



AQUIND Limited

AQUIND INTERCONNECTOR

Environmental Statement – Volume 3 – Appendix 16.14 Winter Working Restriction for Features of Chichester & Langstone Harbours SPA

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations
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AQUIND Limited

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Environmental Statement – Volume 3 –
Appendix 16.14 Winter Working Restriction for
Features of Chichester & Langstone Harbours
SPA

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EXECUTIVE SUMMARY

This report has been prepared on behalf of AQUIND Limited (the ‘Applicant’) to support an application (the ‘Application’) for a Development Consent Order (‘DCO’). AQUIND Interconnector is a proposed electricity Interconnector between France and the UK. The Application for the DCO is made in respect of the UK elements of AQUIND Interconnector (referred to as the ‘Proposed Development’).

Chichester and Langstone Harbour is designated for its importance to wintering and breeding water birds, and lies adjacent to Sections 7 to 9 of the Proposed Development. Important wintering bird communities are present, as evidenced by results of surveys (see detail within Appendix 16.13 (Wintering Bird Report) of ES Volume 3 (document reference 6.3.16.13)) and the fact they are listed as qualifying features within the Site’s citation.

Solent Waders and Brent Goose Strategy (SWBGS) provides a framework for identifying sites lying outside the physical boundaries of SPA/Ramsar sites but which are, or may be, used by bird species associated with the European Protected Sites. This document seeks to define a suite of eight working principles to avoid effects on wintering birds and determine extent of noise impacts and implication of the application of the principles.

Adoption of Principles 1-3 will offset direct effects on SWBGS sites as these sites will not be subject to works in the winter period when they are used by SPA features.

Other than where HDD routes underlie the SPA, the Order Limits do not coincide with the SPA itself. Adoption of Principles 4-8 will offset effects of noise and vibration on birds within the SPA. Additionally, principles mandate that piling associated with HDD sites 2 and 3 will not take place during the period where wintering birds are present, and therefore will not disturb them.

APPENDIX 16.14 WINTER WORKING RESTRICTION FOR FEATURES OF CHICHESTER & LANGSTONE HARBOURS SPA

1.1. INTRODUCTION

1.1.1. PROJECT BACKGROUND

1.1.1.1. This report has been prepared on behalf of AQUIND Limited (the 'Applicant') to support an application (the 'Application') for a Development Consent Order ('DCO'). AQUIND Interconnector is a proposed electricity Interconnector between France and the UK. The Application for the DCO is made in respect of the UK elements of AQUIND Interconnector (referred to as the 'Proposed Development').

1.1.1.2. The Proposed Development is described in detail in Chapter 3 (Description of the Proposed Development) of the Environmental Statement ('ES') Volume 1 (document reference 6.1.3).

1.1.2. BACKGROUND

Chichester and Langstone Harbours SPA

1.1.2.1. Chichester and Langstone Harbour is designated for its importance to wintering and breeding water birds, and lies adjacent to Sections 7 to 9 of the Proposed Development. Important wintering bird communities are present, as evidenced by results of surveys (see detail within Appendix 16.13 (Wintering Bird Report) of ES Volume 3 (document reference 6.3.16.13)) and the fact they are listed as qualifying features within the Site's citation.

1.1.2.2. Internationally important numbers of water birds feed and roost within the harbour between October and March, and also forage within surrounding habitats such as playing fields and public parks, these areas in particular supporting large flocks of brent geese *Branta bernicla* and prompting the development of the Solent Waders and Brent Goose Strategy (SWBGS; King, 2010). In spring and summer, the Site supports internationally important colonies of common tern *Sterna hirundo*, sandwich tern *Thalasseus sandvicensis* and little tern *Sterna albifrons* that use salt marsh and shingle within the site to breed, and feed within the Solent to the south more widely.

Solent Waders and Brent Goose Strategy Sites

1.1.2.3. The Solent Waders and Brent Goose Strategy (SWBGS) is a conservation partnership, aiming to conserve the internationally important Brent Goose and wading bird populations within and around the SPAs and Ramsar wetlands of the Solent coast.

1.1.2.4. The SWBGS provides a framework for identifying sites lying outside the physical boundaries of SPA/Ramsar sites but which are, or may be, used by bird species associated with the European Protected Sites. These sites are termed as Functionally Linked Land (Natural England, 2016) and are considered functionally linked to the designated sites. There are an extensive number of Brent Goose Strategy Sites around Portsmouth and near Drayton and Farlington. Those sites adjacent to the Proposed Development are shown in Figure 2.

Wintering Bird Surveys

1.1.2.5. Intertidal bird surveys were undertaken over the winter of 2017-2018 (Appendix 16.13 (Wintering Bird Report)). The survey areas are shown in Figure 1 of this report and included the following components:

- Intertidal surveys following Wetland Bird Survey ('WeBS') methodology covering western perimeter of the Chichester and Langstone Harbours SPA from Farlington Marshes to Fort Cumberland with five survey visits with counts at both high and low tide;
- Vantage point surveys at Eastney Beach and Farlington Marshes with aim of describing the exchange of birds between intertidal habitat and the surrounding areas; and
- Survey of SWBGS sites in parallel with intertidal surveys.

1.1.2.6. A maximum count of 1,598 Brent geese were recorded using the estuary, with flocks of between 91-800 Brent geese were observed using Brent Goose Strategy Sites. Peak counts on the intertidal surveys highlighted differences in the abundance of bird species across the whole survey area, and identify those species which are dominant in the winter bird community, separating them from those which are represented only by small numbers or by single birds. The data show there are three highly abundant species (Brent goose, dunlin *Calidris alpina* and black-headed gull *Chroicocephalus ridibundus*), with numbers of observations significantly greater than the remaining 42 species recorded.

1.1.2.7. Twenty-nine species of bird were observed at the vantage points comprising 3515 individual bird observations. These were dominated by Brent geese, gulls and waders, with other birds represented in significantly lower numbers. At the northern vantage (Farlington Marshes) point the majority of birds were observed flying north

out of the harbour, with Brent geese and gulls the dominant bird groups. This was considered likely to be due to a strong northerly movement of these birds from roost sites within the harbour at dawn to feeding sites inland to the north. Data does not indicate a return flight into the estuary as few of the vantage point counts were undertaken at dusk, whereas one was always undertaken at close to dawn. The northerly movement takes birds across the A27, a busy carriageway.

1.2. OBJECTIVES

1.2.1.1. This document seeks to:

- Define a suite of working principles to avoid effects on wintering birds; and
- Determine extent of noise impacts and implication of the application of the principles.

2. WATERBIRDS AND NOISE

2.1. OVERVIEW

- 2.1.1.1. Disturbance in the general context can be defined as discrete events that disrupt ecosystem, community or population structures or in some way alter resource levels i.e. food and space (Cutts et al., 2009).
- 2.1.1.2. Disturbance or displacement may be a response to the physical (including visual) presence of construction equipment, or a response to the associated construction noise (Cutts, Hemingway and Spencer, 2013).
- 2.1.1.3. Response to sound can be subjective and is affected by many factors, both acoustic and non-acoustic. The significance of its impact, for example, can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood. Sound can be measured by a sound level meter or other measuring system. Noise is related to a human response and is routinely described as unwanted sound, or sound that is considered undesirable or disruptive
- 2.1.1.4. A disturbance event may cause birds to take flight (either returning to the same area or departing entirely), or to cease feeding or roosting. A single instance of taking flight or ceasing to feed does not have an immediate effect on the survival or productivity of an individual bird. Repeated disturbance, or disturbance over an extended period, can affect the survival and productivity of a bird.
- 2.1.1.5. Sound created by the operation of machines and vehicles during the construction phase has the potential to cause birds to cease feeding, or to fly away from the area of influence. Disturbance depends on the nature or type of sound and the strength of the sound on reaching birds using intertidal habitat around the site. It is recognised that very loud and short, sharp ‘percussive’ sounds, most familiar as gunshot but also produced during construction activity, for example the hammering in of metal piles, have the greatest potential to cause disturbance to birds (e.g., Masden and Fox, 1995; Riddington et al., 1996).
- 2.1.1.6. With regards the key species potentially impacted by the Proposed Development Owens (1977) describes the effects of anthropogenic disturbances on Brent Geese wintering on the Essex coast near the site of the then proposed London Airport at Maplin Sands. The report concluded that Brent Geese quickly became habituated to most sounds, but unexpected sounds, such as nearby gunshots from wildfowlers, usually put the geese to flight. Similarly, the first shots of the day at nearby army gunnery ranges caused the birds to leave the area, but they quickly returned and

ignored all subsequent firings for that day. Extremely loud but regular bangs made during nearby weapon testing caused little reaction after the first few weeks.

- 2.1.1.7. Loud but discontinuous sounds, such as those produced by machinery during construction processes, have been shown to cause disturbance when that sound is above certain recorded levels (e.g., West et al., 2007). Such studies provide a strong evidence base for a threshold of 80 dB(A) (at the bird, not at the source) to be set, above which disturbance of waterbirds may occur. Based upon a literature review of waterbird response to construction disturbance, Cutts et al. (2009) recommend ambient construction sound levels should be restricted to below 70 dB(A), and where possible, sudden irregular sounds above 50 dB(A) should be avoided as this causes maximum disturbance to birds. The latter review included Wright et al. (2010) who reported that temporary flight responses of shorebirds (golden plover, lapwing and curlew) could be expected a result of 'percussive' (impulsive) sound levels of 62.4–73.9 dB(A) and abandonment of the site as a result of sound levels of 67.9–81.1 dB(A).
- 2.1.1.8. Cutts, Hemingway and Spencer (2013) present an assessment of waterbird response to construction disturbance from reviewing the literature and field observations, categorises sounds of less than 55 dB as unlikely to cause response in birds using intertidal areas. Sounds between 55-72 dB in some highly disturbed industrial areas was categorised to a low level of disturbance (such as causing a 'heads up' response) where the sound level is regular as birds will often habituate to a constant sound level, and elsewhere categorised to a moderate level of disturbance (such as causing a 'heads up' response).
- 2.1.1.9. Therefore, disturbance can be stated to vary in its magnitude, frequency, predictability, spatial distribution and duration, and species vary greatly in their susceptibility to disturbance and this susceptibility is likely to vary with age, season, weather and the degree of previous exposure.
- 2.1.1.10. Considering the sensitivity of the species associated with Chichester and Langstone Harbours SPA a consideration of the level of effect from the Proposed Development is required. It is considered that noise disturbance can affect the survival of individual birds and reduce the function of the site either for roosting or feeding.

