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East Anglia TWO Offshore Windfarm

Outline SPA Crossing Method Statement

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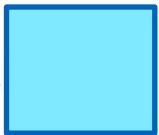
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Glossary of Acronyms

BTO	British Trust for Ornithology
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
ES	Environmental Statement
HDD	Horizontal Directional Drill
NE	Natural England
RSPB	Royal Society for the Protection of Birds
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest



Glossary of Terminology

Applicant	East Anglia TWO Limited
East Anglia TWO project	The proposed project consisting of up to 75 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Jointing bay	Underground structures constructed at intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land and connect to the onshore cables.
Mitigation areas	Areas captured within the onshore Development Area specifically for mitigating expected or anticipated impacts.
Onshore cable corridor	The corridor within which the onshore cable route will be located.
Onshore cable route	This is the construction swathe within the onshore cable corridor which would contain onshore cables as well as temporary ground required for construction which includes cable trenches, haul road and spoil storage areas.
Onshore cables	The cables which would bring electricity from landfall to the onshore substation. The onshore cable is comprised of up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
Onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, landscaping and ecological mitigation areas, temporary construction facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.
Onshore substation	The East Anglia TWO substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Relevant (turtle dove) construction period	The period covering construction and reinstatement of land in respect of a specified stretch of the onshore cable route which will be informed by pre-construction surveys and defined within the final SPA Crossing Method Statement. It is anticipated, based on historic ornithological records, that the specified stretch of the onshore cable route will be between the landfall and Snape Road.
Relevant (nightingale) construction period	The period covering construction and reinstatement of land in respect of a specified stretch of the onshore cable route which will be informed by pre-construction surveys and defined within the final SPA Crossing Method Statement. It is anticipated, based on historic ornithological records, that the



	specified stretch of the onshore cable route will be between the landfall and Aldeburgh Road.
SPA crossing	Work No. 12 which comprises the installation of cables within the boundary of the Sandlings Special Protection Area and Leiston - Aldeburgh Site of Special Scientific Interest.
SPA crossing buffer	200m buffers extending east into Work No. 11 from the SPA crossing and extending west into Work No. 13 from the SPA crossing.
Trenchless technique	A method of installation that allows ducts and cables to be installed under an obstruction or area without breaking open the ground and digging a trench (examples of such techniques include horizontal directional drilling, thrust boring, auger boring and pipe ramming).



1 Introduction

1.1 Overview

1. This Outline Special Protection Area (SPA) Crossing Method Statement forms part of a set of documents that support the Development Consent Order (DCO) application (the Application) submitted by East Anglia TWO Limited (the Applicant) for the East Anglia TWO Offshore Windfarm project (the Project).
2. Works to be undertaken within the onshore development area include (amongst other things) the construction of onshore cables, which comprise up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
3. A section of the onshore cable route will pass through the Sandlings SPA and the Leiston – Aldeburgh Site of Special Scientific Interest (SSSI) and will be constructed by either an ‘open trench technique’ or a ‘trenchless technique’ at this location. The Order limits presented within the **Works Plans (Onshore)** (REP3-006) accommodate both a trenchless technique and an open trench technique, with the trenchless technique dictating the spatial extent of the Order limits as this requires a larger area compared to an open trench technique. As discussed in **Section 2.2** below, should an open trench technique be adopted for the SPA crossing the area within the SPA required for the crossing would be significantly reduced. **Figure 1 Appendix 1** compares the Order limits submitted with the Application (which accommodate both a trenchless technique and an open trench technique) and alternative (reduced) Order limits which would accommodate an open trench technique only.

1.2 SPA Crossing Method Statement

4. Requirement 21(1) of the **draft DCO** (REP5-003) states:

21.(1) No stage of the onshore works may commence until for that stage a written ecological management plan (which accords with the outline landscape and ecological management strategy) reflecting pre-construction survey results, and the ecological mitigation measures included in the environmental statement and including-

- (a) a breeding bird protection plan;
- (b) an arboricultural method statement;
- (c) an invasive species method statement; and



(d) where appropriate, a special protection area crossing method statement (which accords with the outline SPA crossing method statement)

has been submitted to and approved by the relevant planning authority in consultation with the relevant statutory nature conservation body.

5. In line with Requirement 21(1)(d), the final SPA Crossing Method Statement must accord with this Outline SPA Crossing Method Statement and will provide details of the chosen method of crossing the SPA and associated mitigation measures.
6. This Outline SPA Crossing Method Statement relates to works associated with the installation of cables through the Sandlings SPA to the extent that these fall:
 - Within the SPA boundary (the SPA crossing), located within Work No. 12 as shown on the **Works Plans (Onshore)** (REP3-006); and
 - Within 200m of the SPA boundary (the SPA crossing buffer)¹ located within Work Nos. 11 and 13, as shown on the **Works Plans (Onshore)** (REP3-006).
7. This Outline SPA Crossing Method Statement reinforces commitments made in the Environmental Statement (ES) and during the pre-examination and examination stages of the Application relating to the SPA crossing and presents an outline of the detail that will be incorporated within the final SPA Crossing Method Statement.
8. **Section 2** of this document describes the construction methodology and associated mitigation proposed should an open trench technique be adopted for the SPA crossing. **Section 3** of this document describes the construction methodology and associated mitigation proposed should a trenchless technique be adopted for the SPA crossing.

1.3 Construction Scenarios

9. Whilst it is not known whether the East Anglia TWO and East Anglia ONE North projects would be constructed simultaneously or with a construction gap (sequentially), the Applicant has committed that should both projects be consented and then built sequentially, when the first project goes into construction, the ducting for the second project will be installed along the whole of the onshore cable route (including within the SPA boundary) in parallel with

¹ Ornithological mitigation for works within 200m of the Sandlings SPA but outside the SPA crossing buffer will be included within the final Ecological Management Plan, secured under **Requirement 21** of the **draft DCO** (REP5-003).



the installation of the onshore cables for the first project. This removes the potential for repeat construction works within the SPA boundary to accommodate the second project under a sequential construction scenario.

1.4 Sandlings SPA / Leiston – Aldeburgh SSSI

10. The Sandlings SPA is a European site designated under the European Union Directive on the Conservation of Wild Birds. Under the Directive, the United Kingdom has a duty to safeguard the habitats of migratory birds and certain specified species which, in the context of the Sandlings SPA, are **nightjar** and **woodlark**.
11. The Leiston – Aldeburgh SSSI is a nationally designated site which meets the published selection criteria for national designation. The SSSI contains viable areas of coastal vegetated shingle, a habitat type listed in Annex I of the EU Habitats Directive ('perennial vegetation of stony banks'). It supports a unique range of flora and fauna that are adapted to the harsh conditions that are present at such locations. Bird species which regularly breed on the SSSI include nightjar, woodlark and skylark within dry grassland and heath habitat, and tree pipit, turtle dove, bullfinch and nightingale within scrub and woodland areas. As noted in **Section 1.5** below, the area of the SPA crossing has the potential to support two SSSI species – **turtle dove** and **nightingale**.
12. **Appendix 2** includes copies of the citations for the Sandlings SPA and Leiston – Aldeburgh SSSI. The conservation objectives for the Sandlings SPA are, with respect to its qualifying features (nightjar and woodlark), set out in **Appendix 3** and as follows:

“[To] ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

 - *The extent and distribution of the habitats of the qualifying features;*
 - *The structure and function of the habitats of the qualifying features;*
 - *The supporting processes on which the habitats of the qualifying features rely;*
 - *The population of each of the qualifying features; and*
 - *The distribution of the qualifying features within the site”.*
13. It is necessary for the onshore cables to cross the SPA in order to reach the onshore substation location and so in order to reduce potential impacts on designated sites, the Applicant searched for a short crossing in an area of lesser sensitivity and subsequently selected the narrowest section of the Sandlings SPA



as the SPA crossing location. This was built into the Project design as embedded mitigation.

1.5 Baseline Conditions

1.5.1 Land Use

14. **Figure 2, Appendix 1** presents the existing land use in the immediate vicinity of the SPA crossing. The Extended Phase 1 Habitat Survey (**Figure 22.4a-f** of the ES (APP-277)) and **section 23.6.3.1.1.2, Chapter 23** of the ES (APP-071) identifies that the area occupied by the Sandlings SPA crossing is comprised of two habitats:

- Poor semi-improved grassland with scattered scrub and a hedgerow along the eastern boundary (currently used as horse paddock, see **Figure 2, Appendix 1**); and
- Dense/continuous scrub.

15. The area of poor semi-improved grassland is considered poor habitat for nesting birds and, at the time of writing, this land is known to be used as a horse paddock. Where the horse paddock occupies the SPA crossing (see **Figure 2, Appendix 1**), this site is considered of low ecological value when compared with habitats across the wider SPA. This is corroborated by the results of the ornithology surveys undertaken pre-application (see **section 1.5.2**).

16. The area of dense/continuous scrub habitat forming the western extent of Work No. 12 is considered of high ecological value, given it underpins the designation of the Leiston – Aldeburgh SSSI (see citation within **Appendix 2**). Scrub habitat provides suitable nesting habitat for nightingale and can potentially provide suitable habitat for nesting turtle dove (in areas of taller, more established vegetation).

17. The ecological mitigation area for turtle dove identified within **Chapter 23** of the ES (APP-071) at Work No. 14 currently consists of intensively managed arable farmland.

1.5.2 Ornithological Surveys

18. Baseline ornithological surveys undertaken by the Applicant in 2018 and 2019 as part of the Environmental Impact Assessment (EIA) recorded the distribution and abundance of SPA and SSSI species. **Figure 3, Appendix 1** presents the (non-confidential) collated ornithological records submitted with **Chapter 23 Onshore Ornithology Figure 23.3 to Figure 23.16** (APP-293 to APP-298) which fall within 200m of the SPA and SSSI boundary.



19. **Confidential Figure 4, Appendix 1** presents the collated ornithological records submitted with **Chapter 23 Onshore Ornithology Figure 23.3 to Figure 23.16** (APP-293 to APP-298) which fall within 200m of the SPA and SSSI boundary, including confidential records for barn owl, bittern, Cetti's warbler, crossbill, Dartford warbler, Hobby, marsh harrier, marsh warbler, peregrine and red kite.
20. For ease of reference, **Confidential Figure 5, Appendix 1** presents the collated ornithological records for nightjar and woodlark (of relevance to the SPA) and turtle dove and nightingale (of relevance to the SSSI) which fall within 200m of the SPA and SSSI boundary.
21. Historic data on species recorded within the SPA/SSSI were also obtained from the Royal Society for the Protection of Birds (RSPB) to provide a long-term dataset. It was determined, based on survey data and habitat type, that the area of the SPA crossing has the potential to support two SSSI species – turtle dove and nightingale. The ornithological impact assessment presented within **Chapter 23 Onshore Ornithology** of the ES (APP-071) determined that habitat loss was possible as a result of the onshore cable route crossing the SPA/SSSI, and so mitigation in the form of suitable habitat management was proposed to avoid significant effects on the species' SSSI populations.
22. Neither SPA qualifying feature (nightjar or woodlark) has been recorded within the SPA crossing and the habitat is generally unsuitable for these species. As shown on **Confidential Figure 5, Appendix 1** the closest records of nightjar and woodlark are 153.8m and 61.8m from Work No. 12 (as presented on the **Works Plans (Onshore)** (REP3-006)) respectively. The closest habitat suitable for nesting nightjar and woodlark is located 276m from Work No. 12 (as presented on the **Works Plans (Onshore)** (REP3-006)). As such, a conclusion of no adverse effects on the integrity of the SPA was reached in the **Information to Support Appropriate Assessment Report** (APP-043) as a result of works within the SPA crossing. Therefore, the Applicant concluded within the Application that there will be no requirement to mitigate habitat loss for nightjar or woodlark. Pre-construction ornithological surveys will be undertaken to inform the final Ecological Management Plan (to be approved by the relevant planning authority in consultation with Natural England as per Requirement 21 of the **draft DCO** (REP5-003)), which will in turn inform the final SPA Crossing Method Statement.
23. Turtle dove and nightingale mitigation measures are identified in **section 2.9** and **section 3.9** below. Information on the seasonal restriction to be applied, as part of the mitigation measures, is provided in **sections 2.4** and **3.4**.

1.6 Illustrative SPA Crossing Mitigation Flexibility



24. In addition to the mitigation measures proposed within **section 2.9** and **section 3.9** of this Outline SPA Crossing Method Statement, further flexibility is available for the Applicant to refine the mitigation measures to reflect the results of pre-construction surveys. Information demonstrating this flexibility, through the provision of possible alternative mitigating strategies associated with the crossing of the Sandlings SPA, has been requested by Natural England and RSPB. **Appendix 4** presents a comparison of the potential impacts and the mitigation flexibility proposed to accommodate multiple ornithology species should pre-construction surveys indicate that this is necessary and appropriate.



2 Open Trench Technique

2.1 Overview

26. **Section 2** of this Outline SPA Crossing Method Statement relates to an open trench technique for crossing the SPA. This is the Applicant's preferred technique for crossing the Sandlings SPA for the reasons set out in **Section 5** below.
27. Works to be undertaken within the onshore development area include (amongst other things) the construction of onshore cables comprising of up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
28. The open trench technique will require two trenches each approximately 0.9m wide (assuming trench supports are used)² to be excavated and up to five onshore cables laid within each trench (either directly within the trench or laid in cable ducts or protective covers). The cables/ducts will be approximately 1.2m below ground level (measured from the top of the cable/duct) and surrounded with sand or cement bound sand. Cover tiles and warning tape will then be placed above the cables/ducts and the trenches backfilled with the previously excavated material.

2.2 Reduced Order Limits and Onshore Cable Route

29. Selection of an open trench technique for the SPA crossing will allow for a significant reduction in the Order limits and work areas within and around the SPA crossing compared to that required for a trenchless technique (and as presented within the Application). **Figure 1 Appendix 1** compares the Order limits submitted with the Application (which accommodate both a trenchless technique and an open trench technique) and alternative (reduced) Order limits which would accommodate an open trench technique only.
30. Should further discussions with Natural England and the RSPB prove positive, and should it be agreed that a trenchless SPA crossing solution can be discounted, the Applicant is minded to request a reduction to the Order limits and work areas to reflect that presented within **Figure 6, Appendix 1**.
31. Where an open trench technique is used, the Applicant has committed to reducing the width of the Project's onshore cable route from the typical 32m to 16.1m within the SPA crossing to minimise any direct disturbance within the SPA.

