



The Sizewell C Project

6.4 Volume 3 Northern Park and Ride Chapter 6 Landscape and Visual Appendices 6A - 6B

Revision: 1.0
Applicable Regulation: Regulation 5(2)(a)
PINS Reference Number: EN010012

May 2020

Planning Act 2008
Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009





VOLUME 3, CHAPTER 6, APPENDIX 6A: ILLUSTRATIVE VIEW POINTS



Appendices

1.1 Illustrative Viewpoints 1

Plates

Plate 1.1: Footpath E-216/004/0 1
Plate 1.2: Footpath north of Woodhill Farm 2
Plate 1.3: Fox Lane 2
Plate 1.4: Yoxford 3
Plate 1.5: Yoxford Road 3

1.1 Illustrative Viewpoints

Plate 1.1: Footpath E-216/004/0



Plate 1.2: Footpath north of Woodhill Farm



Plate 1.3: Fox Lane



Plate 1.4: Yoxford



Plate 1.5: Yoxford Road





VOLUME 3, CHAPTER 6, APPENDIX 6B: NIGHT-TIME APPRAISAL

Contents

1	Night-time Effects	1
1.1	Introduction	1
1.2	Legislation, policy and guidance	1
1.3	Methodology	3
1.4	Assessment	5
	References	11

Tables

Table 6B.1: Summary of scale of effects on night-time viewpoints	8
--	---

Plates

None provided.

Figures

Figure 6B.1: Existing light pollution

Figure 6B.2: Night-time viewpoint 1: Photograph panel

1 Night-time Effects

1.1 Introduction

1.1.1 This appendix to **Chapter 6, Volume 3** of the **Environmental Statement (ES)** assesses the potential landscape and visual effects arising from lighting during the construction, operation and removal and reinstatement of the northern park and ride site at Darsham (referred to throughout this appendix as 'the proposed development'). Lower level light periods, when lighting may be required, have the potential to arise in the early morning, dusk and evening, as well as at night.

1.1.2 The assessment describes the existing landscape and visual baseline at lower level light periods; describes the key lighting aspects of the proposed development as they relate to landscape and visual matters; describes the anticipated change upon both landscape and visual receptors; and assesses the magnitude and significance of change for both the construction and operational phases of the proposed development.

1.2 Legislation, policy and guidance

1.2.1 No international or regional legislation or policy is deemed relevant to the assessment for this site.

a) National

1.2.2 At a national level, the relevant National Policy Statements are considered alongside the National Planning Policy Framework, and the Planning Practice Guidance for Light Pollution. Much of the policy and guidance relates to ecology considerations or creating nuisance through lighting. Lighting in relation to the proposed development will be designed to avoid creating nuisance or effects on residential amenity and policy specifically in relation to these matters is not referenced below.

1.2.3 Paragraph 180 of the National Planning Policy Framework (Ref. 1.1) requires decisions to ensure that *“new development is appropriate for its location”* including by limiting the impact of light pollution on local amenity and *“intrinsically dark landscapes”*.

1.2.4 The Planning Practice Guidance for Light Pollution (Ref. 1.2) sets out the circumstances in which light pollution can become relevant to planning. It states at paragraph 001:

NOT PROTECTIVELY MARKED

“Artificial light is not always necessary. It has the potential to become what is termed ‘light pollution’ or ‘obtrusive light’, and not all modern lighting is suitable in all locations. It can be a source of annoyance to people, harmful to wildlife, undermine enjoyment of the countryside or the night sky, especially in areas with intrinsically dark landscapes. Intrinsically dark landscapes are those entirely, or largely, uninterrupted by artificial light. National parks and nature reserves can serve as good examples, particularly where they support habitats for native nocturnal animals.”

1.2.5 The guidance continues at Paragraph 003:

“Light intrusion occurs when the light ‘spills’ beyond the boundary of the area being lit. For example, light spill can result in safety impacts related to the impairment or distraction of people (e.g. when driving vehicles), health impacts arising from impaired sleep, cause annoyance to people, compromise an existing dark landscape and/or adversely affect natural systems (e.g. plants, animals, insects, aquatic life). These adverse effects can usually be completely avoided with careful lamp and luminaire selection and positioning:

Lighting near or above the horizontal is usually to be avoided to reduce glare and sky glow (the brightening of the night sky).