2.2. SOUND UNITS

- 2.2.1.1. Equivalent continuous sound pressure level (LAeq,T)- Defined in BS 7445 (BSI, 2003) as the 'value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time' i.e. it is a measure of the noise dose or exposure over a period. It is a unit commonly used to describe construction noise and noise from industrial premises and is the most

suitable unit for the description of other forms of environmental noise. It is also the unit best suited to assessing community response.

2.2.1.2.

Maximum sound level (LAmax) - Highest value of the A-weighted sound pressure level that occurs during a given event, measured using the fast (F) time weighting (in dBA).

3. WORKING RESTRICTION PRINCIPLES

3.1. OVERVIEW

3.1.1.1. Effects of the construction stage on Chichester and Langstone Harbour SPA and its wintering intertidal bird community will be avoided by restricting works within the winter season, defined as October to March (the period when SPA birds such as Brent geese arrive from their breeding grounds; (Snow and Perrins, 1998)). The following eight principles that will be incorporated into working methods:

3.2. SWBGS

3.2.1. PRINCIPLE 1:

3.2.1.1. Construction works cannot take place in SWBGS (those categorised as either core, primary or secondary) sites that overlap with the Proposed Developments Order Limits during October – March. An exception is the gravel car park, boat yard and linking roadway within site P11 that is already disturbed by movements of cars, lorries and plant, and offers no functional habitat for Brent geese or other waterbirds associated with Chichester and Langstone Harbour SPA. Work to establish and dismantle an HDD compound will be undertaken here during this time, but will not involve piling whose percussive sounds would disturb birds using the adjacent playing fields

3.2.2. PRINCIPLE 2:

3.2.2.1. No buffer zones are applied to SWBGS sites to limit works away from their boundaries, while those sites categorised as ‘low use’ are also not part of working restrictions.

3.2.3. PRINCIPLE 3:

3.2.3.1. Where HDD works are to take place underneath the SWBGS site (e.g. at Eastney Landfall) no direct impacts are considered to occur and the restriction does not apply.

3.3. CHICHESTER AND LANGSTONE HARBOURS SPA

3.3.1. PRINCIPLE 4:

3.3.1.1. Elements of the Onshore Cable Route that are over 400 m from the SPA are not included in any restriction¹.

¹ Based on upper limit of noise disturbance detailed in Cutts, Hemingway & Spencer (2013), where no effects of noise on waterbirds are considered to occur.

3.3.2. PRINCIPLE 5:

3.3.2.1. Construction noise events of <55 dB can occur unrestricted.

3.3.3. PRINCIPLE 6:

3.3.3.1. Construction works of 55 – 72 dB immediately adjacent to a major road and/or adjacent to industrial sites with notable levels of background noise can be undertaken unrestricted. It is considered that noise levels from the Proposed Development would be masked in these instances.

3.3.4. PRINCIPLE 7:

3.3.4.1. Regular/consistent construction noise² (>70dB) and irregular/sudden construction noise³ 60-72 dB implies potential for impacts on the more sensitive species e.g. Brent geese and can only occur if effects do not overlap with areas of the SPA identified as supporting this species.

3.3.5. PRINCIPLE 8:

3.3.5.1. Irregular construction noise (>70 dB) that is exposed to the SPA should be restricted during October – March. Piling will not be undertaken during the wintering period, with sheet piles inserted prior to the arrival of wintering SPA birds.

² Cutts, Hemingway and Spencer (2013) include an example of ‘ongoing percussive or Movax vibro-piling’ as continuous/regular noise

³ Cutts, Hemingway and Spencer (2013) include an example of a ‘single or initial pile impact, dropping of piles on hard surface in undisturbed environment’ as examples of sudden / irregular noise.

4. NOISE IMPACTS AND APPLICATION OF PRINCIPLES

4.1. SWBGS

4.1.1.1. The following SWBGS sites overlap with the Order Limits, running from South to North as follows:

- P25 – University of Portsmouth, Langstone Campus;
- P23B – University of Portsmouth;
- P23A – Milton Common north 1;
- P23R – Milton Common north 2;
- P11 – Kendall’s Wharf playing fields; and
- P08A – Farlington playing fields.

4.1.1.2. These sites are grasslands used primarily by grazing Brent geese, but also other waterbirds such as waders (curlew *Numenius arquata* were commonly observed in P23B for example) as winter foraging areas (Appendix 16.13 (Wintering Bird Report)); such birds are qualifying features of the SPA and the SWBGS sites are functionally connected to the SPA’s overall function, ecological importance and integrity (King, 2010).

4.1.1.3. Construction Stage works within the SWBGS sites will reduce the availability grassland foraging habitat where the stage overlaps with the winter season when Brent geese and other wintering birds that are qualifying features of the SPA are present, nominally October to March (Carboneras et al. 2019). Work within the sites during winter would produce direct disturbance of the sites from noise and movements of construction vehicles and machinery, further restricting the availability of remaining grassland within the sites as foraging areas.

4.1.1.4. Adoption of Principles 1-3 will offset direct effects on SWBGS sites as these sites will not be subject to works in the winter period when they are used by SPA features.

4.2. CHICHESTER AND LANGSTONE HARBOURS SPA

4.2.1.1. To avoid loss of important habitats within the Order Limits, HDD is proposed to avoid the need for open trenching and to preserve habitats. Key locations within the Order Limits where HDD will be used are at Denmead Meadows, between Farlington and Kendall’s Wharf (under Langstone Harbour) and at Milton Common. HDD requires

entrance and exit sites and associated construction compounds for the duration of the drill, but does not require clearance or disturbance of above-ground habitats.

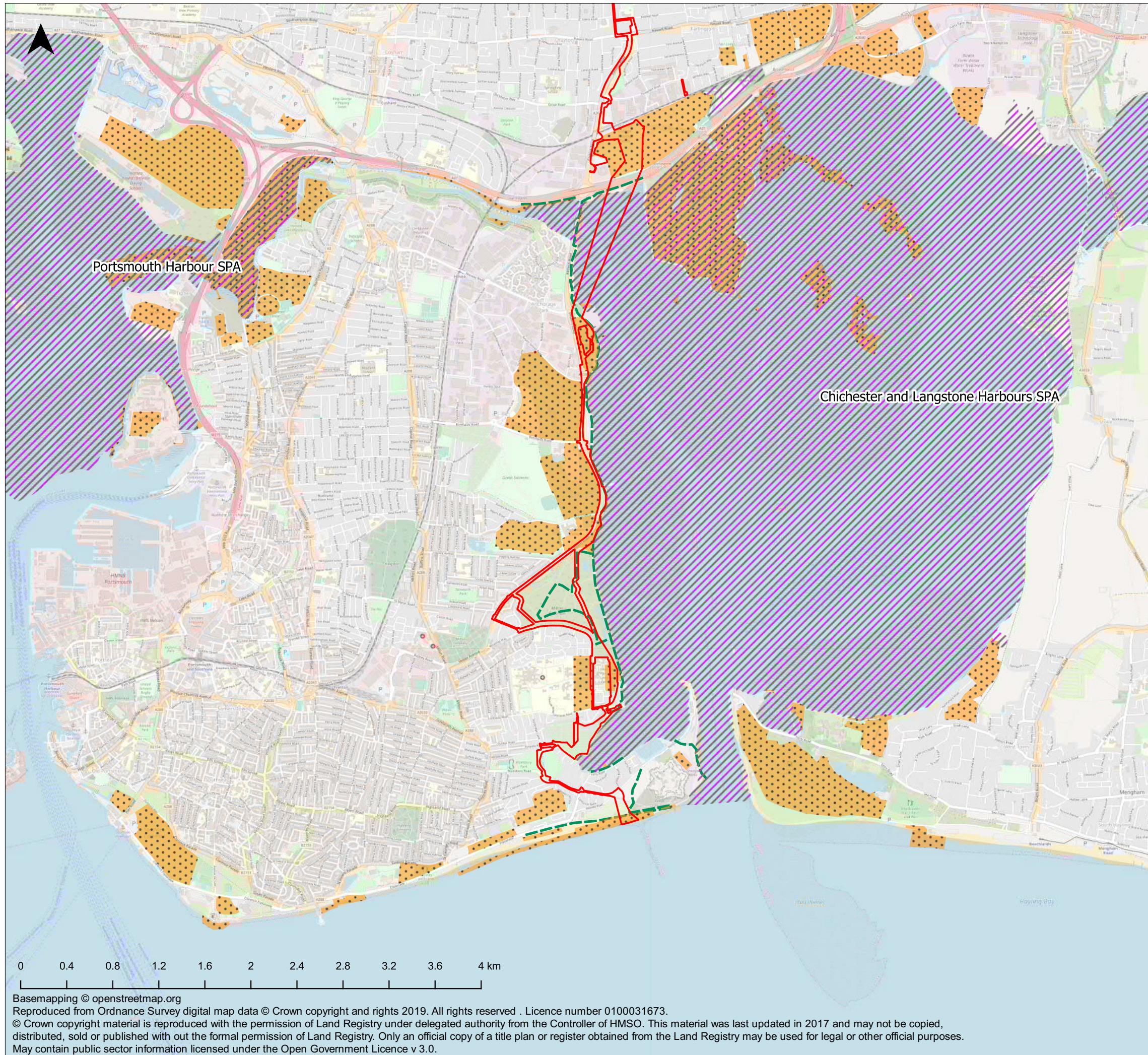
4.2.1.2.