² Trenches are anticipated to be 0.9m wide with vertical sides but may also be excavated with sloping sides resulting in an increased width at ground level.



The width of the onshore cable route will revert to 32m within the SPA crossing buffer.

32. The spatial constraints of this reduced onshore cable route width within the SPA crossing requires the arisings from the open trenching works (spoil) to be stored at alternative locations. Spoil will therefore be transported to and stored within the SPA crossing buffer (on existing agricultural land) where sufficient space has been allowed. Extending the reduced onshore cable route width (16.1m) into the SPA crossing buffer is not possible as this would increase the time taken to construct the SPA crossing, given the longer handling times associated with transporting spoil greater distances to storage area beyond the SPA crossing buffer.
33. **Section 2.9** below presents details of additional ecological measures proposed by the Applicant should an open trench technique be adopted.

2.3 Onshore Cable Corridor Width During Construction

34. As stated in **Section 1.3** above, where both East Anglia ONE North and East Anglia TWO gain consent the Applicant has committed to install the ducting for the second project in parallel with the installation of the onshore cables for the first project. This removes the potential for repeat construction works within the SPA boundary to accommodate the second project under a sequential construction scenario.
35. The maximum width of the combined onshore cable corridor will be restricted to 32.2m (i.e. 16.1m per project) within the SPA boundary irrespective of whether the projects are constructed simultaneously or sequentially.

2.4 Seasonal Restriction

36. No intrusive pre-construction surveys will be undertaken within the SPA crossing (Work No. 12) during the nightjar and woodlark breeding bird season (1st February to 31st August) unless otherwise agreed with the relevant planning authority in consultation with the relevant statutory nature conservation body.
37. No construction works associated with the SPA crossing (using an open trench technique) will be undertaken within the SPA or within the SPA crossing buffer during the nightjar and woodlark breeding bird season (1st February to 31st



August³) unless otherwise agreed with the relevant planning authority in consultation with the relevant statutory nature conservation body.

38. Seasonal dependant reinstatement, landscaping and ecological mitigation works within the SPA crossing and SPA crossing buffer may be undertaken at any time subject to the provisions of the Ecological Management Plan, approved in accordance with Requirement 21 of the **draft DCO** (REP5-003). The nature of these reinstatement works and the machinery required to be used will be detailed within the final SPA Crossing Method Statement to be submitted post consent and which will require the approval of the relevant planning authority in consultation with the relevant statutory nature conservation body (i.e. Natural England). The preference of the Applicant is to undertake reinstatement works outside of the breeding bird season, if possible. Reinstatement works will be undertaken sensitively, using appropriate equipment and in line with the breeding bird protection plan where reinstatement is required to be undertaken within the breeding bird season.

2.5 Duration of Construction Works

39. Works associated with the SPA crossing within the SPA and within the SPA crossing buffer are anticipated to be completed within a single non-breeding bird season (i.e. five months from September to January inclusive).
40. Despite being considered low-probability, it is noted that the durations presented above are estimates and works may extend into subsequent non-breeding bird seasons in the event of unknown events which could delay construction, such as Covid-19 events, unidentified ground contamination, significant archaeological finds etc. Further information on the duration of construction works will be provided in the final SPA Crossing Method Statement following detailed design of the Project.
41. In the unlikely event that the SPA crossing works span multiple non-breeding bird seasons, all equipment would be removed before the start of the breeding bird season and any open excavations infilled. The mitigation measures within this

³ It is noted that the seasonal restriction for an open trench technique starts on 1st February whereas the seasonal restriction for a trenchless technique (presented in Section 3.4) starts on 14th February. This is due to the shorter duration of open trench works and the corresponding reduced programme and delivery risk associated with the open trench works compared to the trenchless technique. Whilst the Applicant considers a seasonal restriction start of 14th February to be acceptable for the species in question, given the reduced risk profile of the open trenching technique, the Applicant can agree with Natural England's request for the seasonal restriction for works within the SPA and SPA crossing buffer to start on 1st February for open trench works only.



method statement relevant to the works being undertaken would continue to be implemented during this period.

2.6 Working Hours

42. Construction activities would normally be conducted Monday to Friday between 0700 hours and 1900 hours and on Saturday between 0700 hours and 1300 hours, with no construction on Sundays or Bank Holidays, in line with Requirement 23 of the **draft DCO** (REP5-003). Unlike a trenchless technique, an open trench technique will not require 24-hour working (and therefore will not require lighting or construction personnel to be present 24-hours per day).

2.7 Construction

43. The open trench technique will require two trenches, each approximately 0.9m wide (assuming trench supports are used), to be excavated within the SPA crossing and the SPA crossing buffer and up to five onshore cables laid within each trench (either directly within the trench or laid in cable ducts or protective covers). The cables/ducts will be approximately 1.2m below ground level (from the top of the cable/duct) and surrounded with sand or cement bound sand. Cover tiles and warning tape will then be placed above the cables/ducts and the trenches backfilled with the previously excavated material.
44. The excavation and backfilling will be carried out using a tracked excavator or similar. No further details on the equipment to be used is available at this pre-detailed design stage of the Project. All plant will comply with the specifications and measures contained within the final Code of Construction Practice, which must accord with the outline measures stated within **Section 10.1.6** of the **Outline Code of Construction Practice** (updated version submitted at Deadline 6, document reference 8.5). A final Code of Construction Practice that accords with the outline document is secured by Requirement 22 of the **draft DCO** (REP5-003). All material excavated will be handled in line with an approved soil management plan (secured by Requirement 22 of the **draft DCO** (REP5-003)) with subsoil stored separately from topsoil.
45. Waste will be removed from site and disposed of in accordance with the approved site waste management plan (secured by Requirement 22 of the **draft DCO** (REP5-003)).
46. A temporary heras type fencing or wooden hoarding or similar may be erected to demark the onshore cable route, in line with the details approved under Requirement 17 of the **draft DCO** (REP5-003). Appropriate signage and notices will also be fixed along the boundary of the works to inform members of the public as to the works being undertaken.



47. One or more temporary 'trackmat' roads (i.e. trackway or similar) will be installed within the SPA crossing to transport plant and machinery along the route. The Applicant's commitment to use temporary 'trackmat' roads as mitigation will minimise or avoid the need to strip soil from under the 'trackmat' within the SPA crossing, thereby ensuring underlying ground disruption is limited and reinstatement time is reduced. Suitable reinstatement will be implemented in the event that the removal of the 'trackmat' also results in the removal of underlying ground.
48. Topsoil and subsoil excavation arisings generated from the trenches will be transported along the temporary trackmat road via suitably sized dumpers and stored in a suitably prepared / selected storage area outside the SPA crossing, within Work No. 11 and/or Work No. 13. Topsoil and subsoil will have separate storage areas and will not be allowed to be mixed with one another or any other unsuitable materials.
49. Following laying of the duct or direct laying of the onshore cables within the trenches, subsoil and topsoil will be replaced, the temporary trackmat road removed and disturbed areas reinstated.
50. Any temporary fencing, plant and machinery associated with the SPA crossing located within the SPA and within the SPA crossing buffer will also be removed.
51. Where ducts are laid, the onshore cables will be pulled through the ducts at a later date. This pulling operation will not involve surface disturbance within the SPA crossing or SPA crossing buffer. The Applicant commits to no jointing bays being located within the SPA crossing or SPA crossing buffer. This additional mitigation will avoid the need for further excavations in these areas during the wider onshore cable installation.
52. The mitigation measures presented within this outline method statement will be refined to a specific suite of measures post-consent and following detailed design and will be presented within a final SPA Crossing Method Statement.

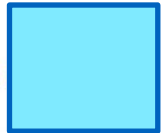
2.8 Lighting

53. No 24-hour lighting is anticipated to be required for construction within the SPA crossing or SPA crossing buffer, although task lighting may be utilised in localised areas where required.

2.9 Species Specific Ornithological Mitigation

2.9.1 Pre-construction Surveys

54. To ensure that for all species, no destruction of nests, young or eggs, or undue disturbance to breeding adults occurs, pre-construction surveys will be



undertaken during the breeding season by an Ecological Clerk or Works, as outlined in the **Outline Landscape and Ecological Management Strategy** (updated version submitted at Deadline 6, document reference 8.7).

55. The mitigation measures outlined in **Section 2.9** have had regard to and support the Sandlings SPA conservation objectives set out within **Section 1.4** and within **Appendix 3**, particularly those objectives regarding the extent and distribution, structure and function, and supporting processes on which the habitats of the qualifying features rely.

2.9.2 Turtle Dove Mitigation

56. In response to the possible loss of turtle dove foraging habitat within the onshore cable corridor (including but not limited to the SPA crossing) as identified in **section 23.6.3.1.4.5** of **Chapter 23 Onshore Ornithology** (APP-071), Work No. 14 (an existing area of arable agricultural land) has been identified for temporary ecological mitigation which will include sowing turtle dove seed mix to create optimal feeding habitat throughout the construction and reinstatement period of part of the onshore cable route (anticipated, based on historic ornithological records, to be between the landfall and Snape Road (the relevant (turtle dove) construction period⁴)). This supplementary feeding area (the turtle dove mitigation area) is located within 300m of previously recorded turtle dove territories, in an open location adjacent to field boundaries, in proximity to water (an existing agricultural reservoir). The spatial extent of Work No. 14 and associated area to be used for turtle dove will incorporate a degree of oversizing to allow for variations in growth. The spatial extent will be agreed with the relevant planning authority in consultation with Natural England and confirmed within the final SPA Crossing Method Statement post-consent.
57. Based on the Operation Turtle Dove initiative guidance (www.operationturtledove.org/wp-content/uploads/2020/01/OTD-Guidance-Supplementary-feeding-Jan20.pdf), the seed mix will be sown on suitably prepared ground between 1st August and 15th October (with sowing of the seed mix undertaken as early as practicable during this period) in the calendar year prior to the relevant (turtle dove) construction period. This is considered by the Applicant to be a suitable period for the mitigation area to become viable. The mitigation area will continue to improve during the relevant (turtle dove) construction period by virtue of the management measures outlined below.

⁴ The relevant (turtle dove) construction period for which the turtle dove mitigation (Work No. 14) is provided will be informed by pre-construction surveys and will be defined within the final SPA Crossing Method Statement which is to be approved by the relevant planning authority in consultation with Natural England (in accordance with Requirement 21 of the **draft DCO** (REP5-003)).



58. Existing established hedgerows within Work No. 14 will be protected, whilst any unfavourable hedgerows will be managed to promote nesting habitat for turtle dove. Given the existing habitat within the area of Work No. 14, it is anticipated that this area will not require intensive or intrusive management of hedgerows. Rather more of a protective management style will be adopted with the aim of allowing natural establishment and growth of hedgerows thereby retaining the existing habitat as much as possible.
59. During the relevant (turtle dove) construction period supplementary feeding will be carried out within the turtle dove mitigation area from mid-April to late July (or earlier should turtle dove breeding activity cease as evidenced by the Project's Ecological Clerk of Works) to supplement the food source. Limited cutting/topping of the turtle dove mitigation area may also occur to control weeds. Between 15th June and 7th July each year during the relevant (turtle dove) construction period, half of the turtle dove mitigation area will be cut or scarified to approximately 10-15cm on a rotational basis. The whole turtle dove mitigation area will then be cut or scarified between 1st and 30th September and the cut vegetation removed.
60. The turtle dove mitigation area will be subject to ongoing monitoring throughout the relevant (turtle dove) construction period as defined in the breeding bird protection plan produced as part of the Ecological Management Plan to be approved under Requirement 21 of the **draft DCO** (REP5-003).
61. **Section 2.11.1** below provides details on the duration that the turtle dove mitigation will remain in place before its subsequent return to agricultural land.

2.9.3 Nightingale Mitigation

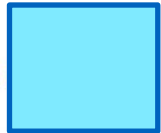
62. Since submitting the Application, the Applicant has identified a parcel of land within the Order limits that is suitable for habitat management for ornithological receptors as required (proposed Work No. 12A, shown on **Figure 6, Appendix 1**). Currently, proposed Work No. 12A is comprises of an area of scrub and an area of poor semi-improved grassland used as a horse paddock that is located within the boundary of the Sandlings SPA. Temporary ecological mitigation within proposed Work No. 12A (excluding the onshore cable route) will be established for nightingale and turtle dove (if required), prior to the start of construction of the SPA crossing.
63. Temporary ecological mitigation within proposed Work No. 12A (excluding the onshore cable route) will include nightingale mitigation to be implemented prior to construction of the SPA crossing and managed for a period of ten years from completion of construction and reinstatement (with the exception of the area identified as horse paddock, which will be managed for a five year period (see **Figure 2, Appendix 1**)) of part of the onshore cable route (anticipated to be,



based on historic ornithological records, between the landfall and Aldeburgh Road (the relevant (nightingale) construction period⁵). It is noted that existing habitat within the onshore development area but outside the SPA boundary is unsuitable for nightingale.

64. The mitigation area comprising the whole of proposed Work No. 12A will be managed for a period of ten years from completion of the relevant (nightingale) construction period (with the exception of the area identified as horse paddock, which will be managed for a five year period (see **Figure 2, Appendix 1**)) with the aim of providing functional habitat for breeding nightingale, following recommended guidelines such as British Trust for Ornithology (BTO) (2015). Mitigation measures will involve:
- Thinning or removal of bracken in the area or maintenance of scrub by cutting any patches that are old and 'leggy', and therefore providing a supply of vigorous new growth;
 - Retention of a dense field margin of rank grass and taller herbs around the scrub where feasible by avoiding mowing during the breeding bird season; and
 - Reuse of sandy topsoil where appropriate to aid establishment of acid grassland.
65. Preparation of the mitigation areas within proposed Work No. 12A will occur during the non-breeding season in the calendar year prior to the SPA crossing works commencing and will involve the thinning of scrub and bracken removal on rotation. Given that the preparation works consist of the management of existing scrub and bracken (as opposed to planting of additional scrub), this is considered by the Applicant to be a reasonable timeframe for the mitigation area to achieve a suitable level of ecological functionality for nightingale prior to the commencement of construction of the SPA crossing. The Applicant will ensure the final SPA Crossing Method Statement contains sufficient details on the methodology to be adopted in the preparation of Work No. 12A and the standard of finish that Work No. 12A is to achieve in order to promote its use by nightingales. The mitigation area will continue to improve during the construction period by virtue of the management measures implemented.