Good design, correct installation and ongoing maintenance are essential to the optical effectiveness of lighting schemes such as fixed and/or regularly operated functional and decorative lighting elements.”

1.2.6 Paragraph 005 adds:

“The character of the area and the surrounding environment may affect what will be considered an appropriate level of lighting for a development. In particular, lighting schemes for developments in protected areas of dark sky or intrinsically dark landscapes should be carefully assessed as to their necessity and degree.”

b) Local**1.2.7** Suffolk Coastal District Local Plan Core Strategy & Development Management Policies (Ref. 1.3). Development Management Policy DM26 – Lighting sets out the Council’s approach to minimising light pollution. The policy is worded as follows:

“The District Council will seek to minimise light pollution. Applications for development requiring or likely to require external lighting should include details of lighting schemes. This should include position, height, aiming points, lighting levels and a polar luminance diagram. Applicants will need to satisfy the District Council that:

(a) The proposed lighting scheme is the minimum needed for security, working purposes, recreational or other use of the land;

(b) It is designed so as to minimise pollution from glare and light spillage, particularly to residential and commercial areas, areas of nature conservation importance, and areas whose open and landscape qualities would be affected;

...

In order to prevent unnecessary intrusion into the countryside, or the effect on residential amenity, the District Council may seek to control the days and times of use of lighting (excluding street lighting).”

1.3 Methodology

1.3.1 Night-time assessment of lighting on landscape and visual receptors is an emerging area, and there is no specific guidance on which to base the assessment.

1.3.2 The approach and methodology of this assessment will follow the same structured approach as **Volume 3, Chapter 6** of the **ES**. The assessment terminology will also follow that presented in the landscape and visual methodology, with the exception of the approach to assessing and describing the sensitivity of receptors as follows:

a) Sensitivity of landscape character at night

1.3.3 For landscape character types (LCTs), susceptibility will be judged based on the degree to which the character of the landscape is characterised by darkness, informed by satellite mapping of light distribution and site observations. Value will be judged as presented within the assessment of effects during the day, unless specific factors suggest otherwise, for example the identification of a dark sky discovery site which would increase value; or where factors that contribute to value in the daytime are irrelevant at night (which may reduce value at night).

b) Sensitivity of visual receptors at night

- 1.3.4 For visual receptors the assessment will take account of the importance attached to views at night. Generally, the value attached to night-time views is considered to be low, unless there is a particular feature that can be best, or only appreciated in the hours of darkness. This may include views of stars and the night sky that are only, or best available in particularly dark areas, or views to well-known landmarks that are illuminated at night.
- 1.3.5 The susceptibility of visual receptors also differs at night, reflecting the different activities people undertake in the hours of darkness. For example, drivers using roads at night tend to be more focused on the road and the area illuminated by their headlights and roadside lighting than during the day and may have their attention drawn by oncoming headlights, road markings/cat's eyes, or signage, resulting in lower susceptibility. By contrast, people taking part in activities requiring darkness, such as star gazing, would be of higher susceptibility.
- 1.3.6 The sensitivity of visual receptors at night is rated as follows:
- National value and high susceptibility – visitors to dark sky parks or dark sky reserves as recognised by the International Dark Sky Association.
 - Local value and high susceptibility – visitors to dark sky discovery sites, public observatories or places often visited by astronomical societies and groups.
 - Community value and high susceptibility – people engaged in night-time activity such as bat watching, residents of notably dark areas (i.e. rural locations with no street lighting) in the streets around their homes and footpaths where dark skies are integral to the amenity.
 - National (or local) value and medium susceptibility – visitors to nationally important or well-known local landmarks that are illuminated at night.
 - Community value and medium susceptibility – residents in urban areas or semi-urban/rural areas, users of cycle routes and footpaths where street lighting/illumination is characteristic.
 - Community value and low susceptibility – drivers using local, unlit roads and train passengers.