Effects associated with direct impacts on Chichester and Langstone Harbour SPA have been avoided by the use of HDD to take it from St Johns College Farlington Pitches (located at Farlington, north of the A27) to Kendall's Wharf, under the intertidal habitats within the Langstone Harbour. Other than where HDD routes underlie the SPA, the Order Limits do not coincide with the SPA itself. Adoption of Principles 4-8 will offset effects of noise and vibration on birds within the SPA. Additionally, principles mandate that piling associated with HDD sites 2 and 3 will not take place during the period where wintering birds are present, and therefore will not disturb them.

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Appendix 1 – SPA, SWBGS Sites & Winter Bird Survey Areas



Legend

- Order Limits
- SPAs
- SWBGS Sites 2017 Revision
- Winter Bird Survey Transect

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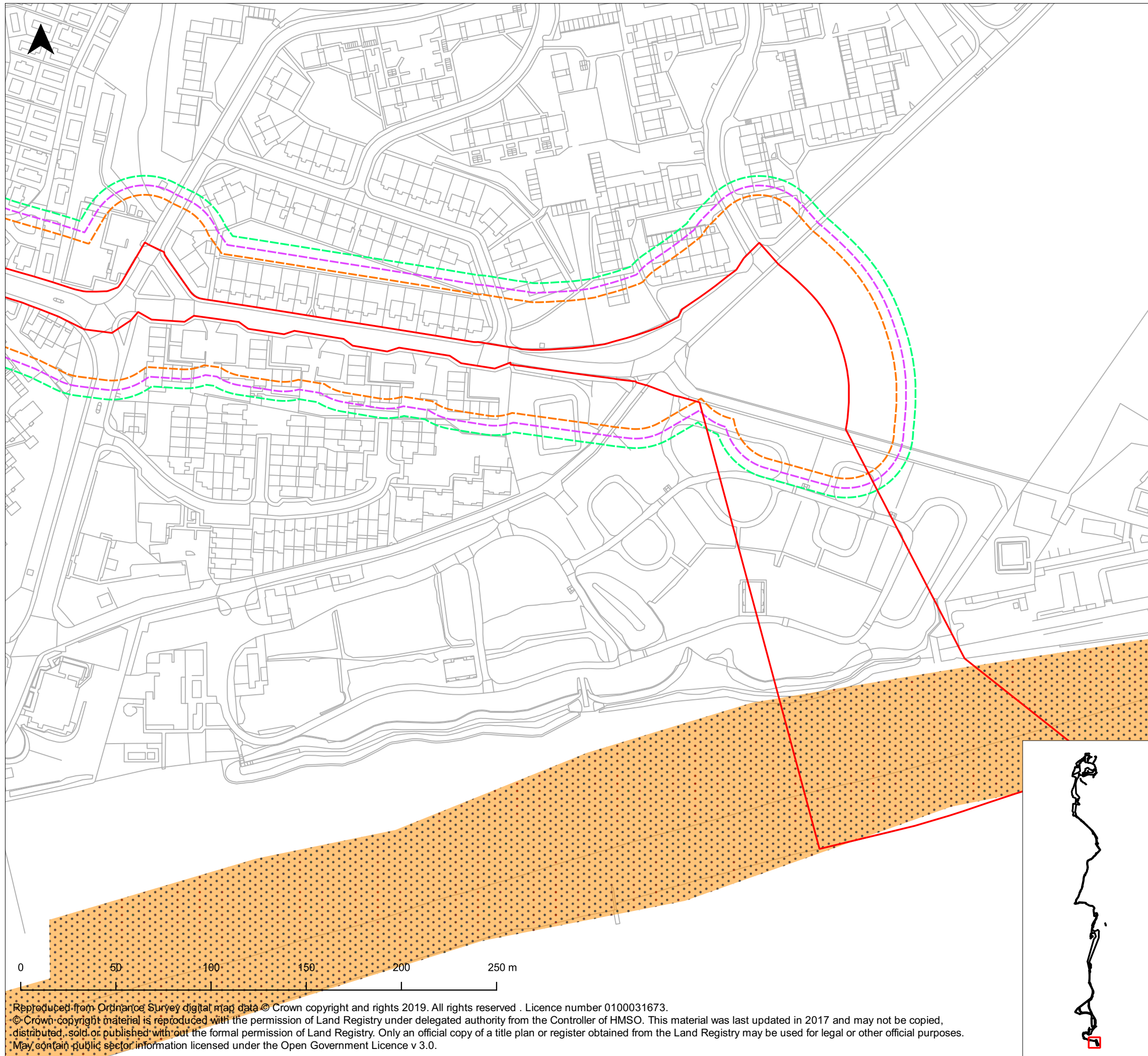
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Figure 1 - SPA, SWBGS Sites and Winter Bird Survey Areas

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Appendix 2 – Application of Winter Restriction Principles



- Legend**
- Order Limits
 - Principle 1 - no winter works in SWBG Sites
 - Principle 6 - background noise masks construction noise
 - Principle 7 - construction noise >70dB restricted in winter
 - 25m Noise Contour - Minimum possible 70db threshold
 - 30m Noise Contour - Most likely 70db threshold
 - 35m Noise Contour - Maximum possible 70db threshold
 - SPAs
 - SWBG Sites

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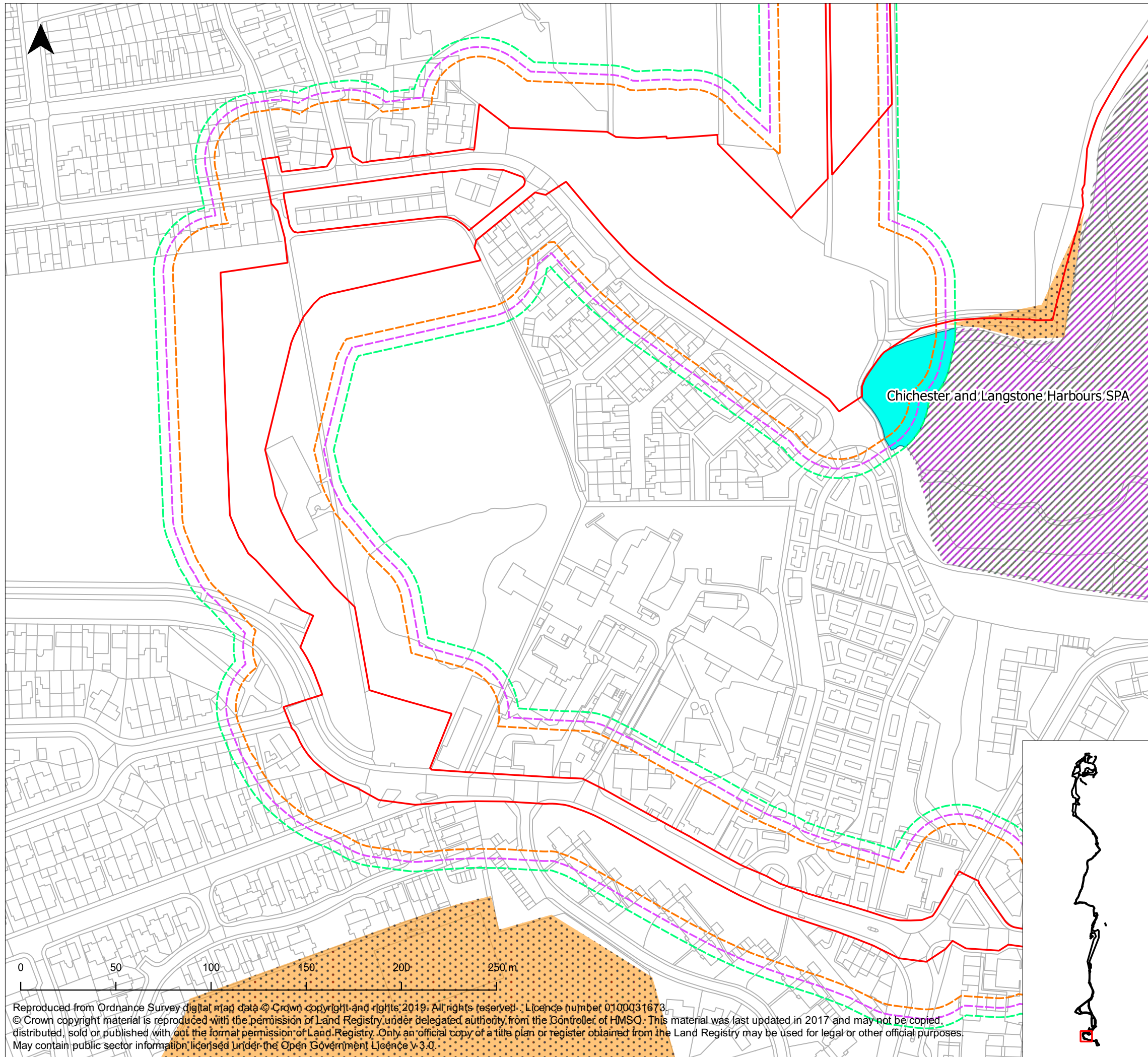
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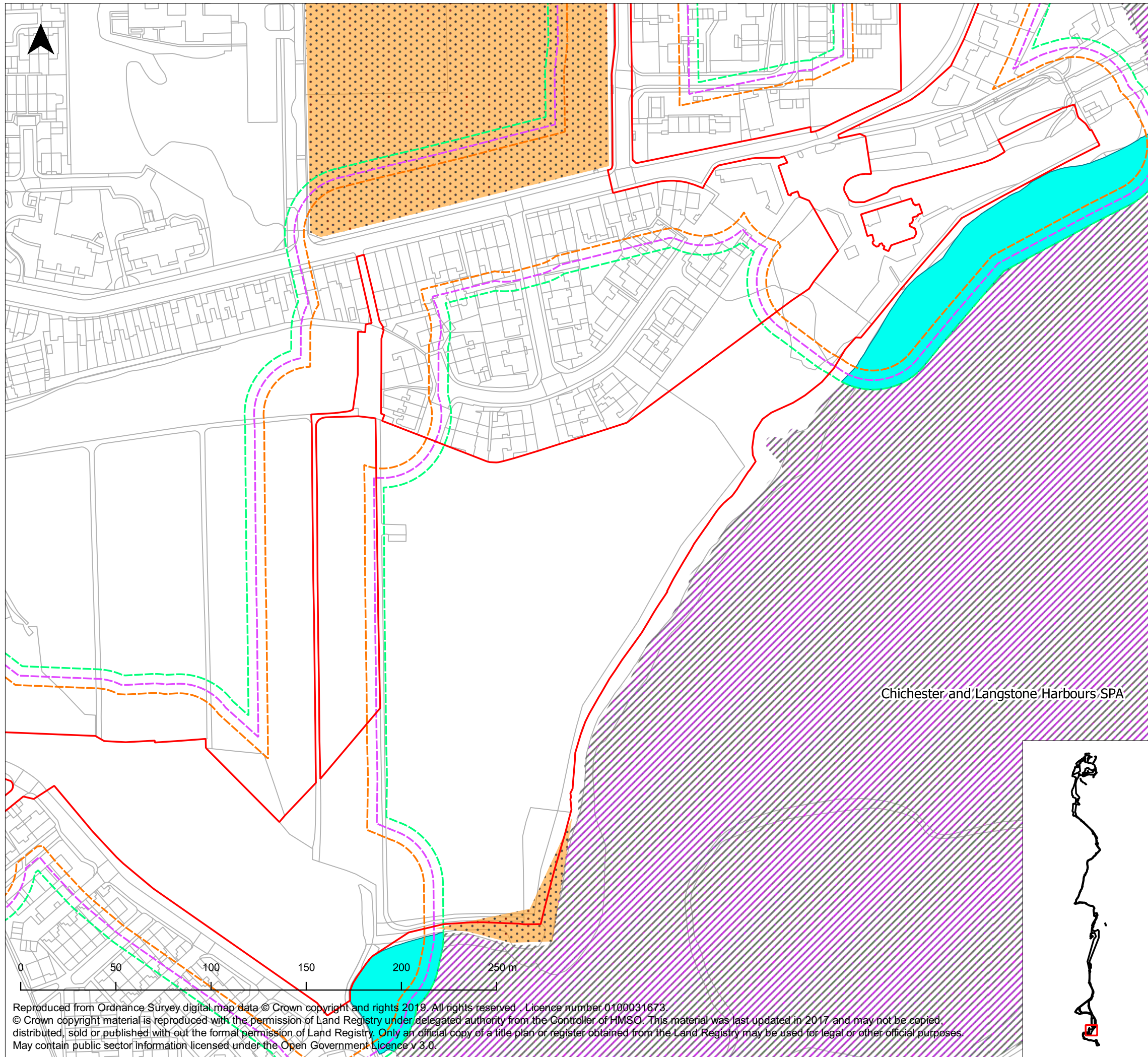
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Figure 2 - Application of winter restriction principles
Sheet 2 of 15