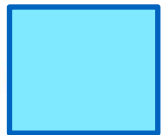
⁵ The relevant (nightingale) construction period for which the nightingale mitigation (proposed Work No. 12A) is provided will be informed by pre-construction surveys and will be defined within the final SPA Crossing Method Statement which is to be approved by the relevant planning authority in consultation with Natural England (in accordance with Requirement 21 of the **draft DCO** (REP5-003)).



66. Once established and throughout the management period, no mowing of the margins around areas of scrub/thicket within proposed Work No. 12A would take place during the breeding season.

2.10 SPA Crossing Habitat Reinstatement

67. The Construction footprint of the onshore cable route within Work No. 12 will be reinstated as soon as practicable following completion of the SPA crossing construction works. The mitigation area comprising the whole of proposed Work No. 12A will subsequently be managed for a period of ten years from completion of the relevant (nightingale) construction period (with the exception of the area identified as horse paddock, see **Figure 2, Appendix 1**). This mitigation area was originally to be managed for a five year period following the completion of the SPA crossing works, however this has been increased to ten years following discussions with the landowner. Although this mitigation area is to be managed for a ten year period, the area identified as horse paddock (see **Figure 2, Appendix 1**) will remain managed for a five year period to allow the landowner to continue with its existing use after five years.
68. Specific reinstatement and habitat management measures will be set out in the final SPA Crossing Method Statement produced under Requirement 21 of the **draft DCO** (REP5-003) and which will be submitted for approval by the relevant planning authority in consultation with Natural England. The following measures may be proposed within the final Ecological Management Plan and associated final SPA Crossing Method Statement to reinstate areas disturbed by construction and to further promote the area for nightingales (where appropriate, such measures will be applied to the whole of proposed Work No. 12A):
- Planting of hawthorn, blackthorn and other existing species (such as gorse) to create scrubby woodland thickets, the preferred habitat of nightingales and (once established) suitable nesting habitat for turtle dove;
 - Establishment of dense field margins of rank grass and taller herbs to replace scrub removed to facilitate the SPA crossing, and associated maintenance to provide suitable nightingale foraging habitat;
 - Areas of acid grassland created as heathland using locally sourced heather seed to recreate pioneer heath and management to create suitable foraging habitat for turtle dove;
 - Reuse of sandy topsoil where appropriate to aid establishment of acid grassland; and
 - Replacement of removed hedgerows and associated maintenance (in line with Requirement 15 of the **draft DCO** (REP5-003)).



69. The area of proposed Work No. 12A outside of the onshore cable route within Work No. 12 would not form part of the construction footprint and would not therefore require reinstating, allowing mitigation (as proposed in **section 2.9.3**) to be implemented prior to construction of the SPA crossing.

2.11 Post Construction Habitat Management Period

2.11.1 Turtle Dove Mitigation Area (Work No. 14)

70. The turtle dove mitigation area within Work No. 14 will remain in place for at least one full breeding season following the completion of the relevant (turtle dove) construction period following which it will be removed and returned to agricultural use. Retention for an extended period may prevent the return of this area to productive agricultural use. Removal of the turtle dove mitigation area will be undertaken between 1st September to 31st January (i.e. outside the breeding bird season).

2.11.2 Nightingale Mitigation Area (Proposed Work No. 12A)

71. Recognising the need to return the disturbed area within Work No. 12 to its pre-construction condition of poor semi-improved grassland/horse paddock (eastern section of Work No. 12) and scrub (western section of Work No. 12), the Applicant commits to undertaking a ten year management plan of the whole of proposed Work No. 12A (comprising approximately 11,400m² in area) commencing from completion of the relevant (nightingale) construction period. This ten year management period is with the exception of the area identified as horse paddock (see **Figure 2, Appendix 1**), which will be managed for a five year period to allow the landowner to continue with its existing use after five years. In practice, the pre-construction mitigation within proposed Work No. 12A outside of Work No. 12 is anticipated to have been established prior to or early within the relevant (nightingale) construction period and will be managed for a longer period by virtue of its earlier implementation (i.e. the duration of the relevant (nightingale) construction period plus ten years (or plus five years in the case of the area identified as horse paddock)). An indicative programme for habitat management of proposed Work No. 12A is illustrated in **Plate 2.1**.
72. The combination of pre-construction mitigation and post construction reinstatement, managed for a period of ten years from completion of the relevant (nightingale) construction period (with the exception of the area identified as horse paddock (see **Figure 2, Appendix 1**), which will be managed for a five year period), is considered by the Applicant to be a suitable period for the mitigation area to become established and to compensate for the temporary loss of habitat during construction within Work No. 12.
73. At the end of the management period, the eastern section of Work No. 12 will be returned to its original condition as an area of poor semi-improved grassland with



scattered scrub and possible continued use as a horse paddock (whilst retaining the boundary hedgerow planting) and the western section will be returned to improved dense/continuous scrub as identified by the Extended Phase 1 Habitat Survey (**Figure 22.4a-f** of the ES (APP-277)).

74. Annual monitoring of the measures implemented within Work No. 12A will be undertaken for the duration of the management period (i.e. ten years from completion of the relevant (nightingale) construction period, with the exception of the area identified as horse paddock (see **Figure 2, Appendix 1**), which will be managed for a five year period). Results of the monitoring will be used to inform the ongoing programme of management and maintenance measures implemented during the management period.

2.11.3 Topsoil Monitoring

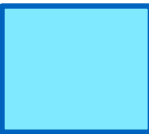
75. Following the completion of construction works within Work No. 12, monitoring of areas where topsoil has been removed will be undertaken for a period of one year (in parallel with the first year of habitat management of Work No. 12A (see **section 2.11.2**)). The Applicant anticipates monitoring will be undertaken on a quarterly basis, however the precise frequency of monitoring will be confirmed within the final SPA Crossing Method Statement. Where monitoring identifies the need for further measures to reinstate the affected areas to their pre-construction condition, further measures will be agreed with the relevant planning authority following consultation with the statutory nature conservation body (Natural England).

2.12 Illustration of Potential Mitigation Measures

76. **Figure 7a** and **Figure 7b, Appendix 1** illustrate the possible extent and location of the mitigation measures within Work Nos. 12A and 14, as described within this Outline SPA Crossing Method Statement. The extent and location of the final mitigation measures will be informed by pre-construction surveys and the detailed design of the SPA crossing and will be detailed in the final Ecological Management Plan secured under **Requirement 21** of the **draft DCO** (REP5-003).

2.13 Contact Details

77. Contact details for the relevant planning authority and relevant statutory nature conservation body will be provided within the final SPA Crossing Method Statement for ease of reference.



Outline SPA Crossing Method Statement

24th February 2021

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6 to 10
Mitigation Habitat Preparation	Work Nos. 14 & 12A						
Construction and Reinstatement		Onshore Cable Corridor: Relevant (Turtle Dove) / Relevant (Nightingale) Construction Periods					
		SPA Crossing / Buffer*					
Work No. 14 Mitigation		Up to 3-years habitat management during construction			1-year habitat management		
Proposed Work No. 12A		Up to 3-years habitat management during construction			10-year habitat management (5 years for the area identified as horse paddock)>>		

Plate 2.1 Indicative programme of habitat management associated with an open trench SPA crossing technique for each Project

* Open trench construction associated with the SPA crossing, within the SPA crossing and within the SPA crossing buffer, are anticipated to be completed within a single non-breeding bird season (i.e. 5 months from September to January inclusive).



3 Trenchless Technique

3.1 Overview

78. **Section 3** of this Outline SPA Crossing Method Statement relates to a trenchless technique for crossing the SPA.
79. Trenchless techniques are methods of construction that allow ducts and cables to be installed under the SPA without breaking open the ground and digging a trench within the SPA boundary. Examples of such techniques include Horizontal Directional Drilling (HDD), thrust boring, auger boring, direct pipe and pipe ramming. For the purpose of this Outline SPA Crossing Method Statement, it is assumed that HDD would be the adopted trenchless technique. The final SPA Crossing Method Statement will be drafted to reflect the particular trenchless technique adopted.
80. The Project will require up to ten HDD bores to be installed at the SPA crossing (accommodating up to six electrical cables, up to two fibre optic cables and up to two distributed temperature sensing cables). The ground surface within the SPA crossing will not be disturbed during the HDD works.
81. HDD entry and exit pits will be located within Work No. 11 and Work No. 13 (see **Figure 8, Appendix 1**). Whilst their final location will be determined by a pre-construction geotechnical survey to ensure the optimal HDD alignment, they may be located within the SPA crossing buffer or outside the SPA crossing buffer.

3.2 Order Limits and Onshore Cable Route

82. **Figure 8, Appendix 1** shows the extent of the Order limits and works areas associated with a HDD construction (note that any other trenchless technique adopted must be undertaken within these Order limits). The HDD requires a 90m wide (underground) onshore cable route within the SPA to accommodate the required separation distances between each HDD bore as it passes under the SPA.
83. The Order limits also accommodate two hardstanding areas; a HDD entry pit working area up to 6,300m² (where the HDD enters the ground) and a HDD exit pit working area up to 2,700m² (where each HDD will exit the ground). The entry pit and exit pit working areas will be located within the areas shown for Work Nos. 11 and 13.



3.3 Onshore Cable Corridor Width During Simultaneous Construction

84. As stated in **section 1.3** above, where both East Anglia ONE North and East Anglia TWO gain consent the Applicant has committed to install the ducting for the second project in parallel with the installation of the onshore cables for the first project. This removes the potential for repeat construction works within the SPA boundary to accommodate the second project under a sequential construction scenario.
85. As the Applicant has committed to install the ducting for the second project in parallel with the installation of the onshore cables for the first project, the maximum width of each project's onshore cable route will remain at 90m for each project irrespective of whether the projects are constructed simultaneously or sequentially.

3.4 Seasonal Restriction

86. No intrusive pre-construction surveys will be undertaken within the SPA crossing (Work No. 12) during the nightjar and woodlark breeding bird season (1st February to 31st August) unless otherwise agreed with the relevant planning authority in consultation with the relevant statutory nature conservation body.
87. No above ground construction works will be undertaken within the SPA crossing, therefore there will be no direct disturbance of habitat or species within this area.
88. Where the HDD entry or exit pits are located outside the SPA crossing buffer, there will be no disturbance of species within the SPA crossing, and a sufficient buffer of 200m will exist between the SPA boundary and the works, therefore no seasonal restriction will apply.
89. Where the HDD entry or exit pits are located within the SPA crossing buffer, no construction works associated with the SPA crossing will be undertaken within the SPA crossing buffer during the nightjar and woodlark breeding bird season (14th February to 31st August⁶) unless otherwise agreed with the relevant

⁶ It is noted that the seasonal restriction for an open trench technique (presented in Section 2.4) and intrusive pre-commencement surveys starts on 1st February whereas the seasonal restriction for a trenchless technique construction works starts on 14th February. This is due to the shorter duration of open trench works and the corresponding reduced programme and delivery risk associated with the open trench works and intrusive pre-commencement surveys compared to the trenchless technique construction works. Whilst the Applicant considers a seasonal restriction start of 14th February to be acceptable for the species in question, given the reduced risk profile of the open trenching technique and intrusive pre-commencement surveys, the Applicant can agree with Natural England's request for the seasonal restriction for works within the SPA and SPA crossing buffer to start on 1st February for open trench works and intrusive pre-commencement surveys only.



planning authority in consultation with the relevant statutory nature conservation body.

90. Seasonal dependent reinstatement, landscaping and ecological mitigation works within the SPA crossing buffer may be undertaken at any time subject to the provisions of the Ecological Management Plan, approved in accordance of Requirement 21 of the **draft DCO** (REP5-003). Where such reinstatement works are undertaken between 14th February and 31st August, the works will be undertaken sensitively and using the appropriate equipment.

3.5 Duration of Construction Works

91. **Table 3.1** below presents the anticipated duration of HDD works associated with the SPA crossing, for a Project alone construction and for construction of the Project simultaneously with the East Anglia ONE North project.

Table 3.1 Duration of Construction Works

Nature of construction works	Anticipated duration of HDD works associated with the SPA crossing
Single Project / sequential construction, with ducting for second project laid in parallel with the construction of the first project, with no above ground elements of the HDD works within the SPA crossing buffer	16.5 consecutive months
Single Project / sequential construction, with ducting for second project laid in parallel with the construction of the first project, with above ground elements of the HDD works within the SPA crossing buffer	11 months spread over two consecutive non-breeding bird seasons (achievable using additional HDD rigs and construction personnel)
Simultaneous Project construction with the East Anglia ONE North project, with no above ground elements of the HDD works within the SPA crossing buffer	16.5 consecutive months
Simultaneous Project construction with the East Anglia ONE North project, with above ground elements of the HDD works within the SPA crossing buffer	11 months spread over two consecutive non-breeding bird seasons (achievable using additional HDD rigs and construction personnel)

92. The durations presented above are estimates and works may take longer (whilst maintaining the seasonal restrictions described in **section 3.4**) in the event of unknown events which could delay construction, such as Covid-19, unidentified ground contamination, significant archaeological finds, equipment failures etc. Further information on the duration of construction works will be provided in the final SPA Crossing Method Statement.

3.6 Working Hours



93. Use of the HDD technique at the SPA crossing will require 24-hour working at certain times due to the nature of the works, typically during HDD drilling operations.
94. Continuous periods of construction, such as those associated with trenchless techniques, are permitted within Requirement 23 of the **draft DCO** (REP5-003) subject to the timing and duration of such construction works being approved by the relevant planning authority.

