Temporary Jetty Development

Hinkley Point C - Proposed Nuclear Development

Environmental Statement Addendum

Appendix 3 Lighting Strategy

June 2011

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1 Introduction

1.1 Outline

1.1.1 This Lighting Strategy is submitted in support of the Environmental Statement Addendum for a temporary jetty. The temporary jetty development is part of preliminary works for the proposed construction of Hinkley Point C. EDF Energy plans to submit its application for Hinkley Point C to the IPC later this year and a decision on the application is expected in 2012.

1.1.2 The need for the additional assessment of lighting was outlined in the consultation responses to the Harbour Empowerment Order (HEO) for the Hinkley Point C Preliminary Works: Temporary Jetty Development submitted to the Marine Management Organisation (MMO) in December 2010.

1.2 Project description

1.2.1 The key features of the temporary jetty development include a jetty extending into Bridgwater Bay, an onshore aggregates storage area and a service road between the storage area and the existing access road to the Hinkley Point Power Station Complex.

1.3 Aim of the report

1.3.1 The purpose of this report is to develop a lighting strategy for the temporary jetty development which complies with the Department for Communities and Local Government (DCLG) guidance "Lighting in the Countryside: Towards Good Practice"[1], other relevant guidance and British Standards (BS), and addresses the relevant technical, planning and environmental considerations.

1.3.2 The strategy is supplemented by a Technical Appendix (see **Section 7** of this document), which describes technical details of the scheme, including technical drawings of the lighting proposals, and focuses on the Health and Safety and engineering considerations.

1.4 Scope

1.4.1 The scope of this report has been prepared in line with the outlined guidelines and, following this introduction, it contains the following sections:

- Site Context, which examines the relevant environmental conditions (predominantly landscape, visual and ecological) within and around the site as well as relevant legislation, standards, good practice guidelines and policies.
- Objectives, which identifies the objectives for the initial lighting scheme (taking into account the opportunities and constraints identified in the previous section).
- Lighting Strategy for the construction phase of the temporary jetty development.
- Lighting Strategy for the operational phase of the temporary jetty development.

[1] DCLG (1997) *Lighting in the Countryside: Toward Good Practice* London: HMSO

- Appraisal which provides the assessment of lighting against the objectives and receptors identified in the previous sections.
- Technical Appendix.

2 Site Context

2.1 Introduction

2.1.1 This section examines the planning, legislative and environmental issues of relevance to the lighting strategy. A desktop study has been carried out to identify the main planning and environmental issues that should be taken into account when considering the impact of the temporary jetty development on the local area.

2.2 Site location

2.2.1 The application site is located within the district of West Somerset (see **Figure 1**). Two other local planning authority areas, namely Sedgemoor and Taunton Deane, lie within 10km of the site.

Figure 1 Site Location

2.3 Study area

2.3.1 The study area for the site context appraisal covers the temporary jetty LVIA wide study area described in detail in **Chapter 21** of the Environmental Statement (**Volume 2**). The geographical extent of the LVIA study area under consideration includes:

- elevated areas of Quantock Hills AONB situated within ZTV;
- Watchet coastline;

- landscape surrounding the site;
- coastline from Weston-super-Mare to Hinkley Point;
- area between Junction 23 of the M5 and Burnham-on-Sea;
- Brent Knoll; and
- Bleadon Hill.

2.4 Landscape/seascape character

2.4.1 For detailed assessment of landscape/seascape character within and around the site, please see **Chapter 21** of the Environmental Statement (**Volume 2**). A brief summary of landscape character is provided below.

2.4.2 The application site is located adjacent to the existing Hinkley Point Power Station Complex, which is the only significant source of lighting in the vicinity of the site. In the wider context, the area of particular sensitivity to lighting is the Quantock Hills AONB, which overlooks the site from the south-west and the Mendip Hills AONB located to the north-east of the site.

2.4.3 In the local context, the site is located within the Quantock Vale Landscape Character Area, on the northern coast of Somerset, which is characterised by rolling farmland containing wide valleys and gentle hills which are rarely above 60m Above Ordnance Datum (AOD).

2.4.4 The Quantock ridge is a dominant feature to the south-west and the landform around the site is predominantly overlain by an essentially ancient agricultural landscape of small fields, hedges, hedgerow trees and small woodlands. The local area of particular sensitivity to lighting is the strip of farmland located adjacent to the coast to the west of the site. Due to its open and gently undulating character, and limited tree and hedgerow cover, wide views of the application site are available from the west. From the south the site is screened by the local ridge of Green Lane, which reaches 35m at its highest point. Further screening is provided by vegetation (dense hedgerow and trees) along the Public Right of Way running along the top of the ridge.

2.5 Quantock Hills AONB

2.5.1 The Quantock Hills AONB is located approximately 4 miles to the south west of the development site. The AONB covers an area of about 125km^2 and reaches a height of 384m overlooking the development site.