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**Figure 2 - Application of winter restriction principles
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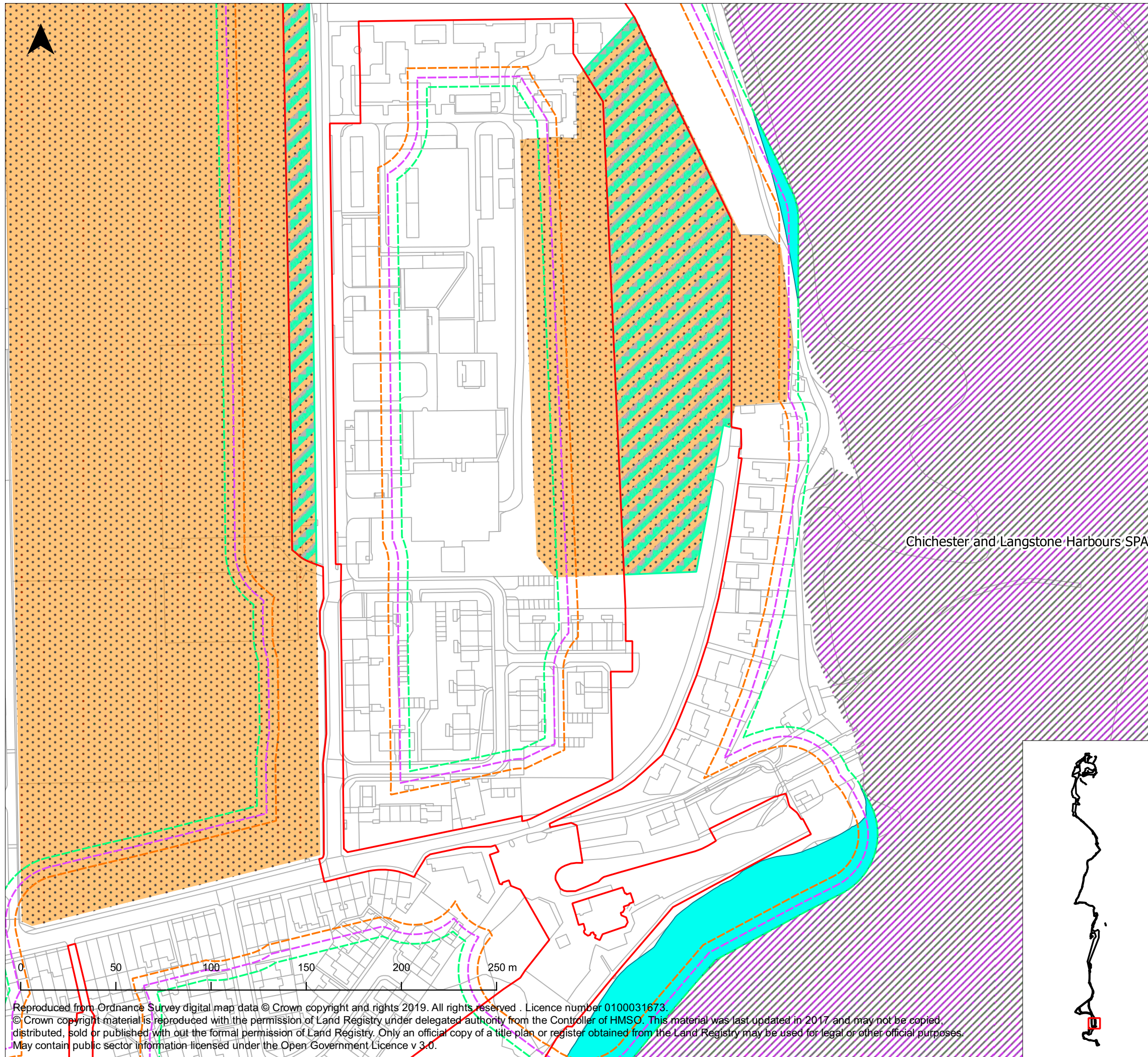
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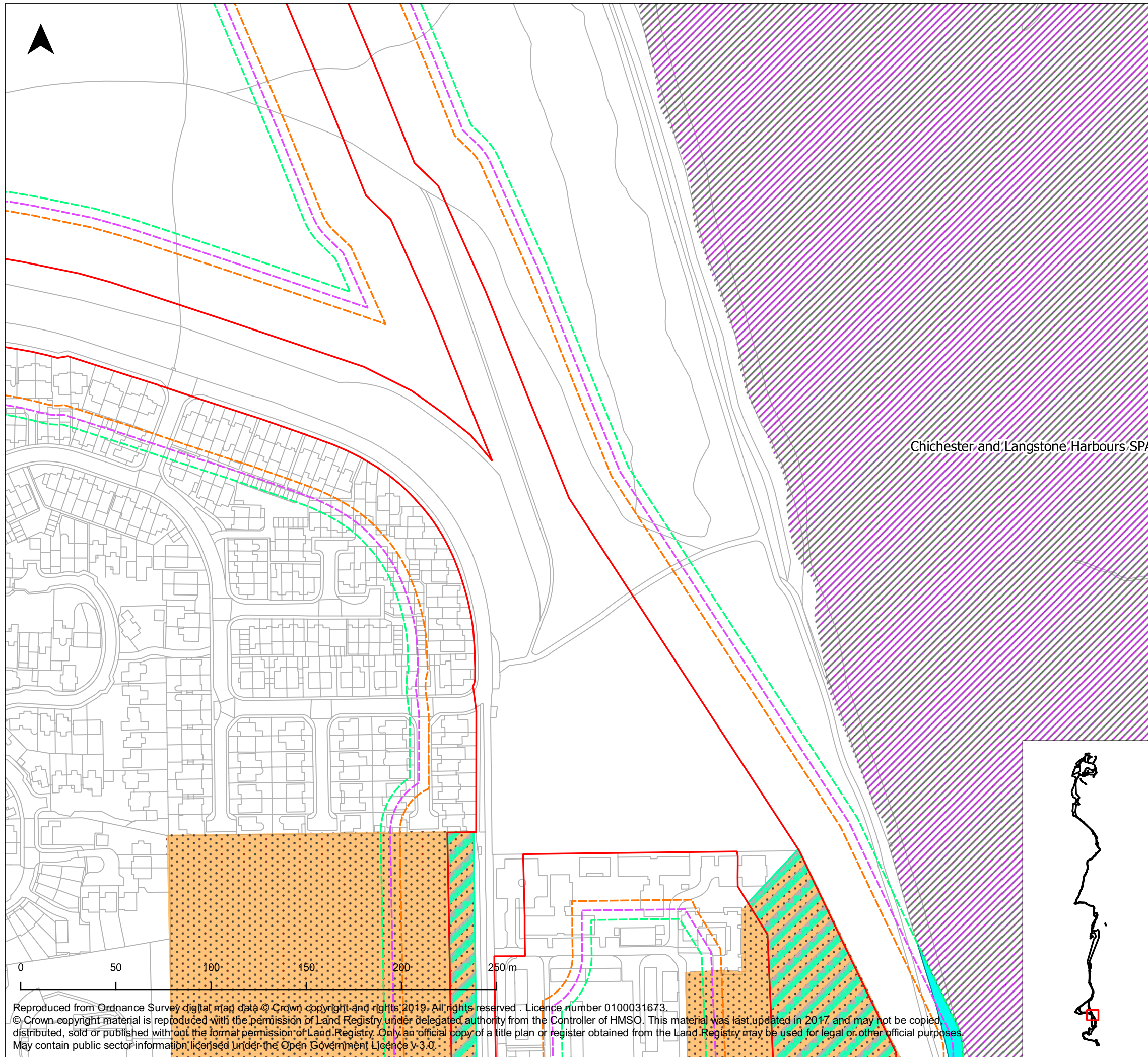
PROJECT: **AQUIND Interconnector**

