad										
6	smooth										
	palmate										
	common frog			10+							
	common toad										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG0115-193					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			6							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
24/04/2017	4.2	1	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
03/05/2017	8.2	4	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
16/05/2017	13.9	4	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
31/05/2017	12	4	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Only 1/4 of pond can be surveyed due to dense vegetation. Netting used due to dense sedge cover along accessible section of pond.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)

1	smooth										
	palmate										
	common frog										
	common toad										
	Great diving beetle		2								
2	smooth				1(F)						
	palmate										
	common frog									1	
	common toad										
	Great diving beetle								5		
3	smooth										
	palmate							1(F)			
	common frog			5			2				
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2130-313					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:	0														
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity												
19/04/2017				Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Pond NOT accessible. No surveys undertaken. eDNA not possible as can't take sample.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2631-336					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
18/04/2017	5.2	3	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
04/05/2017	8.2	4	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
22/05/2017	7.5	4	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
05/06/2017		4	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 2: netting also used due to density of vegetation.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog			500		25					
	common toad										
	Great diving beetle				5	2					
	stickleback	5			5						
2	smooth										
	palmate										
	common frog			100	40					20	
	common toad										
	Damselfly nymph						2				
	stickleback				15			5			
3	smooth										
	palmate										
	common frog			100			30			50	
	common toad										
	stickleback	50						10			
4	smooth										
	palmate										
	common frog	1		15			2				
	common toad										
	stickleback				2						

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2631-337					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
18/04/2017	5.2	3	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
04/05/2017	8.2	4	4	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
22/05/2017	9.3	4	4	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
05/06/2017		4	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 2: netting also used due to density of vegetation. Visit 4 - veg grown sig

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**	1(F)									

	palmate										
	common frog										
	common toad										
	Great diving beetle				5						
	Stickleback	3			8						
2	smooth										
	palmate										
	common frog						3			10	
	common toad										
	Great diving beetle				3						
	stickleback				1						
3	smooth	1 (M) 2 (F)			7 (M) 1 (F)			1 (M)			Y
	palmate										
	common frog	1		10			3			5	
	common toad										
	Stickleback	5						10			
	Great diving beetle	1			1			1			
4	smooth	3									
	palmate										
	common frog	1		20+		2					
	common toad										
	stickleback	20+			3						

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2631-338					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
18/04/2017	5.4	2	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
04/05/2017	8.2	3	4	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
22/05/2017	10.2	3	4	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
05/06/2017		3	4	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints:

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	Roach	3									
2	smooth										
	palmate										
	common frog										
	common toad										
	Roach	50									
3	smooth										
	palmate										
	common frog										
	common toad										
	Roach	25									
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2631-339					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
18/04/2017	5.2	3	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
04/05/2017	8.2	3	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
22/05/2017	11.6	4	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
05/06/2017		4	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 4 - veg grown significantly

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog			10							
	common toad						3				
	Great diving beetle				4	2					
	Stickleback	3			5						
2	smooth										
	palmate										
	common frog						2				
	common toad						15				
	Stickleback	2			3			2			
3	smooth										
	palmate										
	common frog						15			2	
	common toad										
	Stickleback				5						
4	smooth										
	palmate										
	common frog					2					
	common toad										
	Stickleback	3			2						

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG3630-410					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			4							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
18/04/2017	4.5	4	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
04/05/2017	7.1	4	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
22/05/2017	9.2	4	2	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
05/06/2017		4	2	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Only accessible from southern end. Dense reeds obscure the rest. Accessed via field from south. Torching limited at this pond, netting not possible. Visit 4 - pond is shallower than previously.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG1928-297					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			16							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
25/05/2017	2	2	2	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
08/05/2017	8	2	2	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0				No	No
23/05/2017	15.1	2	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0	0	0	0	0	0	0	No	No
06/06/2017	12	2	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 1: only 15 traps used. Visit 4 - pond has dried significantly, only 4 traps used