2.5.2 The impact of the lighting from the jetty on the AONB should be minimised by following a Dark Sky policy through a strategy of lighting techniques including directional lighting and reduction of glare at night.

2.6 Legislation, policy and guidance

2.6.1 The lighting strategy should comply with the following legislation:

- Health and Safety at Work Act 1974;
- The Environmental Protection Act 1990; and
- The Dock Regulations, 1988.

2.6.2 Health and Safety at Work Act 1974

2.6.3 The Construction (Design and Management) Regulations 2007 and the Workplace (Health, Safety and Welfare) Regulations 1992, both made under the Health and Safety at Work etc Act 1974, provide that suitable and sufficient

lighting must be provided at construction sites and all workplaces, including outdoor places. The Regulations therefore cover both the activities carried out during construction and during the operation of the power station. NNB Generation Company's Health, Safety, Environmental and Quality policy statement places safety at the heart of the construction project and as such the primary aim of the lighting strategy is to ensure a safe working environment is maintained even in the absence of natural light.

2.6.4 The Environmental Protection Act 1990

2.6.5 The Environmental Protection Act 1990 ("EPA 1990") was amended by section 102 of the Clean Neighbourhoods and Environment Act 2005 to add 'artificial light emitted from premises so as to be prejudicial to health or a nuisance' to the list of statutory nuisances set out in the EPA 1990. This does not apply to artificial light from lighthouses, prisons, airports, harbours and railway or tramway premises, nor to street lighting for public service or goods vehicles, however it would apply to the lighting emitted from the development site.

2.6.6 The lighting strategy will comply with relevant British Standards and the best practice guidelines prepared by the Chartered Institution of Building Service Engineers (CIBSE), Institute of Lighting Engineers and the International Dark-Sky Association to minimise obtrusive light and ensure compliance with the Clean Neighbourhoods and Environment Act 2005/EPA1990.

2.6.7 The Dock Regulations

2.6.8 The Dock Regulations (1988) contain safety requirements for general dock work and will be applicable to the temporary jetty development. These impose duties on employers and employers on the shore and also on ship owners, masters and crew. The duties include requirements for lighting, access, maintenance and rescue from the water.

2.6.9 A full list of Statutory Regulations and Electrical Works British Standards applicable to the temporary jetty electrical works is provided in the Technical Appendix (see **Section 7**). The key British Standards relevant to the lighting design are:

- BS EN 12464-2:2007 Lighting of Workplaces – Part 2: Outdoor Work Places;
- BS 5489-1:2003 + A2:2008 Code of practice for the design of road lighting – Part 1: Lighting of Roads and Public Amenity Area; and
- IALA Recommendation O-139 'The Marking of Man-Made Offshore Structures'

2.6.10 BS EN 12464-2:2007

2.6.11 To enable people to perform outdoor visual tasks efficiently and accurately, especially during the night, adequate and appropriate lighting has to be provided. The degree of visibility and comfort required in a wide range of outdoor work places is governed by the type and duration of activity.

2.6.12 This standard specifies requirements for lighting tasks in most outdoor work places and their associated areas in terms of quantity and quality of illumination.

2.6.13 Tables scheduling areas, tasks and activities relevant to this development are as follows:

- Table 5.1 General Circulation Areas

- Table 5.2 Building Sites
- Annex A Additional recommendations with respect to safety and health of workers at work.

2.6.14 BS 5489-1:2003 + A2:2008

2.6.15 This standard gives recommendations on the general principles of road lighting, gives recommendations on aesthetical and technical aspects, and advises on statutory provisions, operations and maintenance.

2.6.16 It gives recommendations for the design of lighting for all types of highways and public thoroughfares, including those specifically for pedestrians and cyclists, and for pedestrian subways and bridges.

2.6.17 The standard will be used to ensure that statutory design criteria are met where the primary roads in the development site interface with the surrounding public road network.

2.6.18 IALA Recommendation O-139

2.6.19 The requirements for shipping are controlled by the International Maritime Organisation. Typically a jetty lighting mast will be required consisting of 2 lights separated by 2m vertically mounted 2m above mean high water spring water level. The lights are to be visible from a range of 2 miles.

2.6.20 The Lighting Strategy takes into account the relevant guidance, namely:

- Lighting in the Countryside: Towards Good Practice;
- The Society of Light and Lighting (SLL) Lighting Handbook 2009;
- Institute of Lighting Engineers (ILE) (2005) Guidance notes for the reduction of obtrusive light;
- Bat Conservation Trust – Bats and Lighting in the UK version 3 May 2009; and
- International Dark-Sky Association.

2.6.21 Lighting in the Countryside: Towards Good Practice

2.6.22 Lighting in the Countryside: Towards Good Practice was issued by the Department of the Environment in 1997. The purpose of the Good Practice Guide is to provide practical advice on the prevention and control of lighting impacts and identifies a number of objectives that should be considered when developing a lighting strategy.