TITLE: **Figure 2 - Application of winter restriction principles
Sheet 4 of 15**

SCALE AT A3: 1:2000	CHECKED: IE	APPROVED: CM
PROJECT NO: EN020022	DESIGNED: PJ	DRAWN: PJ
DRAWING NO: EN020022-ES-APP-16.14-2		DATE: 16/10/19
REV NO: 01		

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- Legend**
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 - 35m Noise Contour - Maximum possible 70db threshold
 - SPAs
 - SWBG Sites

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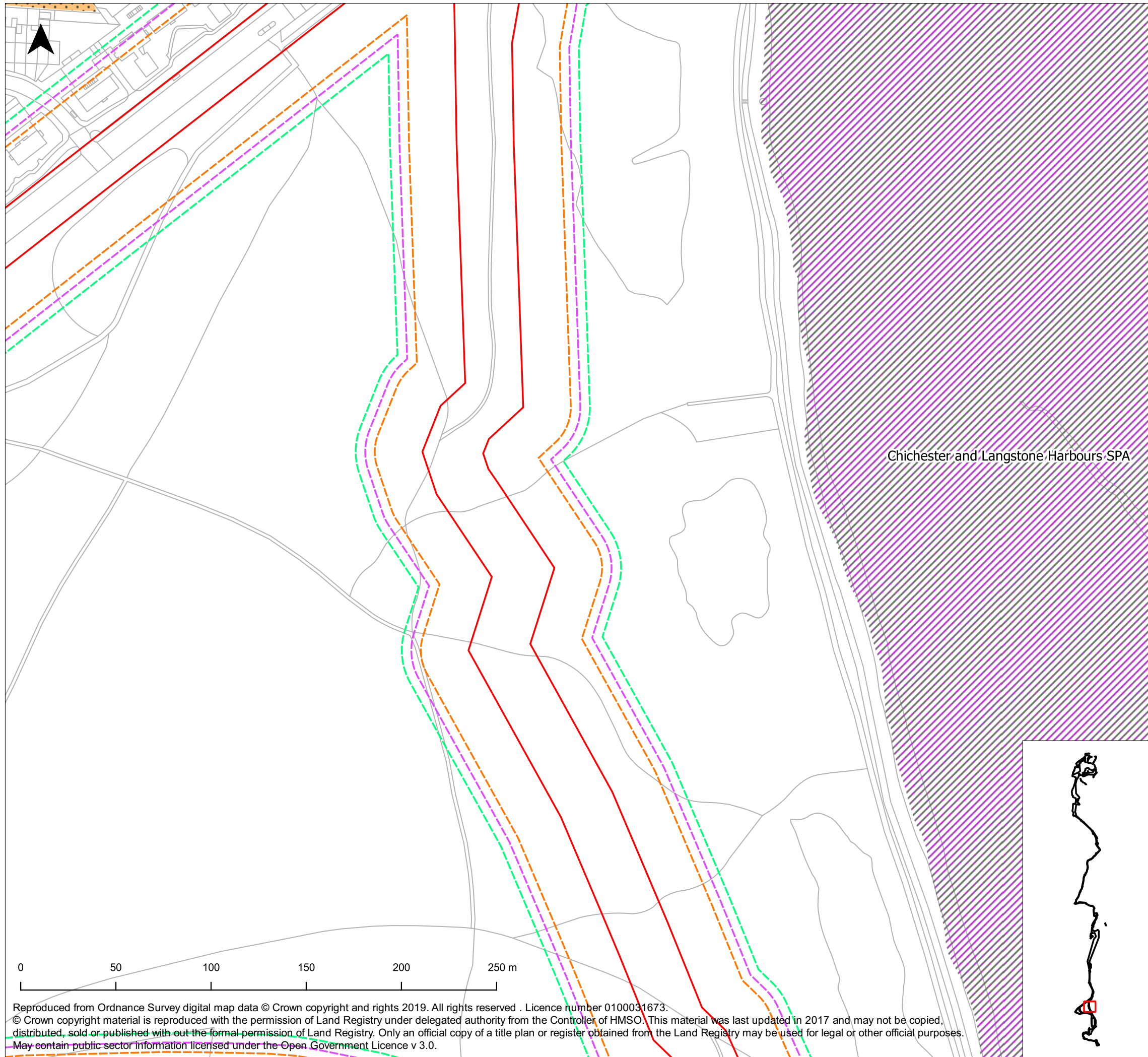


PROJECT:
AQUIND Interconnector

TITLE:
**Figure 2 - Application of winter restriction principles
Sheet 5 of 15**

SCALE AT A3: 1:2000	CHECKED: IE	APPROVED: CM
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DRAWING NO: EN020022-ES-APP-16.14-2		DATE: 16/10/19
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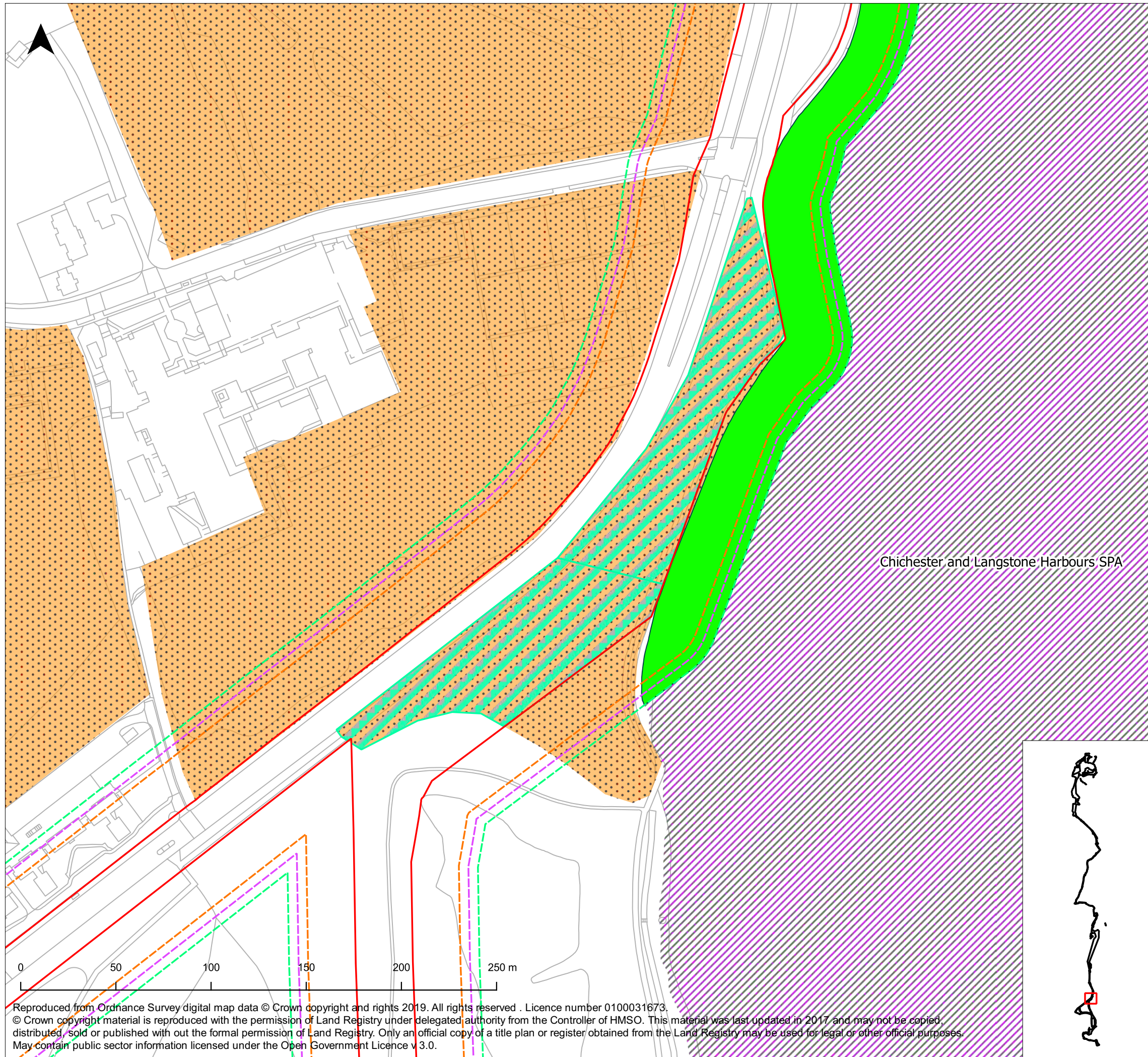
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**Figure 2 - Application of winter restriction principles
Sheet 6 of 15**