- Limited value and low susceptibility – users of A roads, illuminated minor roads and people at their place of work.

c) Scope

1.3.7 The extent of the study area for the assessment of night-time effects is 2 kilometres (km), which replicates that used for the assessment of daytime effects, which has been agreed by landscape and visual consultees. The assessment considers the impact of lighting on landscape character, visual receptors and landscape designations.

1.3.8 A selection of viewpoints are used to aid the assessment of night-time effects. A night-time photograph is provided from Representative Viewpoint 1 as used in **Volume 3, Chapter 6** of the **ES**. Other viewpoints from the main assessment were visited as relevant. However, a number are inaccessible at night due to being unlit or were not suitable for night-time photography due to proximity to busy roads.

1.4 Assessment

1.4.1 This section identifies those groups of landscape and visual receptors likely to experience notable effects as a result of the proposed lighting associated with the proposed development. The baseline description of the existing night-time environment for each receptor group is provided alongside the assessment of effects for ease of reference.

1.4.2 This section considers both landscape character and visual receptors before considering designated landscapes. It is common for designations to encompass both character and visual considerations within their special qualities or purposes of designation. It therefore makes a more natural reading sequence to draw together those aspects of character and views which relate to the designation if they have been described earlier in the chapter.

a) Night-time visual environment of the study area

1.4.3 The existing intensity of artificial lighting across the study area is illustrated on **Figure 6B.1** to this appendix using satellite data (Visible Infrared Imaging Radiometer Suite day/night) from March 2019 (Ref. 1.4). This illustrates that there is a low level of artificial light within much of the study area, including the site itself. To the south-west, the settlement of Yoxford and also the area south-west of Darsham railway station, where there is artificial lighting, this creates a much higher degree of light pollution within that part of the study area.

NOT PROTECTIVELY MARKED

- 1.4.4 There are also a small number of other light sources within the study area, beyond those generally associated with the settlements mentioned above, that can be seen from within the study area and vary in prominence depending on the context of the view. These include existing lighting along the A12, between the railway station and Darsham service station. Darsham service station is also lit at night and is a visible lighting feature for some distance. Other roads and settlements within the study area are generally unlit.
- 1.4.5 Haw Wood Farm Caravan Park is located within the study area, approximately 1.5km to the north-east of the site boundary. It is a dark sky discovery site used by members of the Breckland Astrological Group. Dark sky discovery sites are a nationwide network of places, nominated and promoted by local groups, which provide good views of the night sky and where opportunities exist for observing the stars.

b) Lighting proposals

- 1.4.6 As discussed in **Chapter 2** of this volume of the **ES**, lighting would be provided around the security fencing and within the car parking areas of the proposed development for security and safety reasons, as well as around the proposed roundabout and along the access road into the proposed development. Lighting columns would have a maximum height with lanterns of 6 metres (m), with the exception of at the roundabout on the A12, along the access road between the roundabout and Willow Marsh Lane where lighting columns would be 8m in height.
- 1.4.7 Regard has been given in the lighting design to minimising potential effects on neighbouring residential occupiers and ecological receptors, given that dark skies are a valued feature in the locality. Therefore, the lanterns would utilise LED based light fittings to ensure energy efficiency with zero degree tilt, and lighting columns along the perimeter would be fitted with a demountable shield to reduce backward spill of light. To further assist in mitigating obtrusive light, a central management system has been proposed for the lighting which would be capable of dimming of parts of the site independently from other parts, as usage changes through the day and to allow for seasonal variations in the operational hours of the external lighting.

c) Landscape effects

- 1.4.8 Local landscape character types within the 2km study area, as identified in the Suffolk Landscape Character Assessment (Ref. 1.5), are illustrated on **Figure 6B.1** to this appendix. This shows that most LCTs within the study area are characterised by lower intensity of artificial light present within them, with localised areas of higher intensity focused at settlements along the A12.
- 1.4.9 LCTs within the 2km study area and to the south and south-west of the site have a higher intensity of artificial light present within them. These LCTs are unlikely to experience any notable effects on landscape character as a result of the proposed development.
- 1.4.10 The main source of effects would occur as a result of the proposed lighting within the parking areas and along the access road. Lighting towards the south of the site would occur in an area that already experiences artificial light sources in the form of street lighting and lighting at Darsham service station.
- 1.4.11 As discussed in the **Volume 3, Chapter 6**, of the **ES** the only landscape types likely to experience effects from the proposed development are the Ancient Estate Claylands and Rolling Estate Claylands LCTs. This remains the case in relation to lighting effects at night.