2.6.23 The SLL Lighting Handbook

2.6.24 The SLL Lighting Handbook provides further guidance behind the specific requirements of the British Standards and also identifies other sources of technical information.

2.6.25 ILE Guidance notes

2.6.26 The ILE guide specifically identifies the sources of obtrusive lighting and provides further explanation of the British Standard requirements.

2.6.27 Bats and Lighting in the UK (Version 3, May 2009)

2.6.28 The Bat Conservation Trust document aims to raise awareness of the impact of lighting on bats and suggests mitigation measures to minimise the impact on bats resulting from various scenarios.

2.6.29 International Dark-Sky Association

2.6.30 Dark Sky policy refers to the aims of the International Dark-Sky Association (IDA) with regards to the avoidance of light pollution. The IDA's goals are to be effective in stopping adverse environmental impact on dark skies by building awareness of the problem of light pollution and of the solutions.

2.6.31 IDA describes light pollution as any adverse effect of artificial light including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste. The IDA has a number of policy initiatives and collates technical information identifying best practice for avoiding light pollution.

2.6.32 Lighting can have a significant impact on landscape/seascape character and visual amenity. The legislation, policy and guidance relevant to the landscape/seascape and visual issues in relation to the temporary jetty development are examined in **Chapter 21** of the Environmental Statement (**Volume 2**).

2.7 Lighting baseline condition

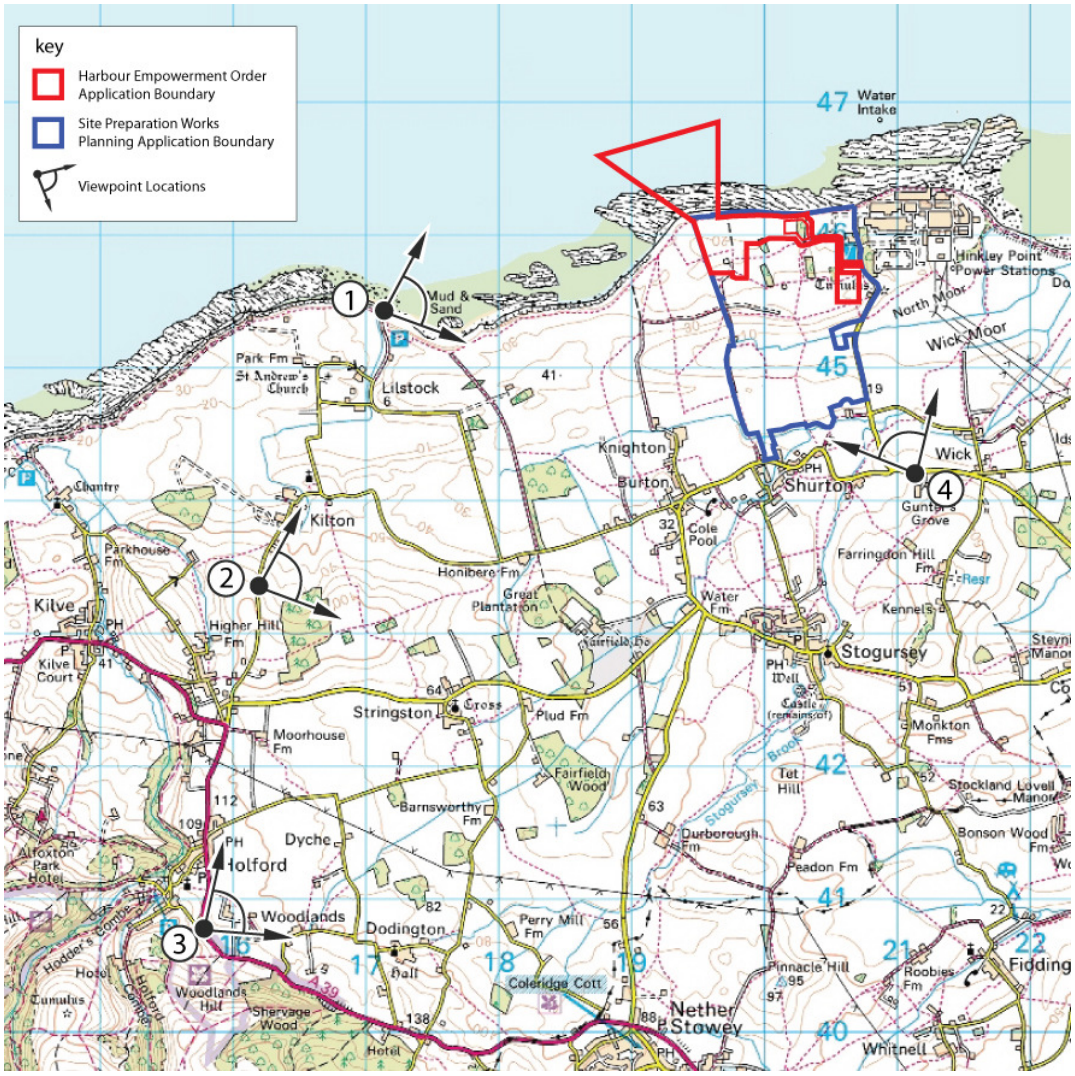
2.7.1 The site lies within a tranquil area with dark skies at night and the only significant source of lighting in the vicinity of the application site is the existing Hinkley Point Nuclear Power Station Complex. Figure 2 illustrates the existing Hinkley Point Power Station at night[2].