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	Great diving beetle	3			2	2					
2	smooth	1 (F)			2 (M)						
	palmate										
	common frog										
	common toad										
	Great diving beetle	8									
3	smooth				2 (M)						
	palmate										
	common frog										
	common toad										
	Great diving beetle				2		1				
4	smooth										
	palmate										
	common frog	1									
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG1928-298					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			0							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
25/05/2017	3	4	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
08/05/2017	8.2	4	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
23/05/2017	17.8	4	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
06/06/2017	12	2	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: Visit 1: No bottle-trapping due cattle in the field. Visit 2: too shallow to BT. Active mallard nest with chicks observed in centre of pond. Be careful to avoid disturbance on future visits.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)

1	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG1928-293					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			0							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
25/05/2017	1.8	3	3	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
08/05/2017	8	3	3	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
23/05/2017	15	3	4	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
06/06/2017	12	3	4	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

Comments and constraints: No bottle-trapping due cattle in the field. Rushes obscuring 80% of pond margin. NB: take care with standing on rushes - water very deep underneath.

		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										

	palmate										
	common frog										
	common toad										
	other_____										
2	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog										
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog										
	common toad										
	other_____										

Pond reference - enter in box below:				Method:	Torch			Bottle-trap			Net			Egg search	Larvae
TG2631-335					Torch power:			No. of traps used in pond:							
No. of survey visits to this pond:		4			500,000			0							
				Sex/life stage:	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	eggs found?	larvae found? (any method)
(1) Date:	Air temp	Veg cover	Turbidity		0	0	0							No	No
04/05/2017	8.2	1	1	Adult totals:	0			0			0				
(2) Date:	Air temp	Veg cover	Turbidity		0	0	0							No	No
22/05/2017	15.5	3	1	Adult totals:	0			0			0				
(3) Date:	Air temp	Veg cover	Turbidity		0	0	0							No	No
05/06/2017		3	3	Adult totals:	0			0			0				
(4) Date:	Air temp	Veg cover	Turbidity		0	0	0				0	0	0	No	No
13/06/2017	16.4	4	3	Adult totals:	0			0			0				
(5) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(6) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(7) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
(8) Date:	Air temp	Veg cover	Turbidity												
				Adult totals:	0			0			0				
Peak adult count for this pond in any one visit (by torch, trap or net):								0							

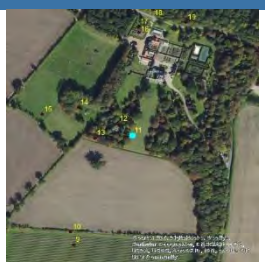
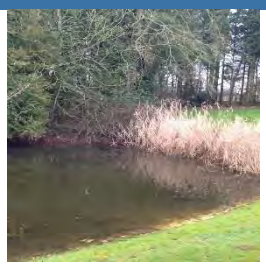
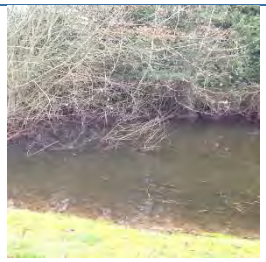
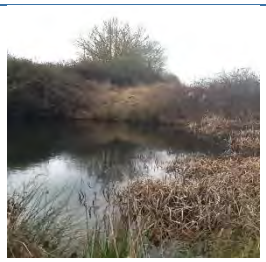
Comments and constraints: BT not possible as pond is lined. Netting not necessary is pond is very clear and vegetation free (therefore two techniques used only).
Visit 4 - layer of thick algae covering pond surface; netting undertaken in these areas.