3.7 Construction

95. A typical HDD operation involves three distinct stages:
 - Drilling a small diameter pilot hole from the entry point along the designated route, to the exit point. The HDD entry pit working area and HDD exit pit working area are up to 6,300m² and up to 2,700m² in size respectively);
 - Enlarging (widening) the bore by passing a larger cutting tool known as the 'reamer' through the bore a number of times to progressively enlarge the bore to the required diameter; and
 - Pulling a duct through each reamed bore.
96. HDD drilling is undertaken with the use of a viscous fluid known as drilling mud. It is typically a mixture of water and bentonite (a non-toxic clay commonly used in farming practices) which is continuously pumped to the cutting head or drill bit to facilitate the removal of cuttings, stabilise the borehole, cool the cutting head, and lubricate the passage of the duct.
97. Once the ducts are in place, they are typically capped at both ends and the onshore cables are pulled through the ducts at a later date.
98. Preparation of the HDD temporary working areas will be carried out using a tracked excavator or similar. All material excavated will be handled in line with an approved soil management plan (secured by Requirement 22 of the **draft DCO** (REP5-003)) with subsoil stored separately from topsoil.
99. Waste will be removed from site and disposed of in accordance with the approved site waste management plan (secured by Requirement 22 of the **draft DCO** (REP5-003)).
100. A temporary heras type fencing or wooden hoarding or similar may be erected to demark the HDD temporary working areas, in line with the details approved under Requirement 17 of the **draft DCO** (REP5-003). Appropriate signage and notices



will also be fixed along the boundary of the works to inform members of the public as to the works being undertaken.

101. On completing the HDD works to cross the SPA, any entry and exit pit areas within the SPA crossing buffer will be reinstated.
102. Any temporary fencing, plant and machinery associated with the SPA crossing within the SPA crossing buffer will also be removed.
103. The onshore cables will be pulled through the ducts at a later date. This pulling operation will not involve surface disturbance within the SPA crossing or SPA crossing buffer. No jointing bays will be located within the SPA crossing or SPA crossing buffer, thereby avoiding the need for further excavations in these areas during wider onshore cable installation.

3.8 Lighting

104. No constant lighting is required within the SPA boundary during HDD works although 24-hour lighting is anticipated to be required at the HDD entry pit and HDD exit pit during the works.

3.9 Species Specific Ornithological Mitigation

3.9.1 Pre-construction Surveys

105. To ensure that for all species, no destruction of nests, young or eggs, or undue disturbance to breeding adults occurs, pre-construction surveys will be undertaken by an Ecological Clerk of Works or suitably qualified ornithologist during the breeding season, as outlined in the ***Outline Landscape and Ecological Management Strategy*** (updated version submitted at Deadline 6, document reference 8.7).

3.9.2 Turtle Dove Mitigation

106. In response to the possible loss of turtle dove foraging habitat within the onshore cable corridor (including but not limited to the SPA crossing buffer) as identified in **section 23.6.3.1.4.5 of Chapter 23 Onshore Ornithology** (APP-071), Work No. 14 has been identified for temporary ecological mitigation which will include sowing turtle dove seed mix to create optimal feeding habitat throughout the relevant (turtle dove) construction period. This supplementary feeding area (the turtle dove mitigation area) is located within 300m of previously recorded turtle dove territories, in an open location adjacent to field boundaries, in proximity to water (an existing agricultural reservoir). The spatial extent of Work No. 14 and associated area to be used for turtle dove will incorporate a degree of oversizing to allow for variations in growth. The spatial extent will be agreed with the relevant planning authority in consultation with Natural England and confirmed within the final SPA Crossing Method Statement post-consent.



107. Based on the Operation Turtle Dove initiative guidance (www.operationturtledove.org/wp-content/uploads/2020/01/OTD-Guidance-Supplementary-feeding-Jan20.pdf), the seed mix will be sown on suitably prepared ground between 1st August and 15th October (with sowing of the seed mix undertaken as early as practicable during this period) in the calendar year prior to the relevant (turtle dove) construction period. This is considered by the Applicant to be a suitable period for the mitigation area to become viable. The mitigation area will continue to improve during the relevant (turtle dove) construction period by virtue of the management measures outlined below.
108. Existing established hedgerows within Work No. 14 will be protected, whilst any unfavourable hedgerows will be managed to promote nesting habitat for turtle dove. Given the existing habitat within the area of Work No. 14, it is anticipated that it will not require intensive or intrusive management of hedgerows. Rather more of a protective management style will be adopted with the aim of allowing natural enhancement and retaining the existing habitat as much as possible.
109. During the relevant (turtle dove) construction period, supplementary feeding will be carried out within the turtle dove mitigation area from mid-April to late July (or earlier should turtle dove breeding activity cease as evidenced by the Project's Ecological Clerk of Works) to supplement the food source. Limited cutting/topping of the turtle dove mitigation area may also occur to control weeds. Between 15th June and 7th July each year during the relevant (turtle dove) construction period, half of the turtle dove mitigation area will be cut or scarified to approximately 10-15cm on a rotational basis. The whole turtle dove mitigation area will then be cut or scarified between 1st and 30th September and the cut vegetation removed.
110. The turtle dove mitigation area will be subject to ongoing monitoring throughout the relevant (turtle dove) construction period, as defined in the breeding bird protection plan produced as part of the Ecological Management Plan to be approved under Requirement 21 of the **draft DCO** (REP5-003).
111. **Section 3.11.1** below provides details on the duration that the turtle dove mitigation will remain in place before its subsequent return to agricultural land.

3.9.3 Nightingale Mitigation

112. Crossing the SPA using a trenchless technique will not disturb habitats within the SPA boundary, and noting that existing habitat within the onshore development area outside the SPA boundary is unsuitable for nightingale, no nightingale mitigation is required for a HDD (or other trenchless technique) crossing of the SPA.

3.10 SPA Crossing Habitat Reinstatement



113. Crossing of the SPA using HDD or other trenchless techniques will not disturb habitats within the SPA boundary, therefore reinstatement will be limited to the HDD entry and exit pit locations which will involve reinstatement to its pre-construction arable use. Should hedgerows be removed to accommodate the HDD works, these will be replaced and maintained for a period of 5 years following reinstatement in line with Requirement 15 of the **draft DCO** (REP5-003).

3.11 Post Construction Habitat Management Period

3.11.1 Turtle Dove Mitigation Area (Work No. 14)

114. The turtle dove mitigation area within Work No. 14 will remain in place for at least one full breeding season following the completion of the relevant (turtle dove) construction period after which it will be removed and returned to agricultural use. Retention for an extended period may prevent the return of this area to productive agricultural use. Removal of the turtle dove mitigation area will be undertaken between 1st September to 31st January (i.e. outside the breeding bird season). An indicative programme for habitat management associated with a trenchless SPA crossing technique is illustrated in **Plate 3.1**.



Outline SPA Crossing Method Statement
24th February 2021

	Year	Year 1	Year 2	Year	Year 4	Year 5	Years 6 to 10
Mitigation Habitat Preparation	Work No. 14						
Construction and Reinstatement		Onshore Cable Corridor: Relevant (Turtle Dove) Construction Period					
Work No. 14 Mitigation		Up to 3-years habitat management during construction			1-year habitat management		
Proposed Work No. 12A	None						

Plate 3.1 Indicative programme of habitat management associated with a trenchless SPA crossing technique for each Project



3.12 Measures to Prevent Bentonite Mud Break-out

115. Drilling mud is typically a mixture of water and bentonite (a non-toxic clay commonly used in farming practices) which is continuously pumped to the cutting head or drill bit to facilitate the removal of cuttings, stabilise the borehole, cool the cutting head, and lubricate the passage of the duct.
116. HDD drilling associated with crossing the SPA by trenchless technique carries a potential risk of bentonite mud break-out from the bore due to the bentonite mud being forced through small fractures in the ground at pressure. However, bentonite mud breakouts in these circumstances are rare, as the bentonite is a thixotropic fluid of high viscosity which seals the wall of the drill by the bentonite entering and sealing fissures within the bore.
117. A number of measures will be adopted to prevent or minimise the risk of bentonite breakout and to mitigate its impact in the unlikely event that it occurs.
118. Ground investigations will be undertaken to establish the ground conditions along the HDD drill profile, allowing a suitable HDD design to be established. This will influence such matters as the equipment to be used; HDD entry/exit pit locations; HDD drill profile; HDD bore depth below ground; bentonite viscosity; and the pilot hole diameter and subsequent reaming diameter(s), which will minimise the risk of bentonite mud break-out during HDD drilling.
119. During HDD drilling, the bentonite mud pressure and fluid levels within the mud tanks will be monitored. Where bentonite mud pressure loss or reductions in returns to the mud tanks is detected, the HDD drill rig operator will reduce the bentonite mud pressure within the bore where possible, thereby reducing the risk of bentonite mud breakout.

3.13 Bentonite Mud Break-Out Response Planning

120. In the unlikely event that a bentonite mud break-out is confirmed, drilling works will be reduced or halted, with bentonite mud re-introduced periodically under pressure to plug the break-out channel. Should this prove unsuccessful, additional products known as loss circulation materials will be introduced to plug the point of mud egress. These loss circulation materials will be mixed and pumped into the HDD drill via the drill string. Once the plug has been left to set for the required period, the drilling works will resume with careful observation of the break-out location.
121. Where bentonite mud break-out is confirmed to have occurred, a visual inspection will be undertaken along the HDD drill line route to identify the location and extent of the bentonite mud break-out and sandbags (available on site) will be used to contain the bentonite mud. The Applicant will advise the relevant



planning authority and relevant statutory nature conservation body (Natural England) within 24 hours of a bentonite mud break-out being confirmed to discuss the most appropriate way of dealing with the breakout.

122. Means to remove the bentonite include collecting with a flexible hose and pump or similar method. If removed, the collected material will be transported directly to an approved waste management facility or returned to the works area and reused. The affected area may also be flushed with clean water.
123. In the unlikely event that a bentonite mud break-out is confirmed to have occurred, no new HDD bores will commence until the break-out is investigated and a review of the HDD design parameters is undertaken to establish whether any modifications to the HDD design and construction method statement is necessary to reduce the risk of further break-outs. Such modifications may include changes to the HDD drill profile, bentonite mud mixture or drilling pressures.

3.14 Contact Details

124. Contact details for the relevant planning authority and relevant statutory nature conservation body will be provided within the final SPA Crossing Method Statement for ease of reference.



4 Management Objectives

4.1 Open Trench Technique

125. The Applicant has formulated the following management objectives for the mitigation measures associated with the open trench SPA crossing technique proposed within this Outline SPA Crossing Method Statement:

- To mitigate for the temporary loss of habitat within the Leiston – Aldeburgh SSSI (and corresponding Sandlings SPA) boundary known to support nightingale as a result of the construction of the Project;
- To compensate for the temporary loss of habitat known to support turtle dove within the SPA/SSSI boundary, as a result of the construction of the Project;
- To compensate for the temporary loss of habitat known to support turtle dove (outside of the SPA/SSSI boundary), as a result of the construction of the Project;
- To enhance an area within the Leiston – Aldeburgh SSSI (and corresponding Sandlings SPA) to establish a functional habitat for SSSI species for a period of five years from completion of the relevant (nightingale) construction period; and
- To promote the species for which mitigation is established without compromising habitat for SPA species.

126. The construction footprint of the onshore cable route within Work No. 12 will be reinstated on completion of the SPA crossing construction works. The mitigation area comprising the whole of proposed Work No. 12A will subsequently be managed for a period of ten years from completion of the relevant (nightingale) construction period or relevant (turtle dove) construction period (whichever the later) in line with the above management objectives (as per **Plate 2.1**) (with the exception of the area identified as horse paddock, which will be managed for a period of five years (see **Figure 2, Appendix 1**)).

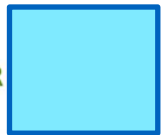
127. The final restoration objectives will be confirmed within the final SPA Crossing Method Statement post-consent and will require the approval of the relevant planning authority in consultation with Natural England.

4.2 Trenchless Technique

128. The Applicant has formulated the following management objective for the mitigation measures associated with a trenchless SPA crossing technique proposed within this Outline SPA Crossing Method Statement:



- To compensate for the temporary loss of habitat known to support turtle dove (outside of the SPA/SSSI boundary), as a result of the construction of the Project.
129. The final restoration objectives will be confirmed within the final SPA Crossing Method Statement post-consent and will require the approval of the relevant planning authority in consultation with Natural England.



5 Applicant's Preferred SPA Crossing Technique

130. The Applicant's preferred technique for crossing the Sandlings SPA is the open trench technique, as described in **section 2** of this Outline SPA Crossing Method Statement.
131. In order to reduce the impact of this crossing technique to an acceptable level and maintain the integrity of the Sandlings SPA and Leiston – Aldeburgh SSSI, the Applicant has refined the project definition and introduced a range of mitigation measures as follows which apply to the open trench solution, but which do not apply to the trenchless technique solution:
- Significant reduction to Order limits (see **Figure 1, Appendix 1**);
 - Significant reduction in onshore cable corridor width from 32m to 16.1m;
 - Extended seasonal restriction period (starting 1st February for an open trench SPA crossing technique, rather than 14th February);
 - Provision of nightingale mitigation over 11,373m² area within proposed Work No. 12A (potential for turtledove and other species to benefit, depending on pre-construction surveys and detailed design of the mitigation);
 - Management of proposed Work No. 12A for ten years following completion of the relevant (nightingale) construction period or the relevant (turtle dove) construction period, whichever is the later (with the exception of the area identified as horse paddock, which will be managed for a period of five years (see **Figure 2, Appendix 1**));
 - Commitment to no jointing bays being located within the SPA crossing or SPA crossing buffer to avoid the need for further excavations in these areas during the wider onshore cable installation;
 - Use of 'trackmat' roads within the SPA crossing to minimise or avoid the need to strip soil from under the 'trackmat', thereby ensuring underlying ground disruption is limited and reinstatement time is reduced;
 - Aim of completing SPA crossing construction works (within the SPA and within the SPA crossing buffer) within a single non-breeding bird season;
 - Avoidance of 24-hour working which would otherwise be required should a trenchless technique be used;
 - No storage of stripped soil within the SPA crossing, reducing the footprint of the disturbed area within the SPA crossing; and
 - Management of hedgerows within Work No. 14 to promote nesting habitat for turtle dove. Given the existing habitat within the area of Work No. 14, it is



anticipated that it will not require intensive or intrusive management. Rather more of a protective management style will be adopted with the aim of allowing natural enhancement and retaining the existing habitat as much as possible.