Figure 2 Photo of Existing Hinkley Point Power Station Complex at Night

2.7.2 The site was visited on the 10th October 2010 and several night views were recorded to illustrate the level of existing lighting. Viewpoint locations are shown on Figure 3. Figures 4 to 7 illustrate the existing views of Hinkley Point from receptors located around the site, including the West Somerset Coast Path, landscape to the south-east of the site and two views from the AONB.

[2] Source: Water.Technologies.net a product of Net Resources International

Figure 3 Viewpoint Locations



2.7.3 Figure 4 (overleaf) illustrates a view from West Somerset Coast Path north of Lilstock (PRoW no. WL24/9). This viewpoint is located approximately 2.4km from the site boundary and is included in the ES Chapter 21 as Principal Viewpoint 3.

Figure 4 Lighting Baseline: View 1 – Lilstock, Coastal Footpath

2.7.4 Figure 5 illustrates a view from Hilltop Lane located within the north-eastern fringes of the Quantock Hills AONB. This viewpoint is located approximately 4km from the site boundary and is representative of views from the north-eastern part of the Quantock Hills AONB.

Figure 5 Lighting Baseline: View 2 – Hilltop Lane, Quantock Hills AONB

2.7.5 Figure 6 illustrates a view from the A39 lay-by within the Quantock Hills AONB. This viewpoint is located approximately 5.5km from the site boundary and is representative of views from the eastern edge of the Quantock Hills AONB and A39.

Figure 6 Lighting Baseline: View 3 – A39, Holford Lay-by, Quantock Hills AONB

2.7.6 Figure 7 illustrates a view from a local road to the south of the site located 0.6km to the south of the existing Hinkley Point Nuclear Power Station Complex. The viewpoint is included in the ES Chapter 21 as Secondary Viewpoint S6.

Figure 7 Lighting Baseline: View 4 – Local Road to the South of the Site

2.8 Environmental considerations

2.8.1 Protection of the environment is an important consideration in developing a lighting strategy for the temporary jetty development. It is recognised that the application site is located within an area with several environmental constraints. They include:

- It is within an area of dark skies and landscape/seascape character sensitive to light sources.
- The Quantock Hills Area of Outstanding Natural Beauty (AONB) overlooks the site from the south west and Mendip Hills AONB is located to the north-east of the site.
- Bats are present throughout the site and surrounding area. Green Lane and Benhole lane are identified as key bat corridors (see **Chapter 11**, **Volume 2** of the **Environmental Statement**).
- SSSI, RAMSAR and SPA designations of the foreshore recognise important bird populations (see **Chapter 11**, **Volume 2** of the **Environmental Statement**).

2.8.2 Due to the proximity of a nationally protected landscape, the Quantock Hills AONB, for the purposes of the temporary jetty application the site area has been categorised as an environmental Zone E1 which requires the maximum control and limitation of intrusive light sources on the surrounding landscape.

2.8.3 There are no local landscape designations that cover any part of the application site. However, there are a number of local planning designations covering landscapes of particular interests that are present in the study area. These include:

- Historic Landscape;
- Green Wedge;
- Conservation Areas;
- Historic Parks and Gardens.

2.8.4 There are a number of Public Rights of Way crossing the application site and in its immediate vicinity, including a coastal path which runs along the top of the low cliff line. For more details please refer to **Chapter 17**, **Volume 2** of the **Environmental Statement**.

2.8.5 There are no known sites of international importance for cultural heritage within the application site, however a Scheduled Monument (Wick Barrow, also known as Pixie's Mound) is located to the east of the proposed temporary jetty development. There are also no listed buildings within the application site. An important Grade II* listed building, Fairfield House, is located approximately 3km south-west of the application site. For more details on Scheduled Monuments and listed buildings please refer to **Chapter 22**, **Volume 2** of the **Environmental Statement**.

2.8.6 The effect of temporary jetty lighting on fish, marine mammals and *Corallina* has been considered in **Chapter 10, Volume 2** of the **Environmental Statement**. The assessment concluded the temporary jetty lighting during construction and operation would cause minimal impacts on marine ecology. The key receptor under consideration is the intertidal area, which is a habitat for *Corallina*.