i. Ancient Estate Claylands

- 1.4.12 The key characteristics of this LCT are described in the Landscape Character Assessment and set out in the **Volume 3, Chapter 6** of the **ES**. The night-time character of the LCT is not discussed in the current character assessment. However, this LCT is generally dark with little existing light pollution, as illustrated by **Figure 6B.1** of this appendix. Existing lighting within this LCT tends to be limited to occasional isolated dwellings, but the area around Darsham railway station and Darsham service station falls on the southern edge of the LCT and creates a localised area of higher intensity artificial light.
- 1.4.13 Despite the proximity of lighting in the area around Darsham railway station and Darsham service station, there are limited sources of artificial lighting present within the landscape type within the study area. As a result, this LCT is considered to have high-medium susceptibility to the proposed lighting. Taking this with the community value of the landscape, as set out in **Volume 3, Chapter 6** of the **ES**, the LCT is considered to have medium sensitivity to the proposed lighting.

NOT PROTECTIVELY MARKED

1.4.14 The proposed development would introduce a large area of lighting within the LCT, in an area where there is already some existing lighting of a similar type and intensity but over a smaller area. This would result in long-term effects on this LCT that would be large-medium scale and occur over a localised extent. Effects would be of high-medium magnitude, resulting in a moderate adverse effect, which is considered to be **not significant**, given the relative lack of existing artificial lighting in the vicinity of the northern part of the site.

ii. Rolling Estate Claylands

1.4.15 As for the main landscape and visual assessment in **Volume 3, Chapter 6** of the **ES**, visibility of the proposed development from within this LCT would be relatively limited. Those areas of the LCT that would have potential visibility of the lighting from the proposed development already experience the effects of existing lighting around Darsham railway station. This would result in negligible scale effects on this LCT. Effects would be of negligible magnitude, resulting in a minimal neutral effect, which is considered **not significant**, given the degree of artificial lighting already characteristic of this character type.

d) Visual effects

1.4.16 The approach to assessing visual receptors will follow the same approach as **Volume 3, Chapter 6** of the **ES**, utilising receptor groups and assessing effects on key routes separately.

i. Visual aids

1.4.17 An annotated photograph is shown at **Figure 6B.2** supporting this appendix (see **Figure 6B.1** for viewpoint location). The scale of effect at the viewpoint is summarised in **Table 6B.1**.

Table 6B.1: Summary of scale of effects on night-time viewpoints.

VP	Location	Approx. Distance/ Direction from Site.	Scale of Effect Positive, Neutral, Adverse.
N1	A12, opposite Darsham services station.	0km, south-east.	Large-medium, adverse.

Receptor groups

- 1.4.18 Users of the cycle way along Willow Marsh Lane and Main Road, minor roads and local residents to the north and east of the site and immediately adjacent to it: As set out above, people in and around their homes and using cycleways in unlit rural areas are considered to be of medium sensitivity. Willow Marsh Lane is currently unlit, as is the stretch of the A12 (Main Road) north of Darsham service station. Given the relative darkness of this area at night, the lighting proposed around the roundabout, along the proposed access road and within the car parking areas of the proposed development would be a very noticeable new feature. However, the lighting strategy has been designed to minimise the amount of lighting required and its spill into the surrounding area. Long-term effects would be of large-medium scale over an intermediate extent. These effects would be of high-medium magnitude, resulting in a major-moderate adverse effect that is considered to be **significant**.
- 1.4.19 Users of the public footpath to the north of the site, south of the A144, and local residents in the vicinity of the route: The public footpath is unlikely to be used at night due to its unlit nature and effects on users of the routes are not considered further within this assessment. As above, people in and around their homes in unlit rural areas are considered to be of medium sensitivity. From this vicinity, very little artificial lighting is visible, with the exception of headlights of cars using the A12. The lighting around the proposed roundabout and along the proposed access road would be the most noticeable new lighting feature from the area around these residential properties, with the proposed lighting within the car parking areas located beyond. However, the lighting strategy has been designed to minimise the amount of lighting required and its spill into the surrounding area. Long-term effects would be of medium scale, given the smaller proportion of the lighting scheme that would be visible, over an intermediate extent. These effects would be of medium magnitude, resulting in a moderate adverse effect that is considered to be **not significant**.