132. It should be noted that the management of Work No. 14 for turtle dove will be undertaken for both the open trench and trenchless SPA crossing scenarios. In light of the impacts to SSSI species within the SPA/SSSI designation as assessed within the ES, it is anticipated that the management proposed for Work No. 14 will provide greater value in mitigating impacts associated with an open trench SPA crossing technique and is therefore more appropriate for this construction method.
133. The Applicant considers that the measures set out above adequately mitigate the impact of an open trench crossing of the Sandlings SPA and Leiston – Aldeburgh SSSI to an acceptable level and maintain the integrity of the SPA and SSSI.



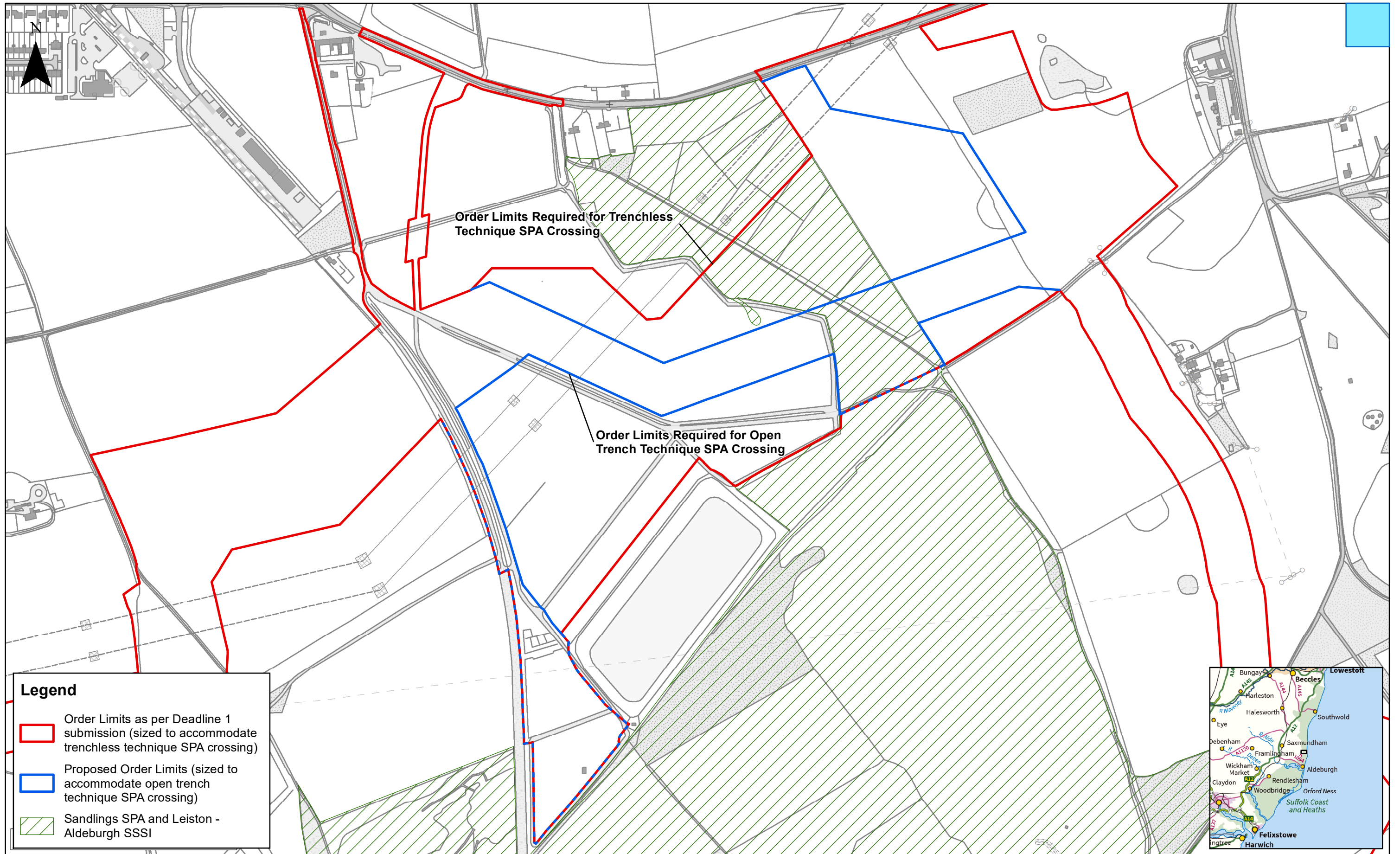
6 Next Steps

134. The final SPA Crossing Method Statement will be prepared post-consent in accordance with this Outline SPA Crossing Method Statement to refine and confirm the mitigation agreed between the Applicant and the relevant planning authority in consultation with Natural England in accordance with Requirement 21(1) of the **draft DCO** (REP5-003).
135. The final SPA Crossing Method Statement will confirm the crossing method of the Sandlings SPA, detail the specific constraints to which the works associated with the crossing of the Sandlings SPA will adhere to during construction, detail the mitigation measures (informed by pre-construction surveys) to be adopted and the ongoing management and maintenance of these mitigation areas.



Appendix 1: Figures

- Figure 1: Comparison of Order Limits Required for an Open Trench Technique and Trenchless Technique SPA Crossing
- Figure 2: Existing Land Use at SPA Crossing
- Figure 3: Species Observations (2009 – 2019) within 200m of Sandlings SPA / Leiston-Aldeburgh SSSI
- Figure 4: **(Confidential)** Species Observations (2009 – 2019) within 200m Buffer of Sandlings SPA / Leiston-Aldeburgh SSSI
- Figure 5: **(Confidential)** Nightjar, Woodlark, Turtle Dove and Nightingale Observations (2009 – 2019) within 200m of Sandlings SPA / Leiston-Aldeburgh SSSI
- Figure 6: Order Limits and Works Areas Required for an Open Trench Technique SPA Crossing
- Figure 7a: Illustrative Habitat Management Area within Proposed Work No. 12A
- Figure 7b: Illustrative Habitat Management Area within Work No. 14
- Figure 8: Order Limits and Works Areas Required for a Trenchless Technique SPA Crossing



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Rev	Date	By	Comment	Approved:	FM

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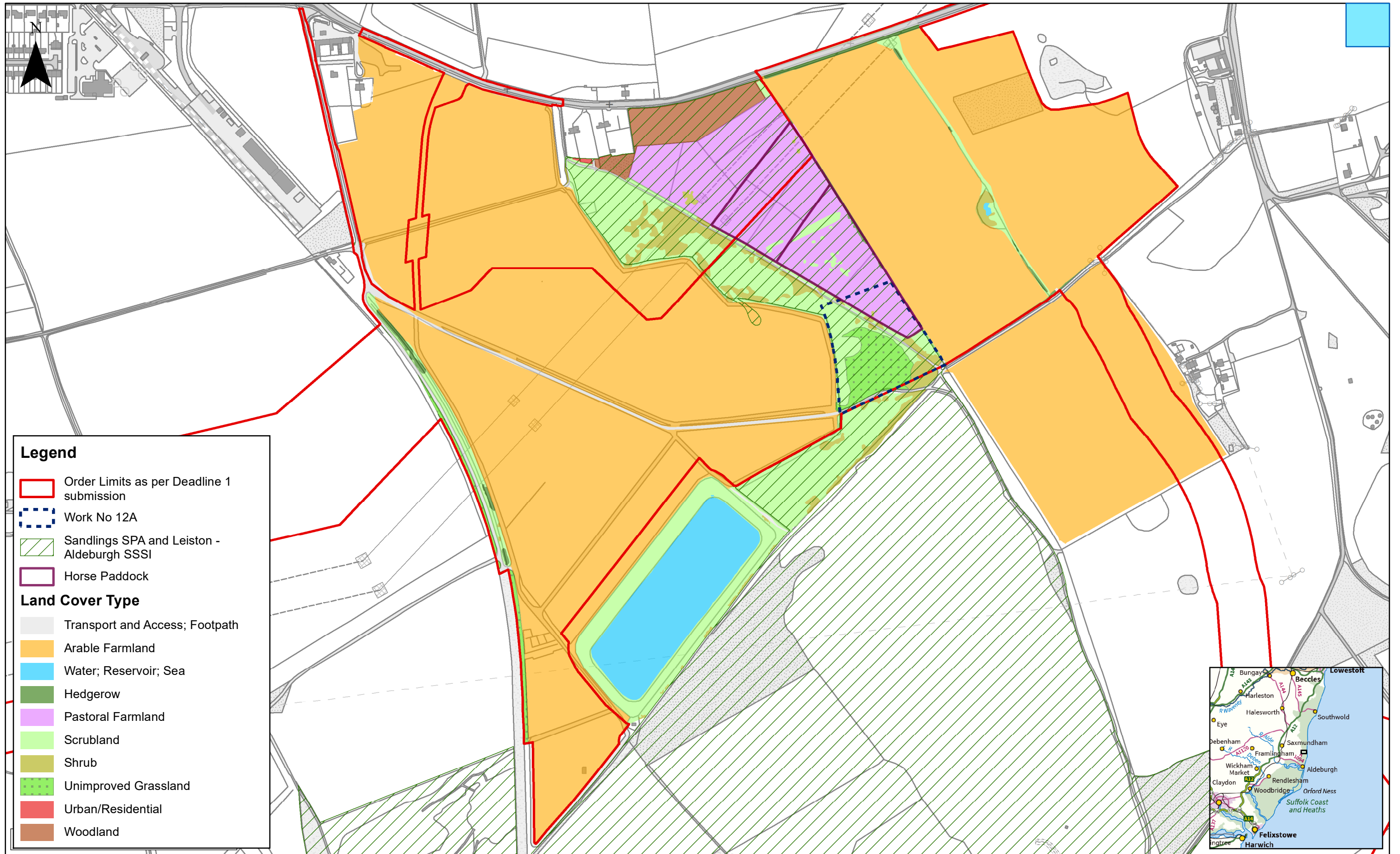
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East Anglia TWO

Comparison of Order Limits Required for an Open Trench Technique and Trenchless Technique SPA Crossing

Drg No	EA2-DEV-DRG-JBR-001199	
Rev	7	Coordinate System: BNG
Date	27/10/20	Datum: OSGB36
Figure	1	



- Legend**
- Order Limits as per Deadline 1 submission
 - Work No 12A
 - Sandlings SPA and Leiston - Aldeburgh SSSI
 - Horse Paddock
- Land Cover Type**
- Transport and Access; Footpath
 - Arable Farmland
 - Water; Reservoir; Sea
 - Hedgerow
 - Pastoral Farmland
 - Scrubland
 - Shrub
 - Unimproved Grassland
 - Urban/Residential
 - Woodland



3	23/02/21	AB	Third Issue.		
2	27/10/20	AB	Second Issue.	Prepared:	AB
1	09/09/20	AB	First Issue.	Checked:	BD
Rev	Date	By	Comment	Approved:	FM

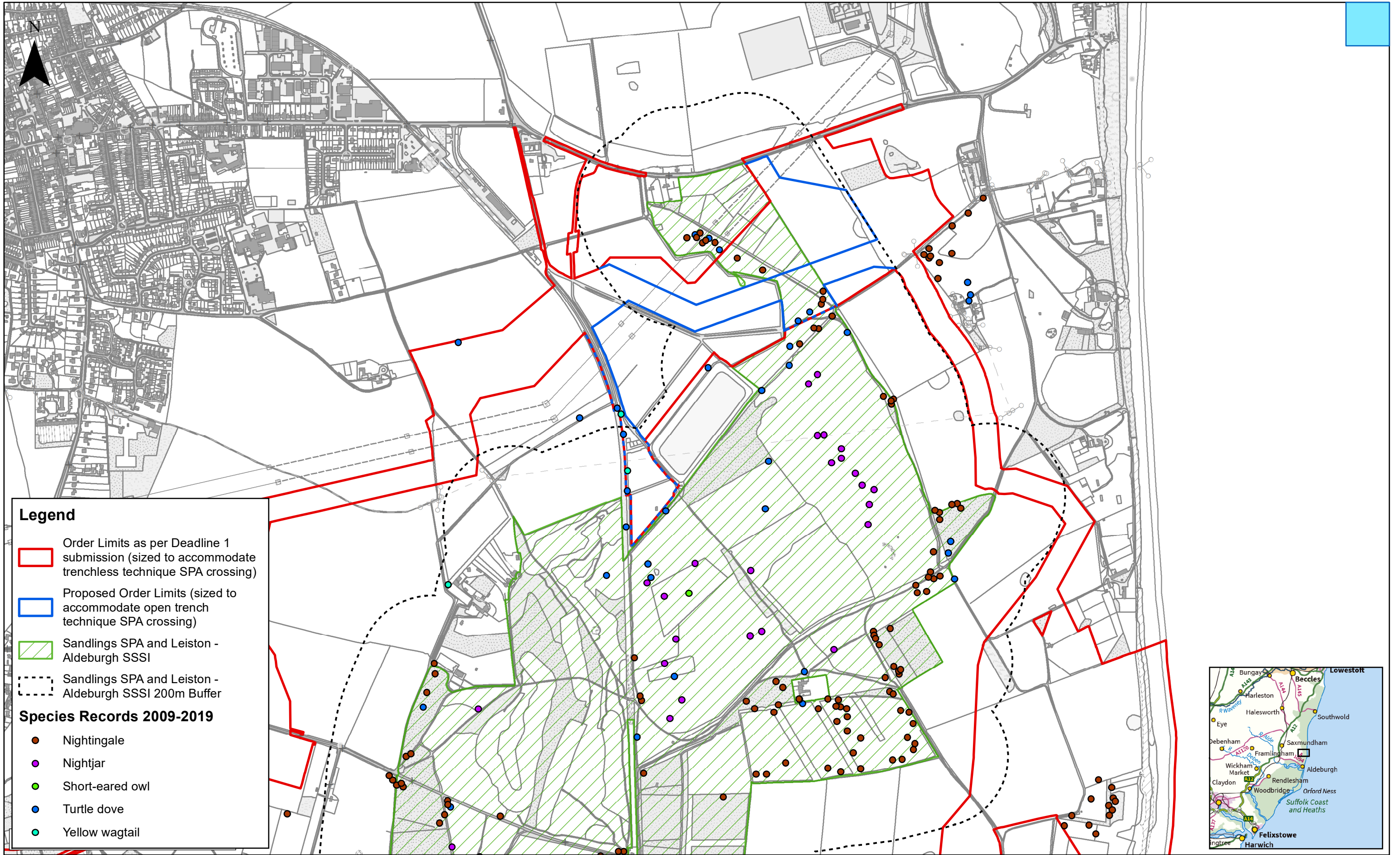
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East Anglia T2O
Existing Land Use at SPA Crossing