SCALE AT A3: 1:2000	CHECKED: IE	APPROVED: CM
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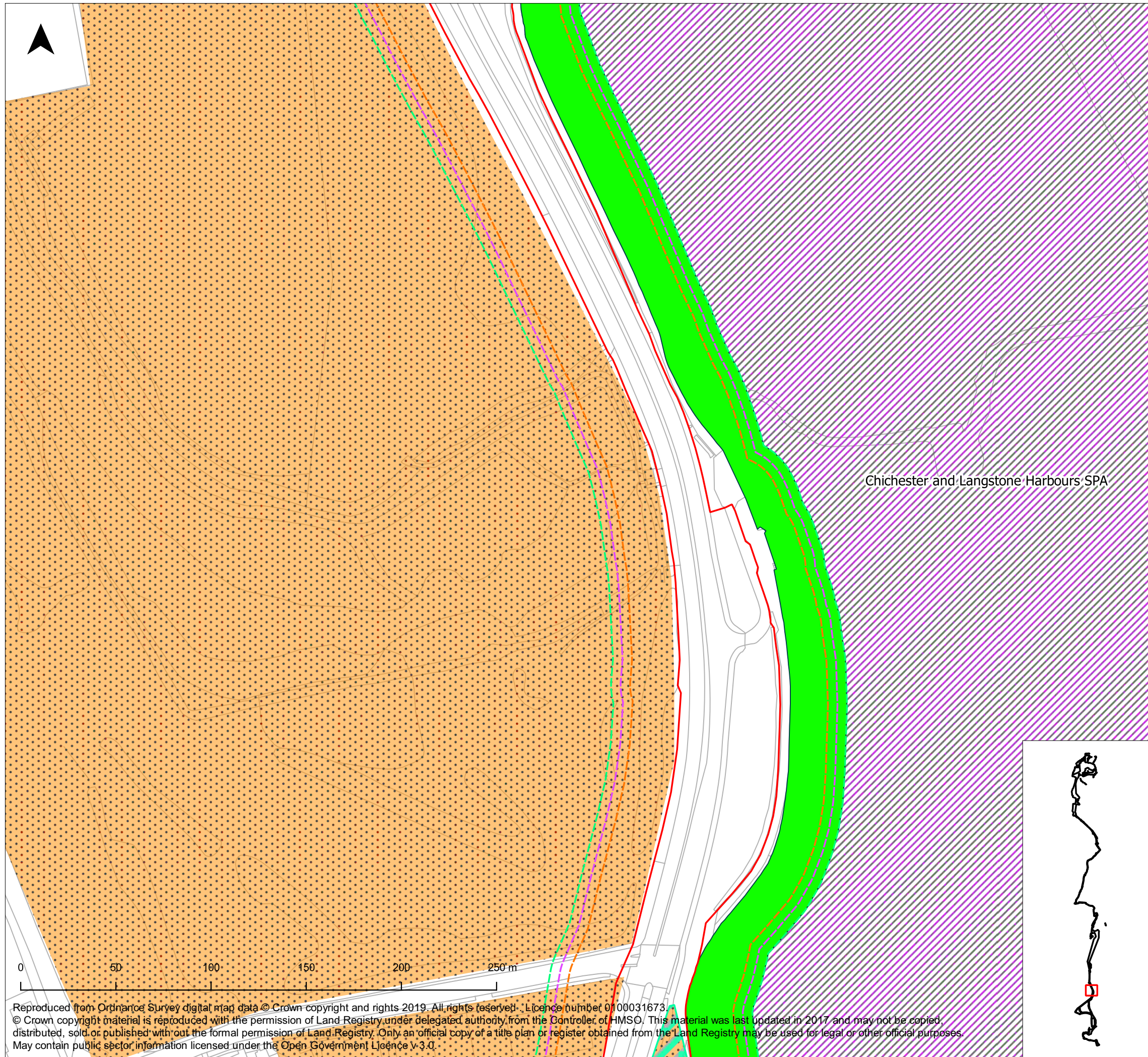
PROJECT: **AQUIND Interconnector**

TITLE: **Figure 2 - Application of winter restriction principles
Sheet 7 of 15**

SCALE AT A3: 1:2000	CHECKED: IE	APPROVED: CM
PROJECT NO: EN020022	DESIGNED: PJ	DRAWN: PJ
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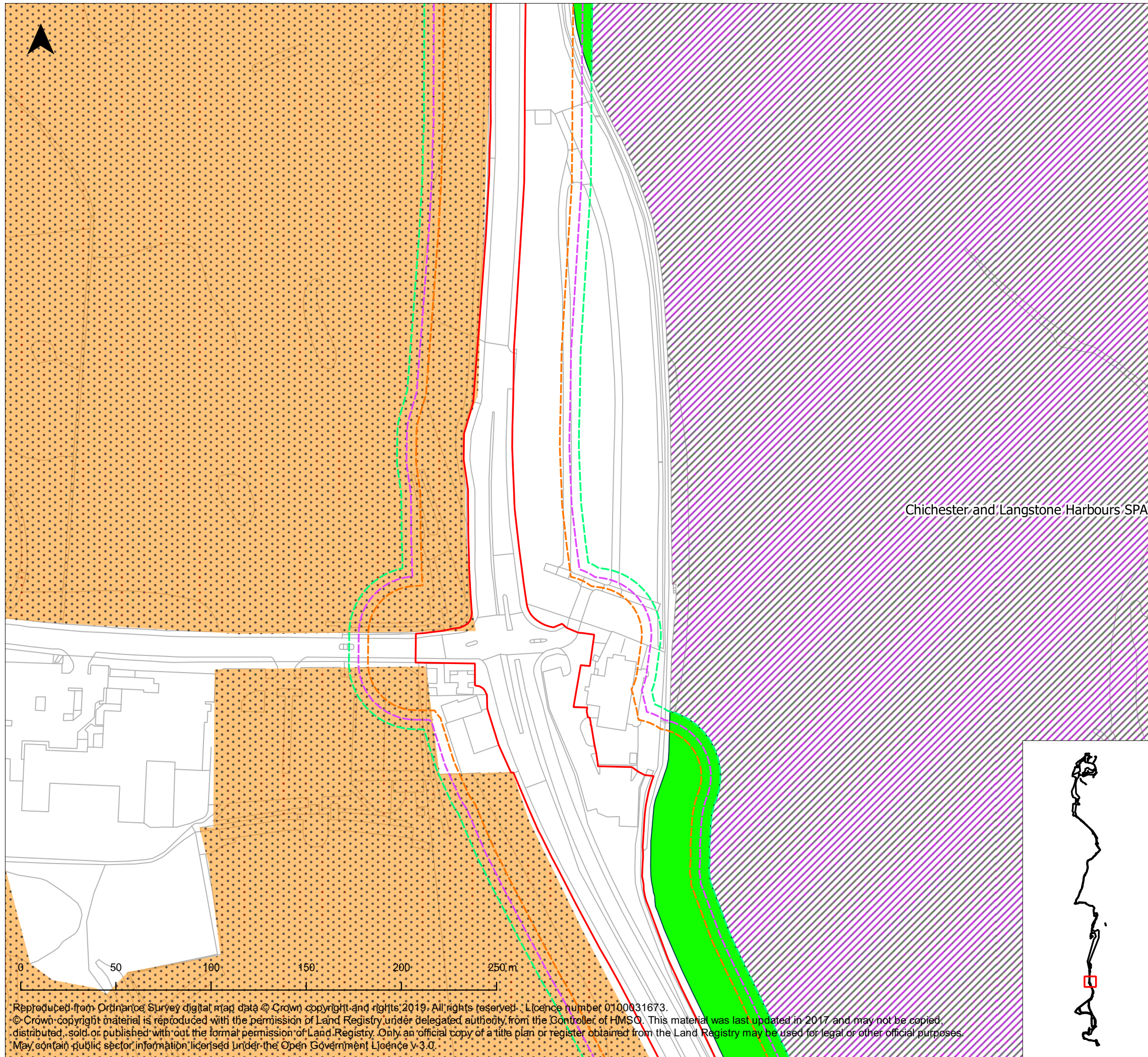
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**Figure 2 - Application of winter restriction principles
Sheet 8 of 15**

SCALE AT A3: 1:2000	CHECKED: IE	APPROVED: CM
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TITLE: **Figure 2 - Application of winter restriction principles
Sheet 9 of 15**