2.9 Lighting receptors

2.9.1 The analysis of the site context, landscape/seascape character and environmental constraints led to the identification of several receptors which have the potential to be affected by lighting.

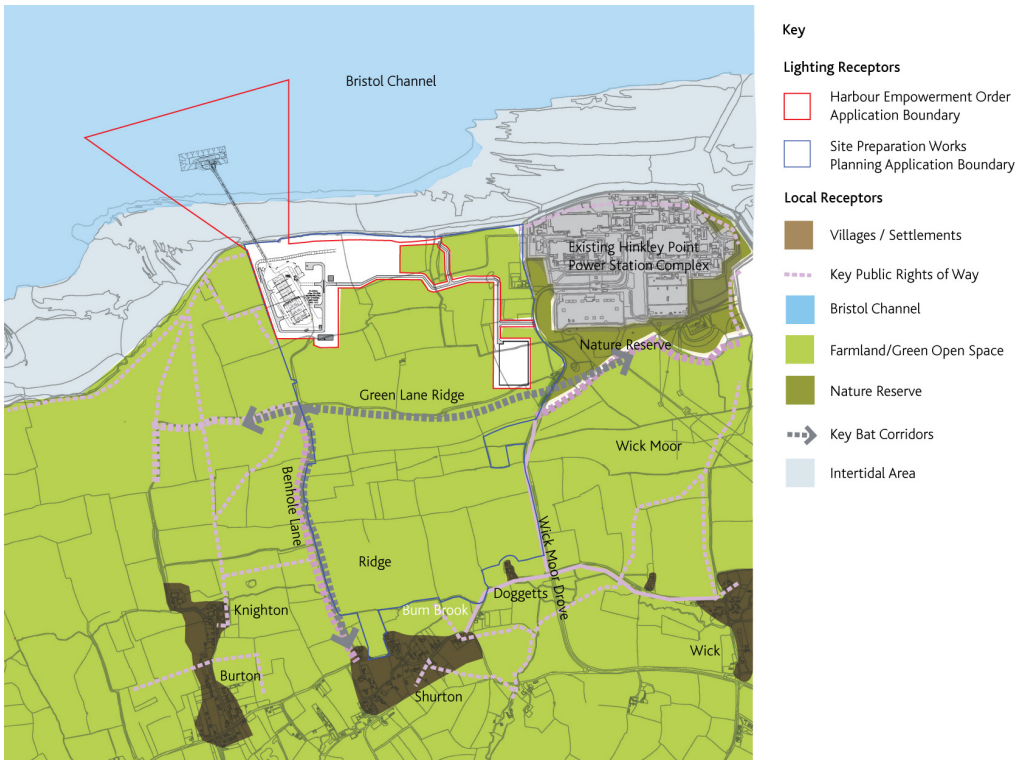
2.9.2 The following lighting receptors have been selected in the vicinity of the application site (see **Figure 8**):

- Villages/settlements of Wick, Shurton, Burton and Knighton and Doggetts farm;
- Public Rights of Way;
- Bristol Channel;
- Intertidal area;
- Areas of farmland around the site; and
- Key bat corridors.

2.9.3 Other receptors located within the wider study area and considered in the assessment include:

- The Quantock Hills AONB;
- The Mendip Hills AONB; and
- Elevated areas of farmland within the study area represented by Principal and Secondary Viewpoints (see **Chapter 21**, **Volume 2**, of the **Environmental Statement**).

Figure 8 Local Lighting Receptors



3 Objectives

3.1 The need for lighting

3.1.1 The primary aim of the lighting proposal for the temporary jetty development is to ensure that, in the absence of natural light, a safe working environment is maintained. Appropriate lighting of the temporary jetty under construction and operation, including the stockpile area, access roads, haul roads, and general working areas will conform to the required Health and Safety and environmental legislation and guidance.

3.1.2 It has been concluded that due to the proposed working hours and nature of the temporary jetty, the development could not proceed without lighting to meet the relevant Health and Safety standards.

3.1.3 A lighting system will be required for the following areas:

- Stockpile area including roads, welfare facilities, sand shed and substation;
- Jetty including jetty head, mooring dolphins, welfare cabin, switchroom;
- Jetty head (marine, navigation and shipping requirements).

3.1.4 A lighting scheme for the temporary jetty development should meet the following needs:

- Comply with planning requirements;
- Meet key standards and statutory requirements;
- Provide a safe working environment;
- Allow 24 hour working (for off-shore works);
- Meet the requirements of bulk carriers;
- Low running and maintenance costs;
- Minimise light pollution.