Drg No	EA2-DEV-DRG-JBR-001200	
Rev	3	Coordinate System: BNG
Date	23/02/21	Datum: OSGB36
Figure	2	





Confidential - Figure Removed



4	27/10/20	AB	Forth Issue.		
3	09/09/20	AB	Third Issue.	Prepared:	AB
2	28/08/20	AB	Second Issue.	Checked:	BD
Rev	Date	By	Comment	Approved:	FM

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East Anglia TWO
(Confidential) Species Observations
(2009 – 2019) within 200m buffer of
Sandlings SPA / Leiston - Aldeburgh SSSI

Drg No	EA2-DEV-DRG-JBR-001203	
Rev	4	Coordinate System: BNG Datum: OSGB36
Date	27/10/20	
Figure	4	



Confidential - Figure Removed



4	27/10/20	AB	Forth Issue.		
3	09/09/20	AB	Third Issue.	Prepared:	AB
2	28/08/20	AB	Second Issue.	Checked:	BD
Rev	Date	By	Comment	Approved:	FM

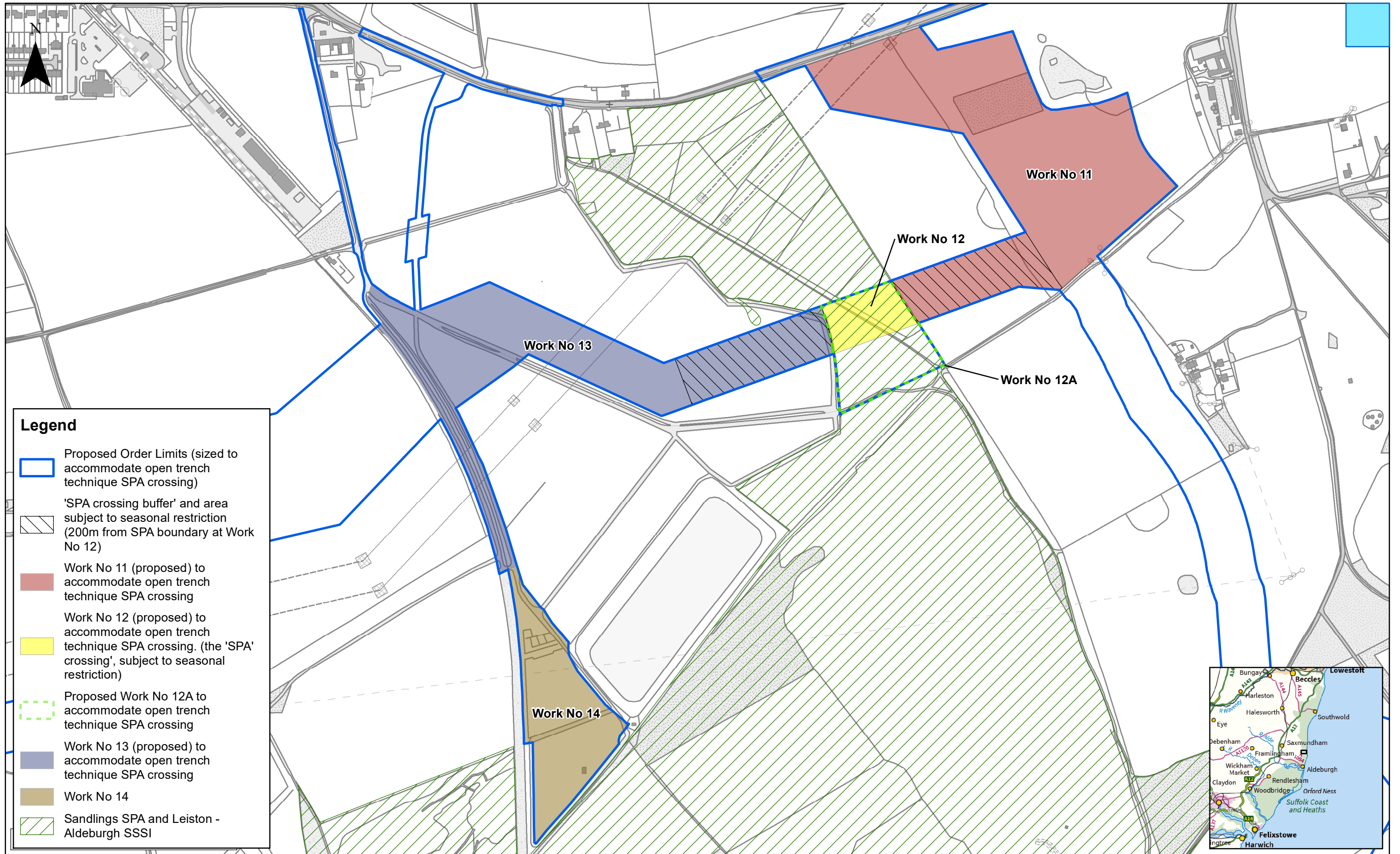
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East Anglia TWO
(Confidential) Nightjar, Woodlark, Turtle Dove and
Nightingale Observations (2009 – 2019) within
200m of Sandlings SPA / Leiston-Aldeburgh SSSI

Drg No	EA2-DEV-DRG-JBR-001205	
Rev	4	Coordinate System: BNG Datum: OSGB36
Date	27/10/20	
Figure	5	



Legend

- Proposed Order Limits (sized to accommodate open trench technique SPA crossing)
- 'SPA crossing buffer' and area subject to seasonal restriction (200m from SPA boundary at Work No 12)
- Work No 11 (proposed) to accommodate open trench technique SPA crossing
- Work No 12 (proposed) to accommodate open trench technique SPA crossing. (the 'SPA' crossing', subject to seasonal restriction)
- Proposed Work No 12A to accommodate open trench technique SPA crossing
- Work No 13 (proposed) to accommodate open trench technique SPA crossing
- Work No 14
- Sandlings SPA and Leiston - Aldeburgh SSSI



7	27/10/20	AB	Seventh Issue.		
6	09/09/20	AB	Sixth Issue.	Prepared:	AB
5	28/08/20	AB	Fifth Issue.	Checked:	BD
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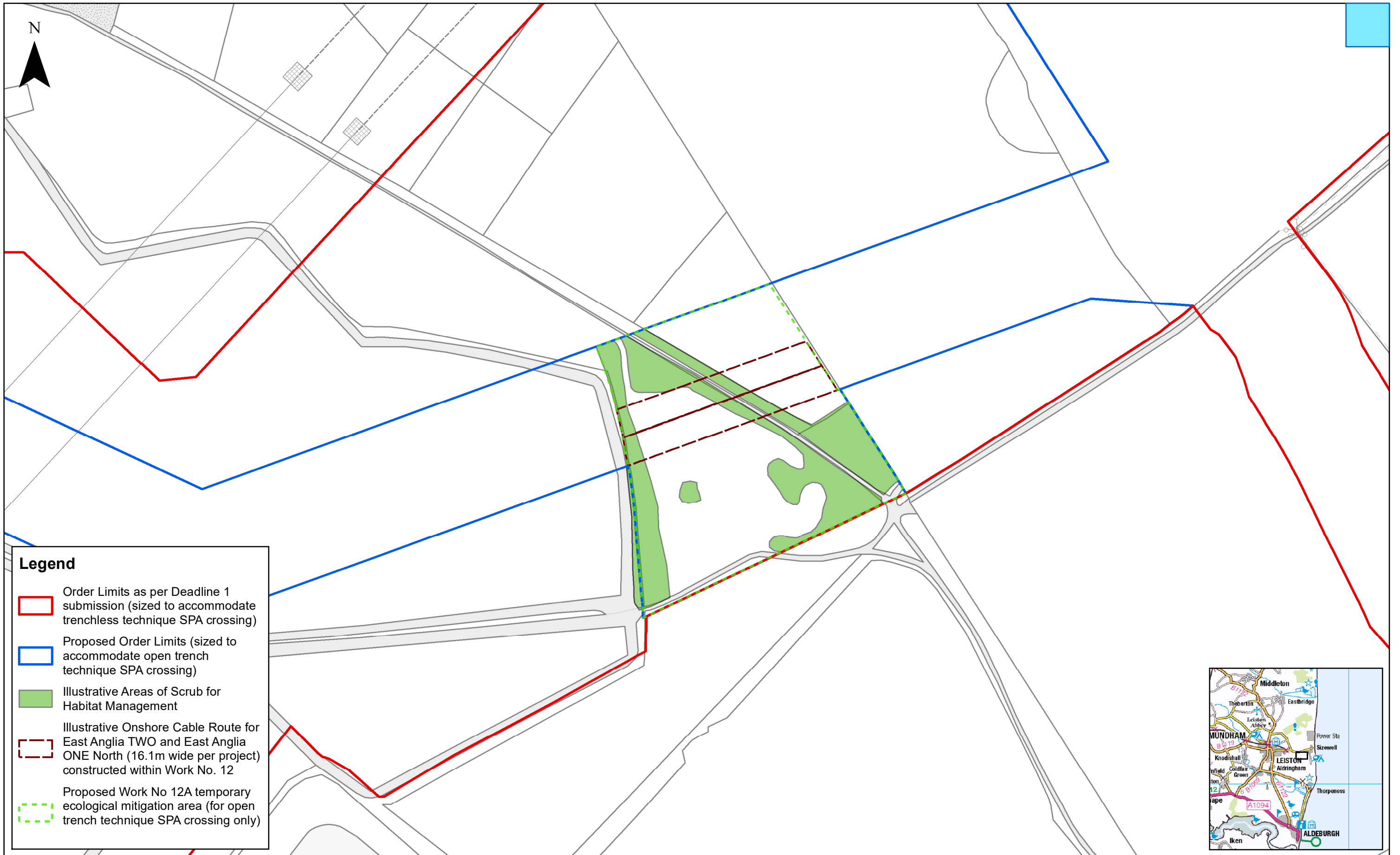
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East Anglia TWO
Order Limits and Works Areas Required for an Open Trench Technique SPA Crossing

Drg No	EA2-DEV-DRG-JBR-001206	
Rev	7	Coordinate System: BNG Datum: OSG36
Date	27/10/20	
Figure	6	



Legend

- Order Limits as per Deadline 1 submission (sized to accommodate trenchless technique SPA crossing)
- Proposed Order Limits (sized to accommodate open trench technique SPA crossing)
- Illustrative Areas of Scrub for Habitat Management
- Illustrative Onshore Cable Route for East Anglia TWO and East Anglia ONE North (16.1m wide per project) constructed within Work No. 12
- Proposed Work No 12A temporary ecological mitigation area (for open trench technique SPA crossing only)



4	27/10/20	AB	Fourth Issue.		
3	09/09/20	AB	Third Issue.	Prepared:	AB
2	28/08/20	AB	Second Issue.	Checked:	BD
Rev	Date	By	Comment	Approved:	FM

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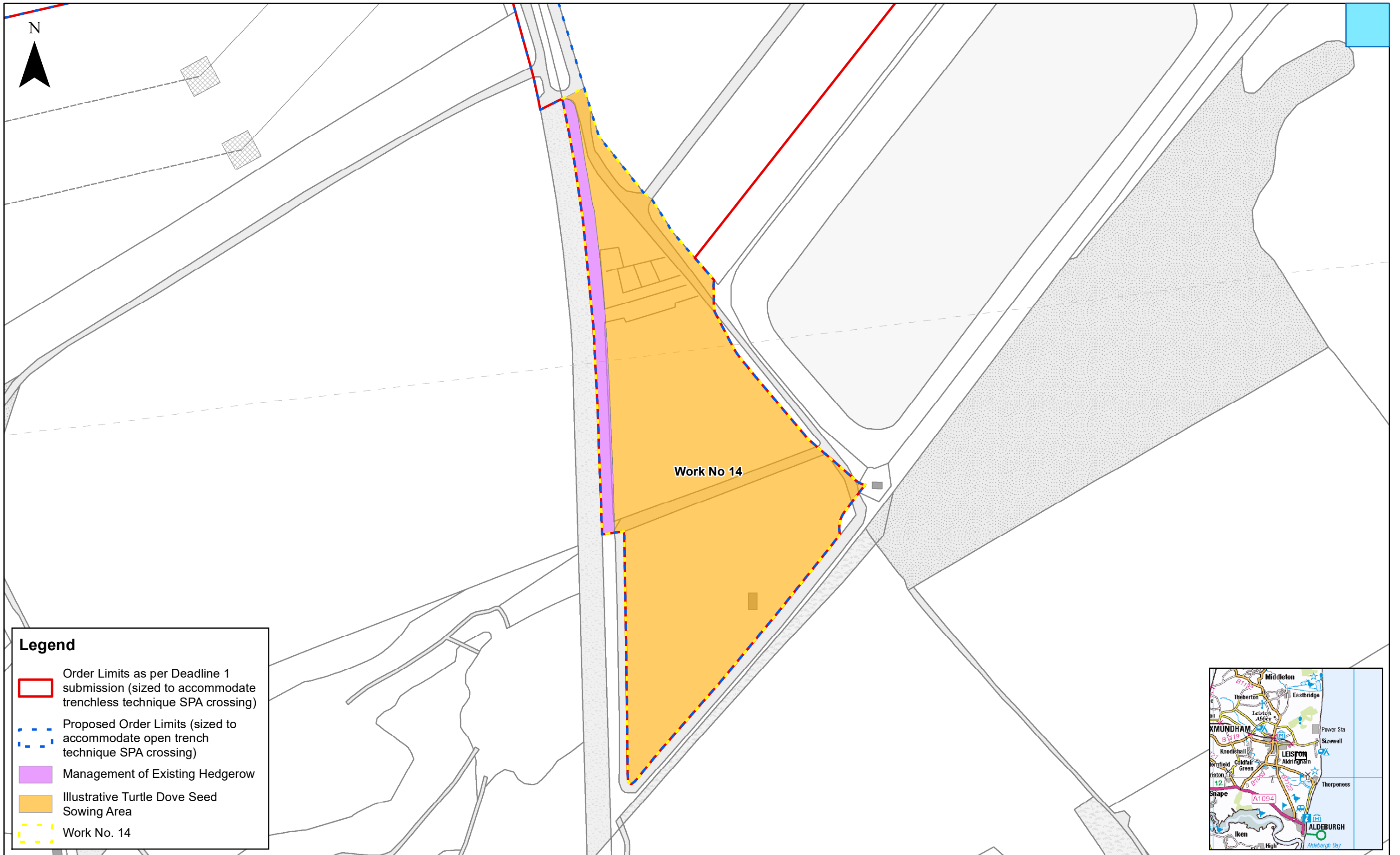
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East Anglia TWO