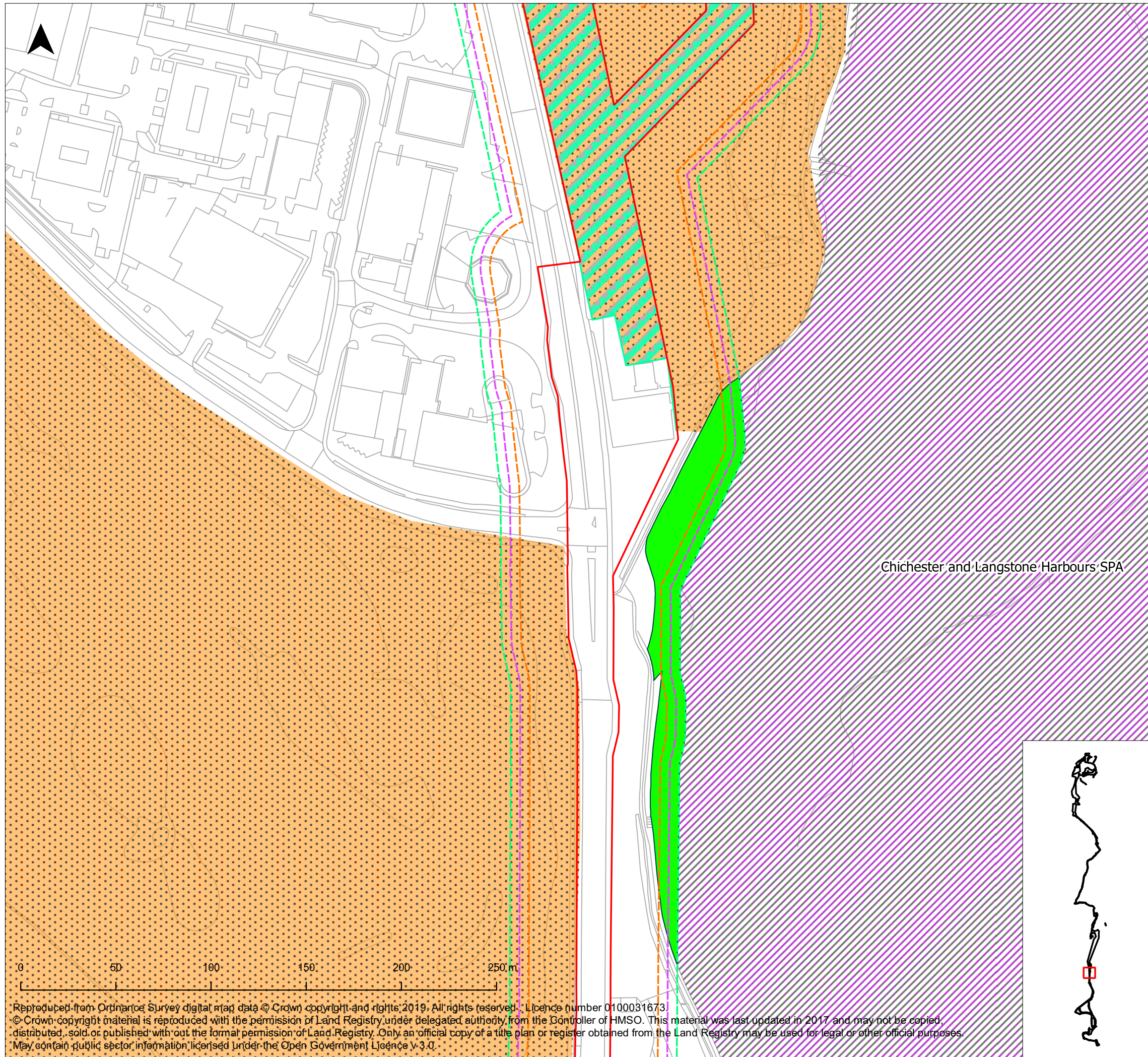
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TITLE:

**Figure 2 - Application of winter restriction principles
Sheet 10 of 15**

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TITLE:
**Figure 2 - Application of winter restriction principles
Sheet 11 of 15**

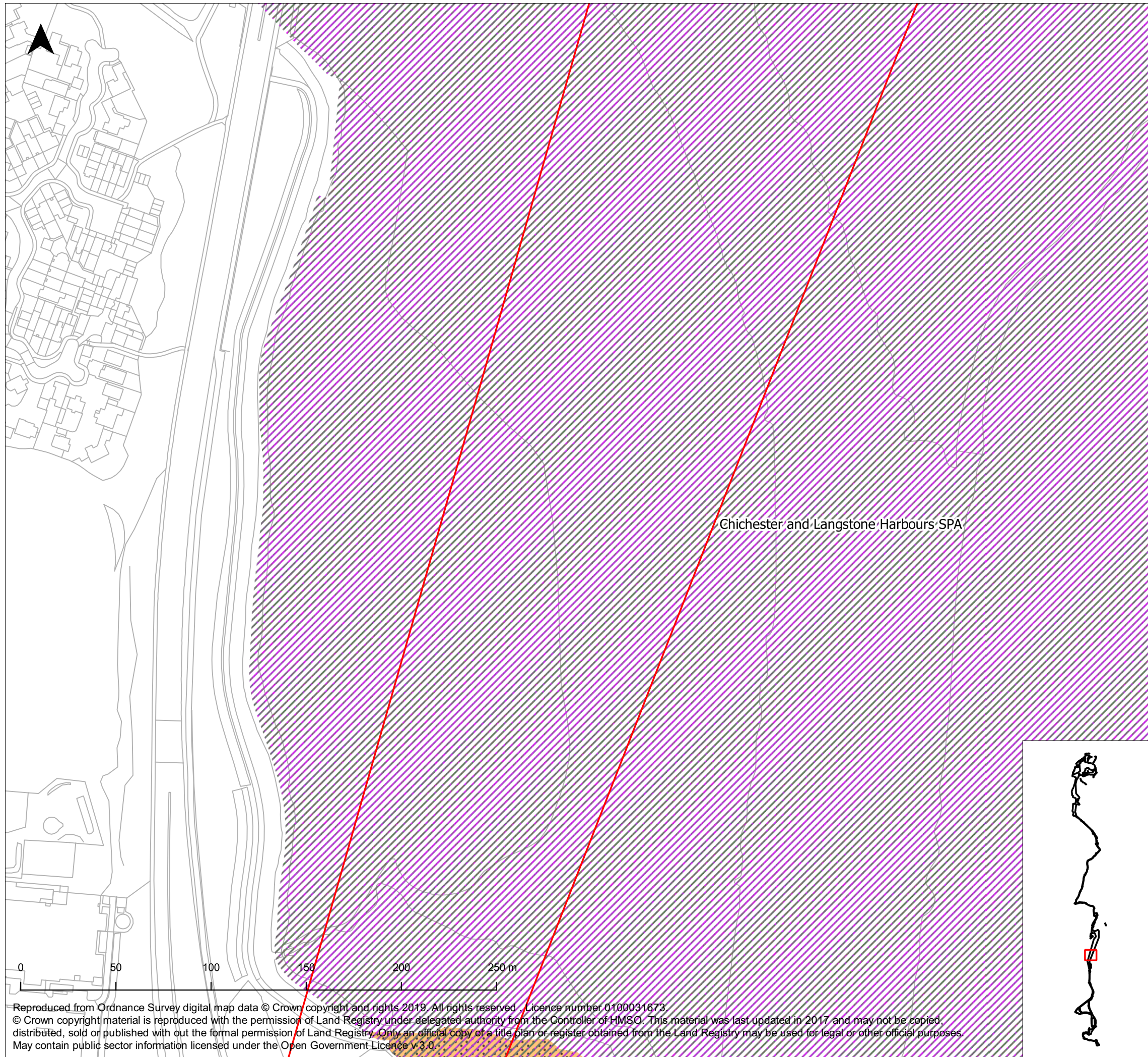
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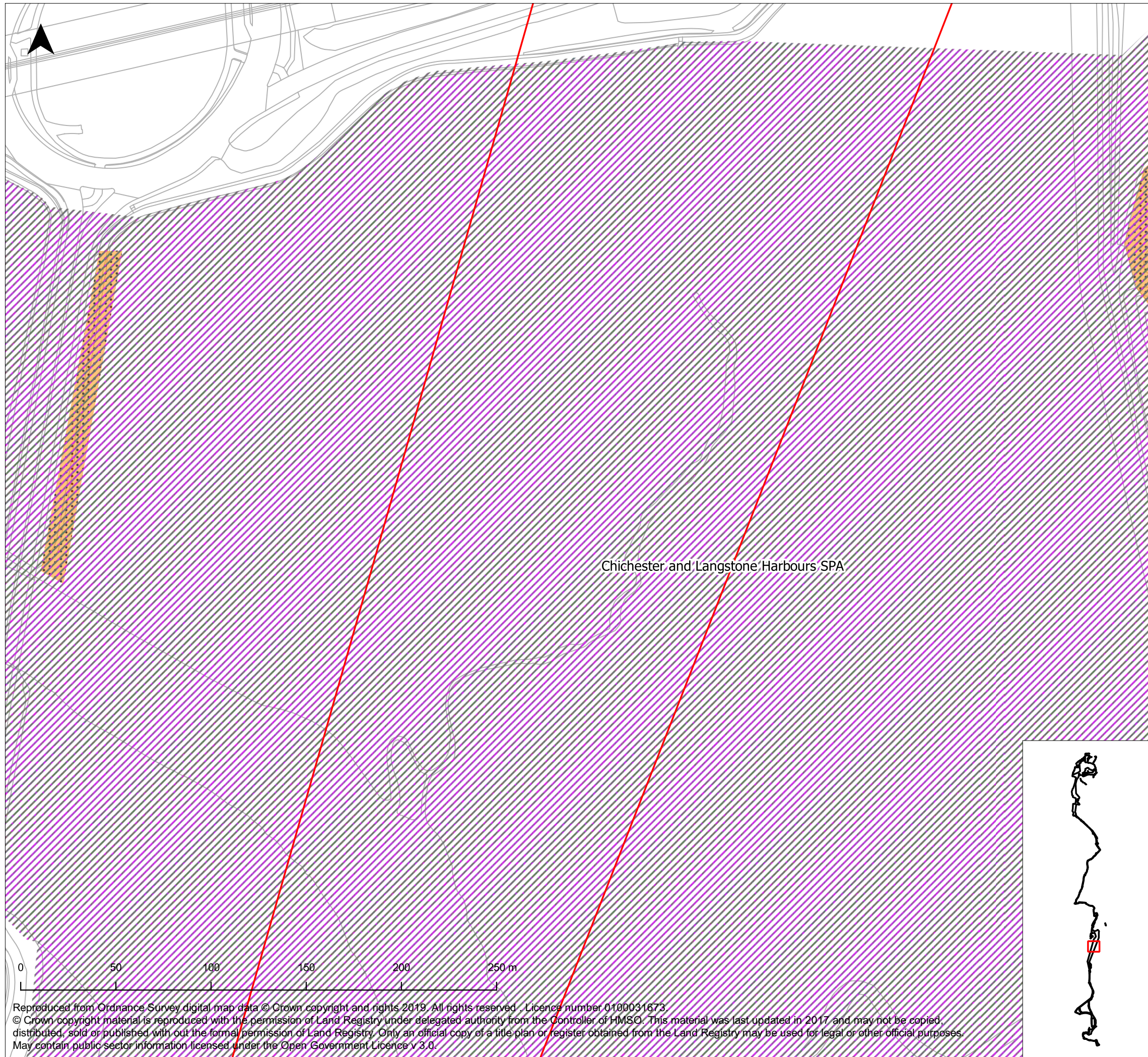
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Figure 2 - Application of winter restriction principles
Sheet 12 of 15