3.2 Approach

3.2.1 The lighting strategy recognises the requirements of health and safety and protection of the environment and aims to minimise the impact of light on important receptors in the following way:

- The lighting scheme should attempt to minimise the amount of light spill to areas outside the working or access areas. This requirement will be met by considering the number of fittings and their mounting height; an overall lighting requirement can be met by a smaller number of high output fittings mounted at a higher elevation or a higher number of smaller output fittings mounted at a lower level. These have to be considered against economic requirements. The use of downward facing lighting fittings will also reduce the amount of light spill. The planned operation of the temporary jetty will influence the lighting control scheme and associated light spill.
- The possible need for 24 hour working has been noted and this requirement will be met noting any planning restrictions.
- It is recognised that the development site is located in the vicinity of corridors of environmental sensitivity. The detailed phasing and methodology of operations within this area will endeavour to minimise impacts of temporary lighting on the environment. Due to important bat

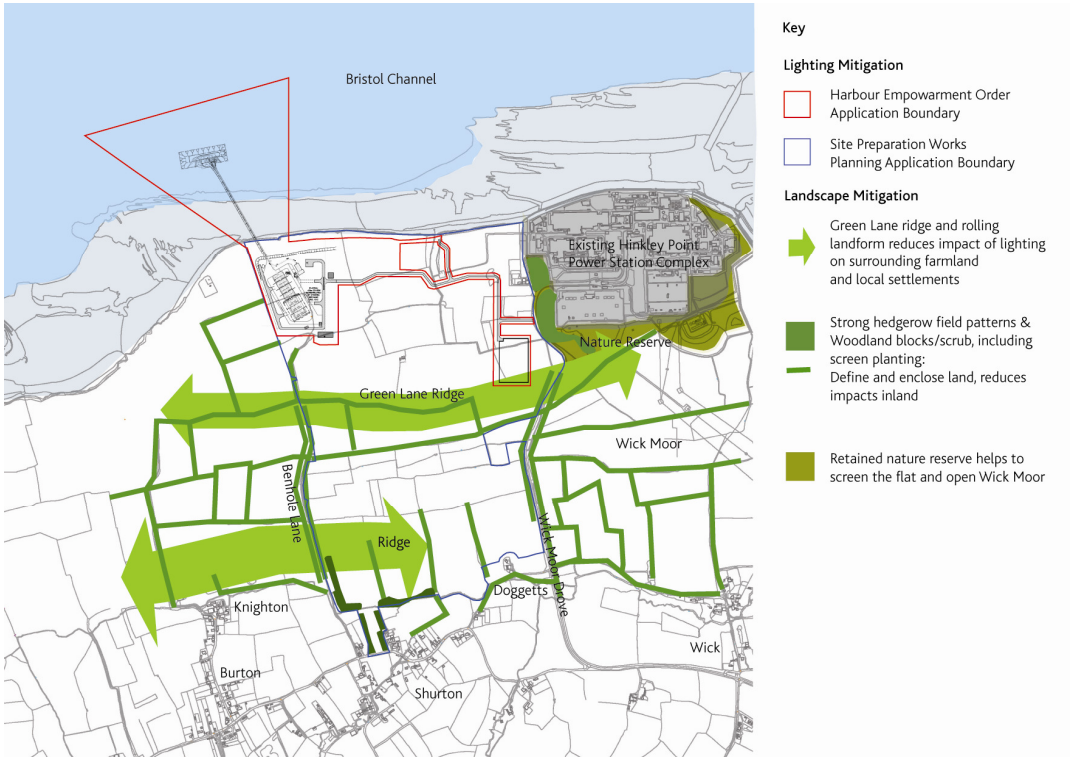
routes located along Green Lane and Benhole Lane (see **Figure 8**), the proposed lighting would be designed to minimise ultra violet (UV) emissions.

- Task lighting will be utilised for all compounds, haul roads, storage and working areas within the on-shore construction area of the temporary jetty development. Task lighting would target only those areas being actively worked and the detailed lighting and working arrangements would be designed to minimise light pollution.

3.2.2 The landscape features that contribute to lighting mitigation are described in **Figure 9**. They include:

- Green Lane ridge and local landform, which reduce the potential impact of lighting on surrounding farmland and local settlements.
- Strong hedgerow field pattern and woodland blocks and scrub, including screen planting, which contribute to reducing the impact of lightings due to a degree of enclosure they provide.
- Retained nature reserve, which screens the flat and open Wick Moor.

Figure 9 Lighting Mitigation



3.3 Definition of Obtrusive Light

3.3.1 The lighting design should consider the effect of light spill and avoid direct upward light and light trespass onto neighbouring areas.

3.3.2 Consideration should also be given to finishes of horizontal and vertical surfaces to minimise the impact of upwards reflected light which would add to the effect of obtrusive light.

3.3.3 The area of development is considered to be an intrinsically dark area and in accordance with BS EN 12464-2 the limits of intrusive light to minimise problems for neighbouring areas are as defined to meet Environmental Zone E1.