1.4.20 Users of public footpaths located to the east of the A12 and within the zone of visual influence, as well as local residents to the east and south-east of the site within 350m: The public footpath is unlikely to be used at night due to its unlit nature and effects on users of the routes are not considered further within this assessment. As set out above, people in and around their homes in lit rural areas are considered to be of medium-low sensitivity. Despite the presence of existing lighting around Darsham railway station and Darsham service station, the lighting within the proposed car parking areas of the proposed development would be a very noticeable new feature. However, the lighting strategy has been designed to minimise the amount of lighting required and its spill into the surrounding area. As indicated by Viewpoint 1, long-term effects would be of large scale over an intermediate extent. These effects would be of high magnitude, resulting in a moderate adverse effect that is considered to be **not significant**.

1.4.21 Users of the public footpath between Martin's Farm and Cockfield Hall, to the west of the site within approximately 600m: These routes are unlikely to be used at night due to their unlit nature and effects on users of the routes are not considered further within this assessment.

Long-distance routes

1.4.22 The A12 passes along the eastern boundary of the site and the East Suffolk line runs along the western boundary. As set out above, users of A roads and train passengers are considered to be of medium-low sensitivity. For both routes, the proposed lighting would form a noticeable new feature when passing through the area around Darsham train station. As indicated by Viewpoint 1, road users on the A12 would experience large scale effects as they pass the proposed development, and similar effects would be experienced by train passengers. However, this would be a very brief part of a longer journey and the long-term effects would be of limited extent. These effects would be of medium magnitude, resulting in a moderate adverse effect that is considered to be **not significant**.

e) Effects on landscape designations

1.4.23 As set out in **Volume 3, Chapter 6** of the **ES**, a special landscape area covers part of the study area, at the at the River Yox valley 450m south of the site. There are unlikely to be any views of the lighting associated with the proposed development from within the special landscape area and the lit area around Darsham railway station and Darsham service station is located between the designated area and the site. There is no potential for effects on the special landscape area.