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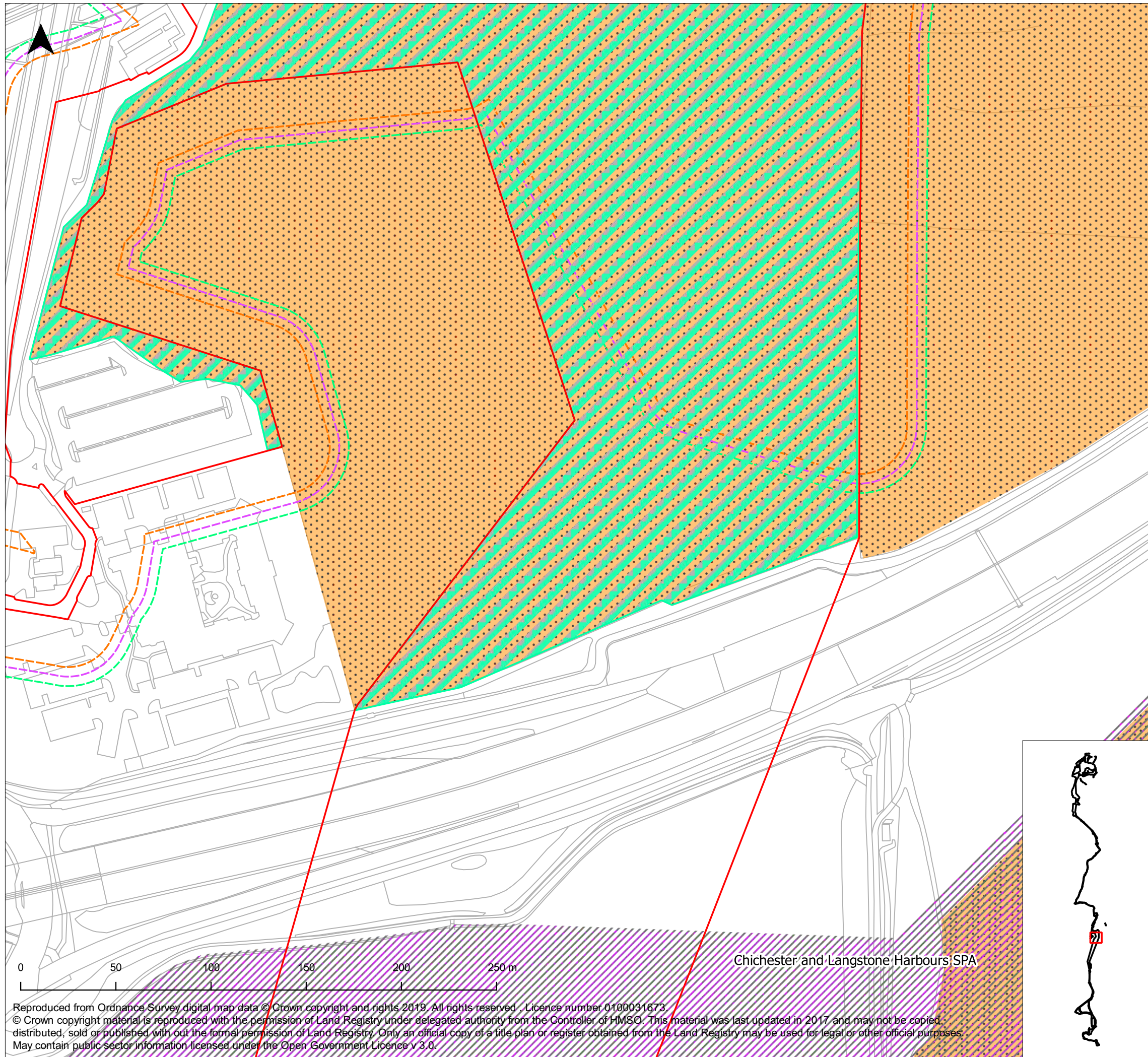
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**Figure 2 - Application of winter restriction principles
Sheet 13 of 15**

SCALE AT A3: 1:2000	CHECKED: IE	APPROVED: CM
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TITLE:
**Figure 2 - Application of winter restriction principles
Sheet 14 of 15**

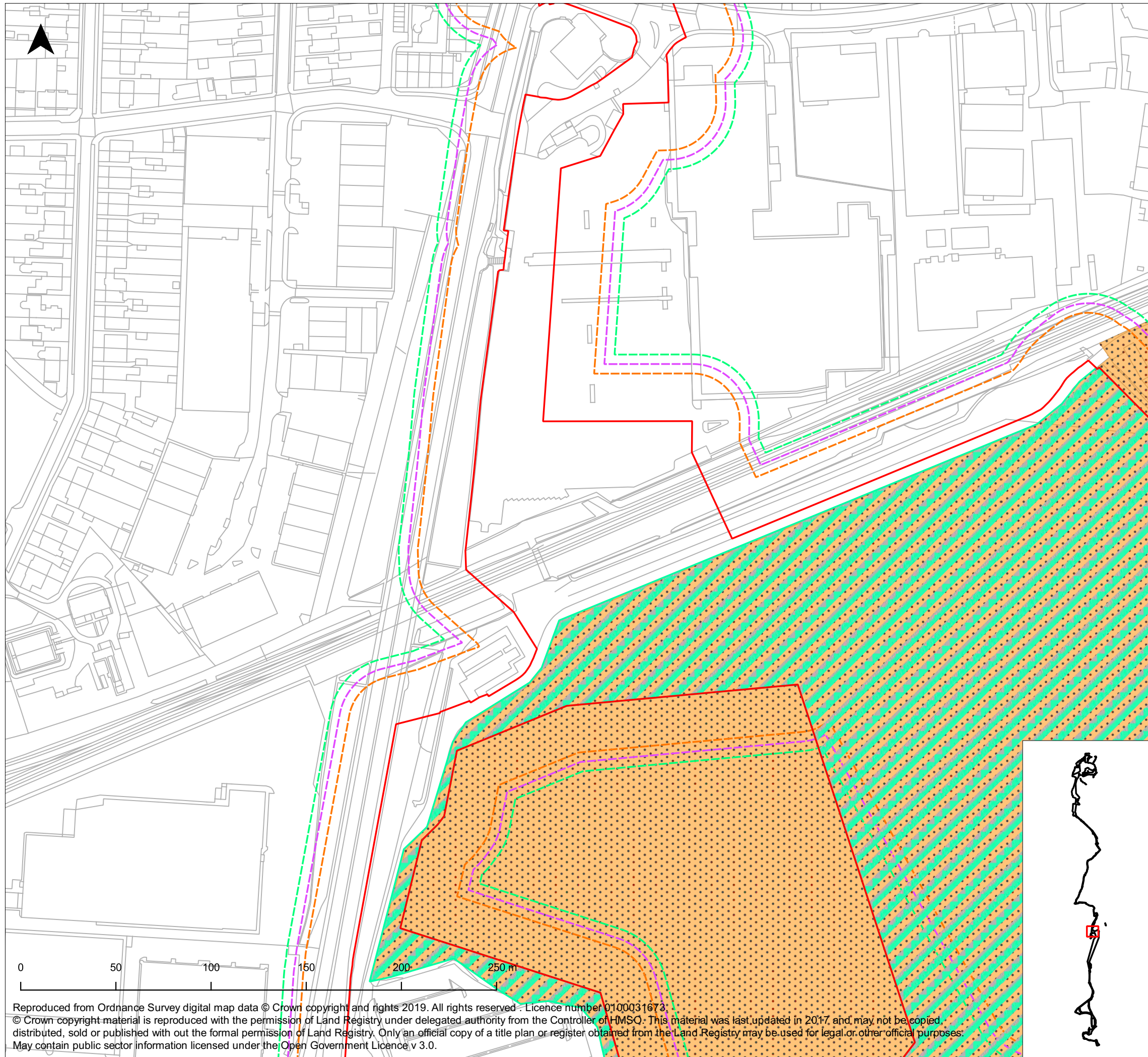
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