Illustrative Habitat Management Area within Proposed Work No. 12A

Drg No	EA2-DEV-DRG-JBR-001207	
Rev	4	Coordinate System: BNG
Date	27/10/20	Datum: OSG36
Figure	7a	



Legend

- Order Limits as per Deadline 1 submission (sized to accommodate trenchless technique SPA crossing)
- Proposed Order Limits (sized to accommodate open trench technique SPA crossing)
- Management of Existing Hedgerow
- Illustrative Turtle Dove Seed Sowing Area
- Work No. 14



4	27/10/20	AB	Fourth Issue.		
3	09/09/20	AB	Third Issue.	Prepared:	AB
2	28/08/20	AB	Second Issue.	Checked:	BD
Rev	Date	By	Comment	Approved:	FM

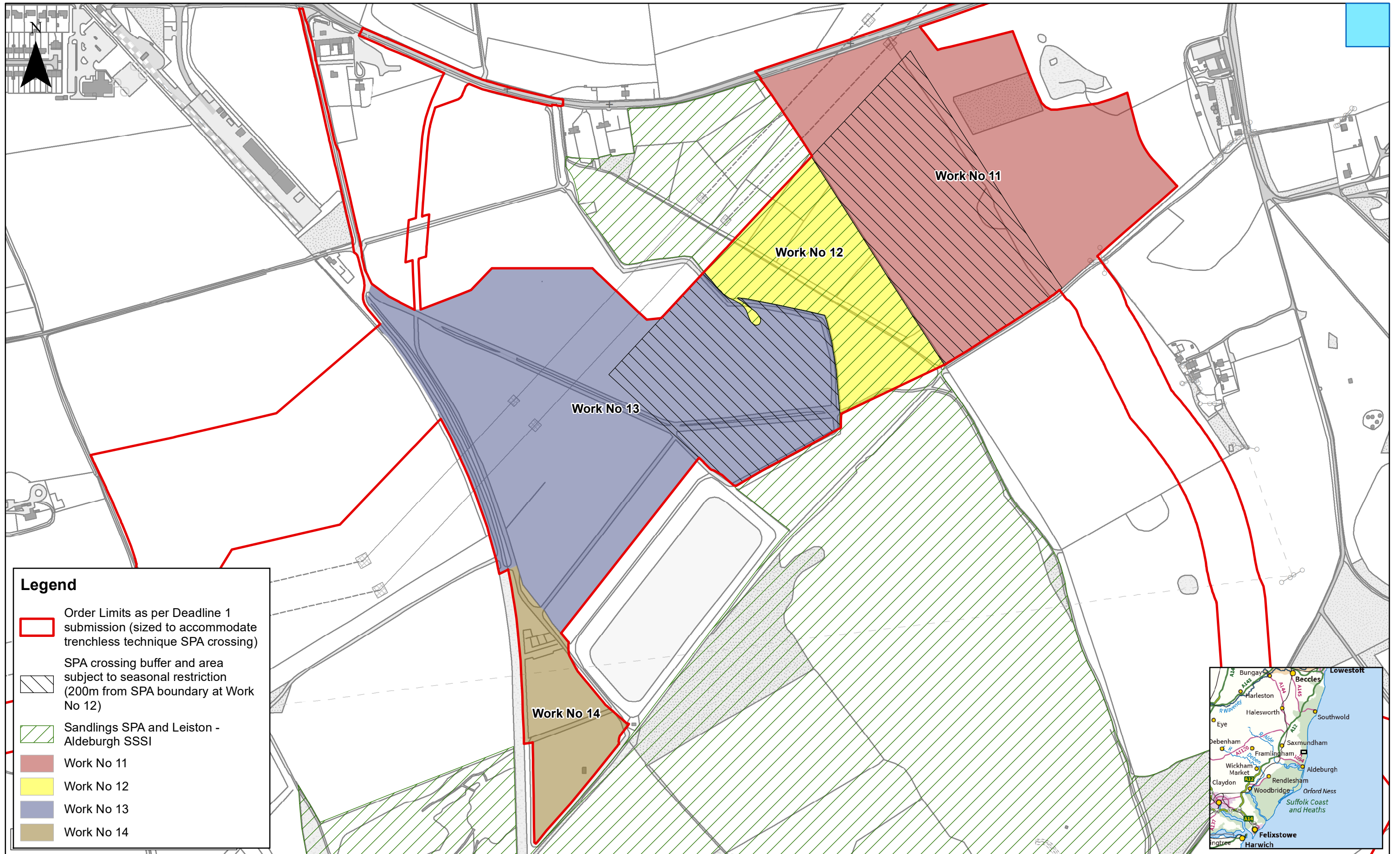
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East Anglia TWO
Illustrative Habitat Management Area within
Work No. 14

Drg No	EA2-DEV-DRG-JBR-001208	
Rev	4	Coordinate System: BNG
Date	27/10/20	Datum: OSGB36
Figure	7b	



Legend

- Order Limits as per Deadline 1 submission (sized to accommodate trenchless technique SPA crossing)
- SPA crossing buffer and area subject to seasonal restriction (200m from SPA boundary at Work No 12)
- Sandlings SPA and Leiston - Aldeburgh SSSI
- Work No 11
- Work No 12
- Work No 13
- Work No 14



Rev	Date	By	Comment	Approved:
2	27/10/20	AB	Second Issue.	Prepared: AB
1	09/09/20	AB	First Issue.	Checked: BD
				Approved: FM

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East Anglia TWO

Order Limits and Works Areas Required for a Trenchless Technique SPA Crossing

Drg No	EA2-DEV-DRG-JBR-001209
Rev	2
Date	27/10/20
Figure	8
Coordinate System:	BNG
Datum:	OSGB36



Appendix 2: Sandlings SPA Leiston – Aldeburgh SSSI Citations

EC Directive 79/409 on the Conservation of Wild Birds

Citation for Special Protection Area (SPA)

Name: Sandlings

Unitary Authority/County: Suffolk

Consultation proposal: All or parts of Blaxhall Heath Site of Special Scientific Interest (SSSI), Leiston - Aldeburgh SSSI, Sandlings Forest SSSI, Snape Warren SSSI, Sutton & Hollesley Heaths SSSI and Tunstall Common SSSI have been recommended as a Special Protection Area because of their European ornithological importance. In particular, for their breeding populations of Nightjars *Caprimulgus europaeus* and Woodlarks *Lullula arborea*.

Site description: The Sandlings SPA lies near the Suffolk Coast between the Deben Estuary and Leiston. In the 19th century, the area was dominated by heathland developed on glacial sandy soils. During the 20th century, large areas of heath were planted with blocks of commercial conifer forest and others were converted to arable agriculture. Lack of traditional management has resulted in the remnant areas of heath being subject to successional changes, with the consequent spread of bracken, shrubs and trees, although recent conservation management work is resulting in their restoration. The heaths support both acid grassland and heather-dominated plant communities, with dependant invertebrate and bird communities of conservation value. Woodlark *Lullula arborea* and Nightjar *Caprimulgus europaeus* have also adapted to breeding in the large conifer forest blocks, using areas that have recently been felled and recent plantation, as well as areas managed as open ground.

Size of SPA: The SPA covers an area of 3,391.80 ha.

Qualifying species:

The site qualifies under **article 4.1** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season:

Annex 1 species	Count and Season	Period	% of GB population
Nightjar <i>Caprimulgus europaeus</i>	109 males - breeding	Count as a 1992	3.2% GB
Woodlark <i>Lullula arborea</i>	154 pairs - breeding	Count as at 1997	10.3% GB

Bird figures from:

Morris, A., Burges, D., Fuller, R.J., Evans, A.D. & Smith, K.W. 1994. The status and distribution of nightjars *Caprimulgus europaeus* in Britain in 1992. A report to the British Trust for Ornithology. *Bird Study* **41**: 181-191.

Wotton, S.R. & Gillings, S. 2000. The status of breeding woodlarks in Britain in 1997. *Bird Study* **47**: 212-224.

Status of SPA

Sandlings was classified as a Special Protection Area on 10 August 2001.

COUNTY: SUFFOLK SITE NAME: LEISTON-ALDEBURGH

DISTRICT: SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authorities: SUFFOLK COASTAL DISTRICT COUNCIL, Suffolk County Council

National Grid Reference: TM 461595 Area: 534.34 (ha.) 1,319.82 (ac.)

Ordnance Survey Sheet 1:50,000: 156 1:10,000: TM 45 NE, TM 46 SE

Date Notified (Under 1949 Act): 1955 Date of Last Revision: –

Date Notified (Under 1981 Act): 1986 Date of Last Revision: 1999

Other Information:

Part RSPB and Suffolk Wildlife Trust reserves.

The site was named 'North Warren and Thorpeness Mere', before the 1999 boundary revision.

Description and Reasons for Notification:

Leiston-Aldeburgh contains a rich mosaic of habitats including acid grassland, heath, scrub, woodland, fen, open water and vegetated shingle. This mix of habitats in close juxtaposition and the associated transition communities between habitats is unusual in the Suffolk Coast and Heaths. The variety of habitats support a diverse and abundant community of breeding and overwintering birds, a high number of dragonfly species and many scarce plants.

The heathland of North Warren, Aldringham Common, The Walks and Thorpeness Common is a fragment of the once extensive Sandlings heaths of coastal Suffolk and is of varying composition. There are patches of sand sedge *Carex arenaria* and heather *Calluna vulgaris* dispersed within acid grassland. Bracken *Pteridium aquilinum* and scrub, notably gorse *Ulex europaeus* and *U. gallii* also form part of the heathland. The short sward acidic grassland is dominated by sheep's-fescue *Festuca ovina* and common bent *Agrostis capillaris* with some bare patches, bryophytes and lichens. There is a varied associated flora including lady's bedstraw *Galium verum*, sheep's sorrel *Rumex acetosella* and the nationally scarce mossy stonecrop *Crassula tillea* and clustered clover *Trifolium glomeratum*.

On the vegetated shingle there is a gradual transition between the strandline community and the shingle heath resulting from increasing stability and distance from tidal influence. On the open shingle, sea-kale *Crambe maritima* and yellow horned-poppay *Glaucium flavum* are frequent with the irregularly occurring sea spurge *Euphorbia paralias*. The stable shingle areas support many species including early hair-grass *Aira praecox*, the nationally scarce sand catchfly *Silene conica*, dune fescue

Vulpia fasciculata, bur medick *Medicago minima*, suffocated clover *Trifolium suffocatum* and sea pea *Lathyrus japonicus*.

Thorpeness Mere is a shallow, eutrophic water body on a peat substrate. The adjacent areas of swamp and carr woodland are hydrologically dependant on the mere. To the south of the mere, grey willow *Salix cinerea* woodland surrounds a fragmentary mosaic of fen communities, mostly reed dominant *Phragmites australis* with nettle *Urtica dioica*, hemp-agrimony *Eupatorium cannabinum* and wild parsnip *Pastinaca sativa*. In the fen meadow areas there is a richer suite of species including a large colony of adder's tongue *Ophioglossum vulgatum*.

Church Farm Marshes south of the mere consists of grassland that is mostly a mix of creeping bent *Agrostis stolonifera*, Yorkshire-fog *Holcus lanatus* and perennial ryegrass *Lolium perenne* with frequent crested dog's-tail *Cynosurus cristatus*. It is dissected by ditches dominated by spiked water-milfoil *Myriophyllum spicatum* and fennel pondweed *Potamogeton pectinatus* with water-crowfoot *Ranunculus baudotii* in the shallow margins.

The Fens area is dominated by common reed *Phragmites australis* with occasional lesser bulrush *Typha angustifolia*, yellow iris *Iris pseudacorus*, great willowherb *Epilobium hirsutum*, purple-loosestrife *Lythrum salicaria* and nationally scarce marsh sow-thistle *Sonchus palustris*. Water mint *Mentha aquatica* is present in the understorey with cleavers *Galium aparine* and bittersweet *Solanum dulcamara* frequent in the drier areas. Surrounding, and in many places merging into the fen, is grey willow *Salix cinerea* woodland and alder *Alnus glutinosa* woodland with a field layer containing a mix of remnant swamp species.

Many species of bird regularly breed using the great mix of habitats available. These include nightjar, woodlark and skylark on the dry grassland and heath. The scrub and woodland supports tree pipit, turtle dove, bullfinch and nightingale. The marshes, the open water and their margins, in particular, support a diverse range of breeding birds, including water rail, marsh harrier, gadwall and grasshopper warbler. The site is also attractive to wintering waterfowl including Bewick's swan and bittern and regularly supports important populations of white-fronted goose, gadwall and teal.

The variety of water bodies and terrestrial habitats provides suitable breeding and hunting areas for many species of dragonfly and damselfly, including the nationally scarce hairy dragonfly *Brachytron pratense*.



Appendix 3: Sandlings SPA Conservation Objectives

European Site Conservation Objectives for Sandlings Special Protection Area Site Code: UK9020286



With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- **The extent and distribution of the habitats of the qualifying features**
- **The structure and function of the habitats of the qualifying features**
- **The supporting processes on which the habitats of the qualifying features rely**
- **The population of each of the qualifying features, and,**
- **The distribution of the qualifying features within the site.**

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A224 *Caprimulgus europaeus*; European nightjar (Breeding)

A246 *Lullula arborea*; Woodlark (Breeding)

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2017 (as amended) ('the Habitats Regulations'). They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives, and the accompanying Supplementary Advice (where this is available), will also provide a framework to inform the management of the European Site and the prevention of deterioration of habitats and significant disturbance of its qualifying features

These Conservation Objectives are set for each bird feature for a [Special Protection Area \(SPA\)](#).