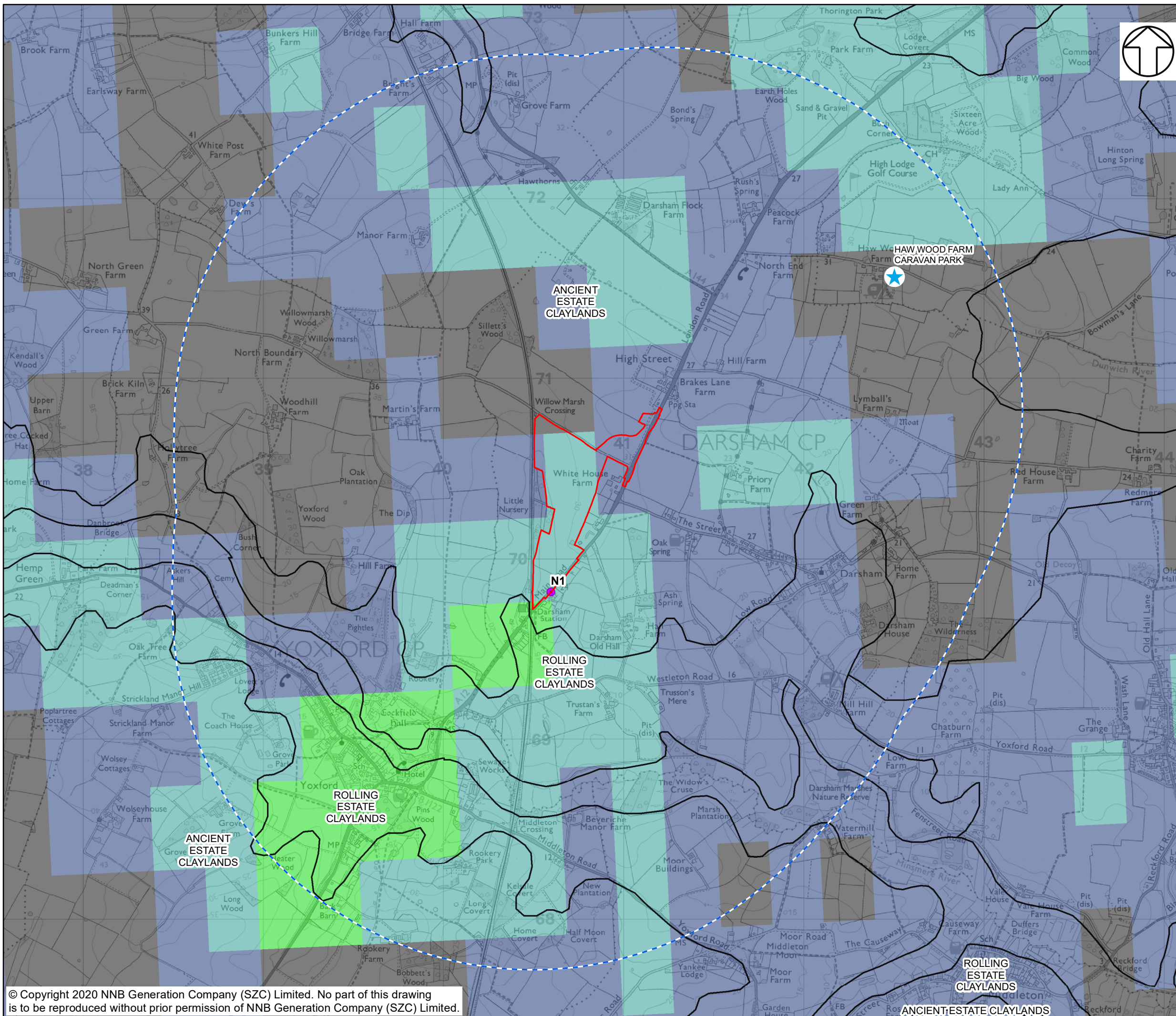
References

- 1.1 The Ministry of Housing, Communities and Local Government (2019) National Planning Policy Framework
- 1.2 The Ministry of Housing, Communities and Local Government (2019) Planning Practice Guidance – Light Pollution
- 1.3 ESC (2013) Suffolk Coastal District Council Core Strategy and Development Management Policies
- 1.4 Juri Stare. Intensity of Artificial Lighting (Visible Infrared Imaging Radiometer Suite 2018). (Online) Available from: <https://www.lightpollutionmap.info/> (Accessed 22 March 2019).
- 1.5 Suffolk County Council (2008, revised 2011) Suffolk Landscape Character Assessment

Figures

Figure 6B.1: Existing light pollution

Figure 6B.2: Night-time viewpoint 1: Photograph panel



- NOTES**
 DATA PRESENTED TO REPLICATE MAPPING AT
 WWW.LIGHTPOLLUTIONMAP.INFO
- KEY**
- NORTHERN PARK AND RIDE DEVELOPMENT SITE BOUNDARY
 - STUDY AREA (2KM FROM SITE BOUNDARY)
 - LANDSCAPE CHARACTER TYPES
- EXISTING LIGHT POLLUTION (MARCH 2019)
- RADIANCE (W/CM² * SR)
- < 0.25
 - 0.25 - 0.4
 - 0.4 - 1
 - 1 - 3
- DARK SKY DISCOVERY SITES
- ★ DARK SKY DISCOVERY SITE (MILKY WAY CLASS, HOSTS EVENTS)
 - NIGHT TIME VIEWPOINT
- NIGHT TIME
 1 A12, OPPOSITE DARSHAM SERVICE STATION

NOT PROTECTIVELY MARKED

COPYRIGHT
 Reproduced from Ordnance Survey map with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationery Office © Crown Copyright (2019). All Rights reserved. NNB GenCo 0100060408.
 VIIRS Day/Night Band Nighttime Lights (March 2019) Earth Observation Group, NOAA National Geophysical Data Center. Dark Sky Discovery.
 Ordnance Survey material with the permission of the Ordnance Survey, on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright (Suffolk County Council Licence No. 100023395 2019).