Figure 10 Types of Obtrusive Light

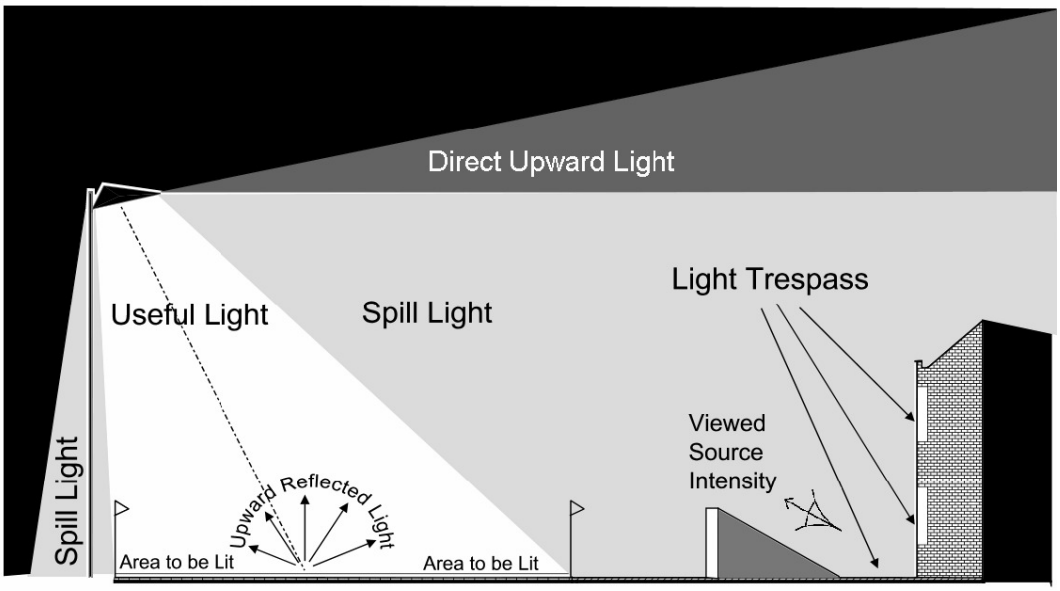


Illustration from Institution of Lighting Engineers publication "Guidance Notes for the Reduction of Obtrusive Ligh[3]t"

3.4 Light Spill

3.4.1 For an Environmental Zone E1 the design criteria for obtrusive light spill should meet the following standards:

Environmental Zone	Light Trespass E_v (lx)	Source Intensity I (cd)	Luminance L_b (cd.m $^{-2}$)	Luminance L_s (cd.m $^{-2}$)
E1	0	0	0	50

- E_v is the maximum value of vertical Illuminance on neighbouring areas from light spill.
- I is the light intensity of the light source in the potentially obtrusive direction.
- L_b is the maximum average luminance of the vertical plane of neighbouring area from direct illumination.
- L_s is the maximum average luminance of signs from direct illumination.

3.4.2 There are no specific curfew requirements and so the lower figures from BSEN 12464 Table 2 should be taken as the design limits.

3.4.3 As part of the mitigation measures to minimise light spill, the following should be considered:

- Design to the correct illumination level. Do not over-light an area thus avoiding adding to sky glow;

[3] Institute of Lighting Engineers (ILE) (2005) *Guidance notes for the reduction of obtrusive light*

- Move luminaires away from boundaries;
- Use of shields and baffles to reduce spill light to a minimum;
- Introduce controls to avoid unnecessary night time lighting;
- Ensure luminaires are orientated correctly following installation;
- Reduce the height of columns.

3.5 Upward Light

3.5.1 For an Environmental Zone E1 the design criteria for obtrusive upwards light should meet the following standards:

Environmental Zone	Upward Light ULR (%)
E1	0

- ULR is the proportion of luminance that is emitted above the horizontal given as a percentage.

3.5.2 As part of the mitigation measures to minimise upwards light, the following should be considered:

- Use of full cut-off exterior luminaires to avoid light above the horizontal;
- Direct light downwards wherever possible to illuminate the task, not upwards, to avoid sky glow;
- Ensure appropriate luminaires are chosen.

3.6 Bat sensitive areas

3.6.1 Bats may be present throughout the site, however, key bat corridors have been identified in **Figure 8**. These bat corridors should be treated as neighbouring areas in respect to light spill.

3.6.2 In accordance with the recommendations of the Bat Conservation Trust - Bats and Lighting in the UK version 3 May 2009, particular considerations for mitigating the impact of the lighting on bats should include:

- Type of lamp to minimise UV content;
- Light spill to avoid obtrusive light;
- Height of lighting columns to be considered to reduce risk of light spill;
- Lighting levels to be kept to the minimum required to achieve a safe working environment;
- Control of lighting to ensure light is only provided when required.