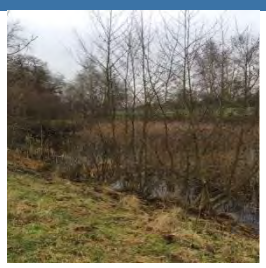
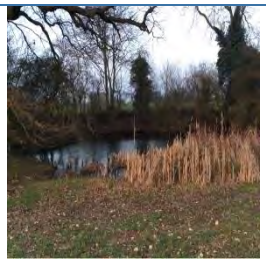
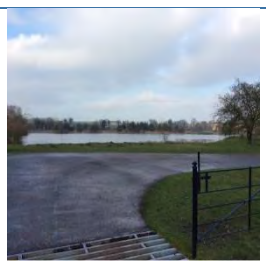
		Torch			Bottle-trap			Net			Egg search
Visit No.	Species	adult	juvenile	tadpole	adult	juvenile	tadpole	adult	juvenile	tadpole	(Y/N)
1	**smooth**										Y

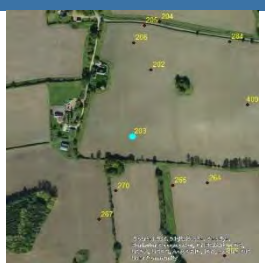
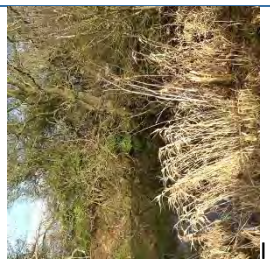
	palmate										
	common frog			200							
	common toad										
	other_____										
2	smooth										Y
	palmate										
	common frog	2		200							
	common toad										
	other_____										
3	smooth										
	palmate										
	common frog	3		20+							
	common toad										
	other_____										
4	smooth										
	palmate										
	common frog	1		10+							
	common toad										
	other_____										

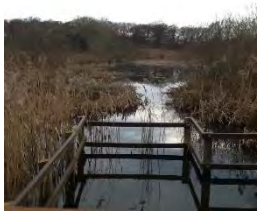
22.10 Annex C: Plates

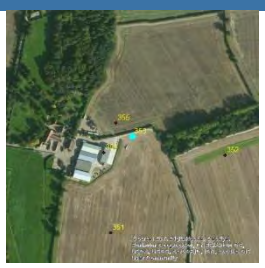
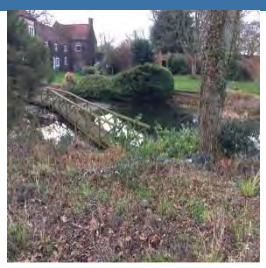
Table 22.5 Plates

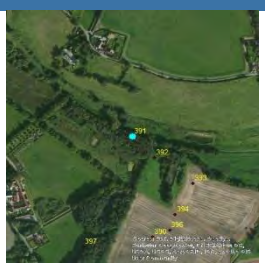
Pond	Map Thumbnail	Photo
TF9109-81		
		
TF9011-145		
TF9010-50		
TF9614-156		

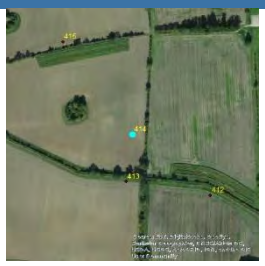
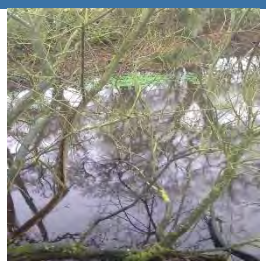
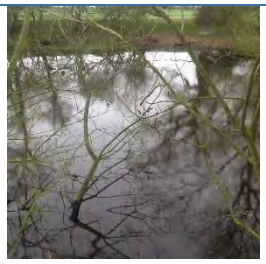
Pond	Map Thumbnail	Photo
TF9614-157		
TG0115-193		
TF9412-110		
TG0316-223		
TG0417-228		
TG0518-244		

Pond	Map Thumbnail	Photo
TG0721-256		
Tf9010-24		
		
TG2932-352		
		

Pond	Map Thumbnail	Photo
TG2932-350		
TG2932-351		
TG2932-348		
TG2931-353		
TG3630-410		
TG2130-313		

Pond	Map Thumbnail	Photo
TG2130-316		
TG2130-314		
TG2230-322		
TG2230-321		
TG2230-320		

Pond	Map Thumbnail	Photo
TG2632-336		
TG2632-337		
TG2731-339	 ID_393.jpg	
TG2731-338		
TG2631-335		

Pond	Map Thumbnail	Photo
TG0721-264		
		

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