Where these objectives are being met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 21 February 2019 (version 3). This document updates and replaces an earlier version dated 30 June 2014 to reflect the consolidation of the Habitats Regulations in 2017.



Appendix 4: Comparison of Potential Impacts and Mitigation Flexibility



1 Introduction

1. In addition to the mitigation measures proposed within **section 2** and **section 3** of the main body of this Outline SPA Crossing Method Statement, further flexibility is available to the Applicant to refine the mitigation measures to reflect the results of pre-construction surveys. Information demonstrating this flexibility, through the provision of examples of possible options for mitigating strategies associated with the crossing of the Sandlings SPA, has been requested by Natural England and the Royal Society for the Protection of Birds (RSPB). This Appendix presents a comparison of the potential impacts and the mitigation flexibility proposed to accommodate multiple ornithology species should pre-construction surveys indicate that this is necessary and appropriate.
2. **Section 2** presents a comparison of potential impacts on key species associated with the Sandlings SPA and the Leiston – Aldeburgh Site of Special Scientific Interest (SSSI) arising from both the open trench and trenchless techniques for installing the onshore cables, and proposed mitigation.
3. **Section 3** presents options which demonstrate the flexibility of the mitigation areas proposed to benefit multiple ornithology species (i.e. Work Nos. 12A and 14) should pre-construction surveys indicate that this is necessary and appropriate.



2 Comparison of Potential Impacts on Key Species and Proposed Mitigation

4. **Table 2.1** summarises the impacts of an open trench and trenchless SPA crossing technique upon the key SPA and SSSI species and provides details on the anticipated durations for establishing and maintaining this mitigation habitat. This information is intended to aid stakeholders as to the potential habitat management options associated with the mitigation areas of Work Nos. 12A and 14.
5. The summary provided within **Table 2.1** has been informed by the information presented within **Chapter 23** of the Environmental Statement (ES) (APP-071) and submitted as part of the Application for the Project.

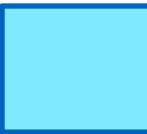


Table 2.1 Comparison of potential impacts on key species and possible mitigation

SPA or SSSI Species	Potential Impacts Identified in the ES	Anticipated Duration of Impact Associated with SPA Crossing Method	Duration Provided for Habitat Management / Restoration
Open Trench Crossing Technique			
Turtle dove (SSSI)	Temporary residual loss of foraging habitat within the onshore cable route (including but not limited to the SPA crossing).	<p>Simultaneous construction of East Anglia TWO and East Anglia ONE North:</p> <ul style="list-style-type: none"> No impact upon nesting birds is anticipated to occur over the anticipated one non-breeding season during which construction will be undertaken. Loss of foraging habitat will arise during the period of constructing the SPA crossing (Works No. 12) and throughout the subsequent breeding season whilst the habitat is recovering. <p>Sequential construction of East Anglia TWO and East Anglia ONE North, with ducting for the second project laid in parallel with the construction of the first project:</p> <ul style="list-style-type: none"> No impact upon nesting birds is anticipated to occur over the anticipated one non-breeding season during which construction will be undertaken for each Project. Loss of foraging habitat will arise during the period of constructing the SPA crossing (Works No. 12) and throughout the subsequent breeding season for each Project whilst the habitat is recovering. 	<p><u>Work No. 14</u></p> <p>Details on the duration of habitat management for turtle dove within Work No. 14 are provided within section 2.9.2 of the main body of this Outline SPA Crossing Method Statement, with an indicative programme of habitat management associated with an open trench SPA crossing presented in Plate 2.1.</p> <p><u>Proposed Work No. 12A</u></p> <p>Should proposed Work No. 12A be managed for turtle dove as well as nightingale (as informed by pre-construction surveys), management of turtle dove and nightingale nesting habitat within proposed Work No. 12A (excluding the onshore cable route within Work No. 12) will begin during the non-breeding season in the calendar year prior to commencement of the relevant (turtle dove) and relevant (nightingale) construction period.</p> <p>The onshore cable route (which makes up part of Work No. 12) will be reinstated on completion of construction works. The mitigation area comprising the whole of proposed Work No. 12A will be managed for a period of ten years from completion of the relevant (nightingale) construction period. This is with exception of the horse paddock area (see Figure 2, Appendix 1), which will remain managed for a period of five years to allow the landowner to continue with its existing use after five years.</p>
Nightingale (SSSI)	Temporary residual loss of	Simultaneous construction of East Anglia TWO and East Anglia ONE North:	<u>Proposed Work No. 12A</u>



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SPA or SSSI Species	Potential Impacts Identified in the ES	Anticipated Duration of Impact Associated with SPA Crossing Method	Duration Provided for Habitat Management / Restoration
	nesting and foraging habitat within the SPA boundary.	<ul style="list-style-type: none"> No impact upon nesting habitat within the SPA boundary is anticipated to occur during the anticipated one non-breeding bird season within which construction will be undertaken. In the breeding season(s) following the construction and reinstatement of the SPA crossing (Work No. 12), a temporary loss of nightingale nesting habitat within the SPA boundary will occur. <p>Sequential construction of East Anglia TWO and East Anglia ONE North, with ducting for the second project laid in parallel with the construction of the first project:</p> <ul style="list-style-type: none"> No impact is anticipated to occur over the anticipated one non-breeding season during which construction will be undertaken for each Project. In the breeding season(s) following the construction and reinstatement of the SPA crossing (Work No. 12) in respect of each Project, a temporary loss of nightingale nesting habitat within the SPA boundary will occur. 	Details on the duration of habitat management for nightingale within proposed Work No. 12A are provided within section 2.9.3 of the main body of this Outline SPA Crossing Method Statement, with an indicative programme of habitat management associated with an open trench SPA crossing presented in Plate 2.1 .
Nightjar (SPA)	Minor adverse residual impact for loss of nesting or foraging habitat.	Not applicable as nightjar has not been recorded within the SPA crossing and the habitat within the SPA where the cable corridor crosses is generally unsuitable for this species.	n/a
Woodlark (SPA)	No loss of habitat.	Not applicable as woodlark has not been recorded within the SPA crossing and the habitat is generally unsuitable for this species.	n/a
Trenchless Crossing Technique			



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SPA or SSSI Species	Potential Impacts Identified in the ES	Anticipated Duration of Impact Associated with SPA Crossing Method	Duration Provided for Habitat Management / Restoration
Turtle dove (SSSI)	Temporary loss of foraging habitat within the onshore cable route (including but not limited to the SPA crossing).	<p>Simultaneous construction of East Anglia TWO and East Anglia ONE North:</p> <ul style="list-style-type: none"> As a reasonable worst case, where no above ground elements of the HDD works are within the SPA crossing buffer, habitat loss (around the trenchless technique entry and exit pit locations) is predicted to occur over an estimated 16.5 consecutive months. <p>Sequential construction of East Anglia TWO and East Anglia ONE North, with ducting for the second project laid in parallel with the construction of the first project:</p> <ul style="list-style-type: none"> As a reasonable worst case, where there are no above ground elements of the HDD works are within the SPA crossing buffer, habitat loss (around the trenchless technique entry and exit pit locations) would occur over an estimated 16.5 consecutive months. 	Details on the duration of habitat management for turtle dove within Work No. 14 are provided within section 3.9.2 of the main body of this Outline SPA Crossing Method Statement, with an indicative programme of habitat management associated with an open trench SPA crossing presented in Plate 3.1 .
Nightingale (SSSI)	None, see section 3.9.3 of the Outline SPA Crossing Method Statement .	Not applicable as the trenchless technique will not disturb habitats within the SPA crossing and existing habitat within the onshore development area outside the SPA crossing is unsuitable for nightingale. Nightingale mitigation will therefore not be required or provided should a trenchless technique be adopted for the SPA crossing.	n/a
Nightjar (SPA)	Negligible loss of nesting or foraging habitat.	Not applicable as the trenchless technique will not disturb habitats within the SPA crossing.	n/a
Woodlark (SPA)	No loss of habitat.	Not applicable as the trenchless technique will not disturb habitats within the SPA crossing.	n/a

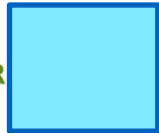


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3 Illustrative SPA Habitat Management Options and Cross-Species Benefits

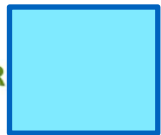
1. This section illustrates options for the management of Work Nos. 12A and 14, and how a management strategy may be designed to deliver benefits for multiple target species associated with the Sandlings SPA and Leiston – Aldeburgh SSSI. It should be noted that the options presented are intended to demonstrate what management *may* be delivered, and not what *will* be delivered. The detailed design of the final mitigation scheme for Work Nos. 12A and 14 will be refined and agreed post-consent through the production of the Ecological Management Plan (EMP) and associated final SPA Crossing Method Statement, which must be approved by the relevant planning authority in consultation with Natural England prior to the commencement of works (as secured under Requirement 21 of the **draft DCO** (REP5-003)).
2. Within **Chapter 23 Onshore Ornithology** (APP 071) of the Environmental Statement (ES), Work No. 14 is presented as a mitigation area for turtle dove, which has been taken into account when assessing the residual construction-phase impact upon this species. The Applicant appreciates that the spatial extent of Work No. 14 required for turtle dove habitat management to sufficiently mitigate impacts upon this species may be less than the total area comprising Work No. 14 (see **section 2.9.2** of the Outline SPA Crossing Method Statement). It should be noted that the spatial extent of Work No. 14 associated with turtle dove mitigation will be confirmed post-consent within the final EMP and final SPA Crossing Method Statement. Any land parcels not utilised as turtle dove mitigation within Work No. 14 may be used to establish nesting habitat for nightingale as identified in **Table 3.1** below if appropriate.
3. The Applicant has committed to managing habitat within Work Nos. 12A and 14 to mitigate the ornithological impacts associated with an open trench SPA crossing, as outlined in **section 2** of the Outline SPA Crossing Method Statement. The Applicant has committed to managing habitat within Work No. 14 only to mitigate ornithological impacts associated with a trenchless SPA crossing, as outlined in **section 3** of the Outline SPA Crossing Method Statement.



4. The Applicant is aware of the importance of not devaluing the quality of the existing habitat within the area of Work Nos. 12A or 14 for the non-target species (i.e. nightjar and woodlark), but notes that the baseline for this area was assessed within **Chapter 23** of the ES (APP-071) as not providing optimal habitat for nightjar and woodlark.
5. Given the conclusions of **Chapter 23** the ES (APP-071) the Applicant proposes that the mitigation area provided by proposed Work No. 12A (and potentially within available areas of Work No. 14) focuses on the SSSI species of nightingale and turtle dove. These species are considered to have the same conservation value as the SPA species, nightjar and woodlark.
6. The Applicant has identified illustrative options for the detailed design mitigation of multiple ornithological species within Work Nos. 12A and 14 to demonstrate where benefits for multiple species may be realised by habitat management options for different target species. **Table 3.1** presents these illustrative mitigation options and demonstrates how the mitigation refined at the detailed design stage for one species may give rise to benefits for other species associated with either the SPA or the SSSI. The flexibility offered by Work Nos. 12A and 14 will allow detailed mitigation measures to be developed and approved, to reflect the results of the pre-construction ornithological surveys.

Table 3.1 SPA crossing outline ornithology mitigation options – habitat management in Work Nos. 12A and 14

Option	Mitigation strategy	Species			
		Nightingale*	Nightjar	Turtle Dove	Woodlark
Proposed Work No. 12A					
12A.1	100% nightingale mitigation.	Optimal habitat for nesting and foraging.	Not optimal habitat.	Optimal habitat for nesting and foraging.	Not optimal habitat.
12A.2	100% turtle dove mitigation*.	Optimal habitat for nesting and foraging.	Not optimal habitat.	Optimal habitat for nesting and foraging.	Not optimal habitat.
12A.3	100% SSSI species (nightingale and turtle dove split).	Optimal habitat for nesting and foraging.	Not optimal habitat.	Optimal habitat for nesting and foraging.	Not optimal habitat.
12A.4	50% SPA species (nightjar and woodlark).	Optimal habitat for nesting and	Optimal habitat for	Optimal habitat for nesting and	Optimal habitat for



Option	Mitigation strategy	Species			
		Nightingale*	Nightjar	Turtle Dove	Woodlark
	50% SSSI species (nightingale and turtle dove).	foraging (comparatively lower spatial coverage than Options 12A.1 to 12A.3).	nesting and foraging.	foraging (comparatively lower spatial coverage than Options 12A.1 to 12A.3).	nesting and foraging.
Works No. 14					
14.1	100% turtle dove mitigation.	Optimal habitat for nesting and foraging.	Not optimal habitat.	Optimal habitat for nesting and foraging.	Not optimal habitat.
14.2	75% turtle dove mitigation. 25% nightingale mitigation.	Optimal habitat for nesting and foraging.	Not optimal habitat.	Optimal habitat for nesting and foraging.	Not optimal habitat.

*Note: **Chapter 23 Onshore Ornithology** (APP-071) identifies that mitigation to provide optimal habitat for breeding nightingale will be provided where pre-construction surveys find nightingales are present within the Order limits. Turtle dove habitat provides optimal habitat for nightingale nesting and foraging and will fulfil the ES mitigation requirements.

7. The spatial extent of Work No. 14 and associated area to be used for turtle dove will be agreed with the relevant planning authority in consultation with Natural England and confirmed within the final SPA Crossing Method Statement post-consent. Any land parcels not utilised as turtle dove mitigation within Work No. 14 may be used to establish nesting habitat for nightingale as identified in **Table 3.1** where appropriate.
8. Habitat that supports nesting nightingale and turtle dove typically comprises scrubland with established shrubs, bramble and grasses. Supporting habitat of SPA species, nightjar and woodlark, typically comprises dry heathland formed of gorses, bracken, scattered trees and grasses. These land uses have the potential to be combined in an effective mitigation strategy through appropriate planning and implementation.