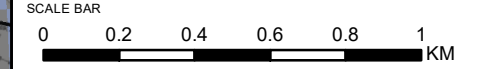


DOCUMENT:
 SIZEWELL C
 ENVIRONMENTAL STATEMENT
 VOLUME 3
 APPENDIX 6B
 NIGHT-TIME APPRAISAL

DRAWING TITLE:
 EXISTING LIGHT POLLUTION

DRAWING NO:
 FIGURE 6B.1

DATE: JAN 2020 DRAWN: V.W. SCALE: 1:20,000 @A3





Night Time Viewpoint 1: A12, opposite Darsham services station

Existing View:

This viewpoint is located directly adjacent to the site, opposite Darsham service station. The viewpoint looks along the A12 towards the north east. Darsham service station is lit and forms a bright source of artificial light in the immediate vicinity of the site. Behind the viewpoint, lighting along the A12 towards the level crossing at Darsham train station continues artificial lighting southwards. The site and views to the north are unlit and skies are generally dark.

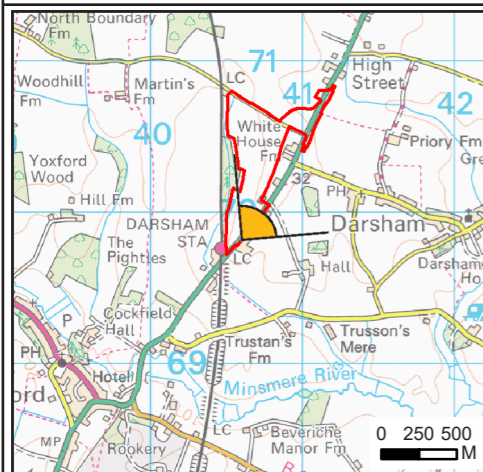
Construction and removal and reinstatement Effects:

The construction of the proposed development would occur directly adjacent to this viewpoint. Task lighting during any required night working would be clearly visible, as would lighting within the car parking areas as lighting columns are constructed and become operational. The lights around the proposed roundabout further north on the A12 would be visible as a new but distant light source. Effects would be of **Large** scale and, on balance, **Adverse**.

Operational Effects:

The proposed development would occur directly adjacent to this viewpoint. Lighting within the parking area would be visible above the boundary fence and proposed planting. The lights around the new roundabout further north on the A12 would be visible as a new but distant light source. Effects would be of **Large** scale and, on balance, **Adverse**.

© Copyright 2020 NNB Generation Company (SZC) Limited. No part of this drawing is to be reproduced without prior permission of NNB Generation Company (SZC) Limited.



VIEWPOINT INFORMATION

OS REFERENCE: 640598 E 269816 N
 EYE LEVEL (AOD): 26.1M
 CAMERA: CANON EOS 6D
 LENS: EF50MM F/1.8 STM
 CAMERA HEIGHT: 1.5M AGL
 PHOTO DATE / TIME: 12/12/2018 19:10

NO DIMENSIONS ARE TO BE SCALED FROM THIS DRAWING,
 ALL DIMENSIONS ARE TO BE CHECKED ON SITE.
 AREA MEASUREMENTS FOR INDICATIVE PURPOSES ONLY.



COPYRIGHT
 Reproduced from Ordnance Survey map with the permission of Ordnance Survey on behalf of the controller of Her Majesty's Stationery Office © Crown Copyright (2019). All Rights reserved. NNB GenCo 0100060408.

NOT PROTECTIVELY MARKED

DOCUMENT:
 SIZEWELL C
 ENVIRONMENTAL STATEMENT
 VOLUME 3
 APPENDIX 6B
 NIGHT-TIME APPRAISAL

DRAWING TITLE:
 NIGHT TIME VIEWPOINT 1:
 PHOTOGRAPH PANEL

DRAWING NO:
 FIGURE 6B.2

DATE: JAN 2020 DRAWN: V.W. SCALE: NTS