3.7 Foreshore

3.7.1 With respect to ecological constraints, the foreshore, as identified in **Figure 8**, will be treated as a neighbouring area in respect to light spill with obtrusive lighting restricted in line with the criteria for Environmental Zone E1.

3.8 Quantock Hills AONB

3.8.1 With respect to the Quantock Hills, the nuisance of upward light should be restricted in line with the criteria for Environmental Zone E1.

3.9 Lamp selection

In accordance with the recommendations of the Bat Conservation Trust - Bats and Lighting in the UK version 3 May 2009, lamps with low UV content should be used in areas adjacent to the bat corridors.

4 Lighting Strategy: Construction

4.1 Introduction

4.1.1 The design of lighting schemes can substantially mitigate the impacts of obtrusive light within a dark environment through consideration of the following objectives:

- designing to correct light levels
- locating luminaires away from sensitive receptors
- using shields and baffles to limit light spill
- reducing the height of columns
- using controls to avoid unnecessary illumination
- using full cut-off luminaires to prevent upward light
- directing light downwards to illuminate the task
- considering the choice of luminaires to achieve aims
- using light sources appropriate for use and environmental considerations

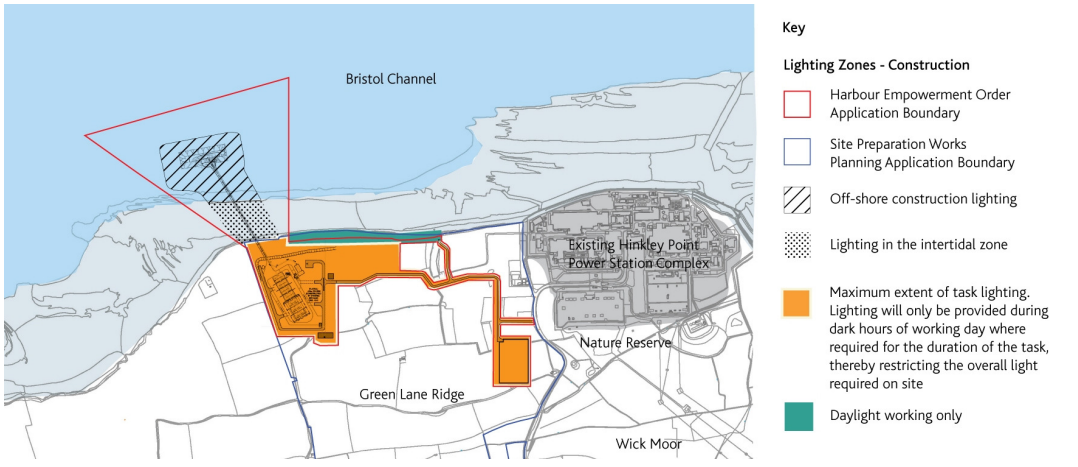
4.2 Construction lighting proposals

4.2.1 **Figure 11** illustrates the lighting zones identified within the application site during the temporary jetty construction period.

4.2.2 The following lighting zones have been identified upon analysis of the construction requirements:

- Off-shore construction lighting;
- Intertidal zone lighting;
- Task lighting;
- Daytime working only.

Figure 11 Lighting Zones during Construction



Off-shore construction lighting

4.2.3 During the temporary jetty construction phase, off-shore construction activities would be carried out 24 hours a day and would require night lighting to comply with health and safety regulations as described in Section 2.6. The mobile jack-up rig to be used during construction of the temporary jetty would require lighting within the off-shore zone illustrated on **Figure 11**.

4.2.4 The technical details of lighting required within the off-shore construction area are not available at this stage of design and they will be specified by the contractors commissioned to undertake the works.

4.2.5 The proposed off-shore construction lighting will comply with the objectives for construction lighting set out above.

Intertidal zone lighting

4.2.6 Construction lighting requirements in the intertidal zone will be similar to the off-shore construction lighting. The construction lighting details will be specified by the contractors commissioned to undertake the works. In this zone, special care will be taken to avoid overilluminating the intertidal zone due to environmental considerations.

On-shore construction lighting: task lighting

4.2.7 The aim of task lighting is to provide a strategic light source for areas that require an appropriately lit and safe environment to undertake required work operations on-shore. Task lighting will only be provided where required on the site to the recommended light levels and for the duration of the task undertaken thereby restricting the overall light required on the site during temporary jetty construction.

4.2.8 The anticipated design criteria of task lighting is as follows:

- Column heights to be less than 8m;
- Light levels to be between 5 and 50 lux and determined by the task undertaken (100 lux may be required for specific short-term operations); and
- Utilise design features that limit obtrusive light (see par. **4.1.1**).

4.2.9 Temporary task lighting would be localised to the area of the activity and for its duration only. The task lighting luminance levels for specific operations would be as following:

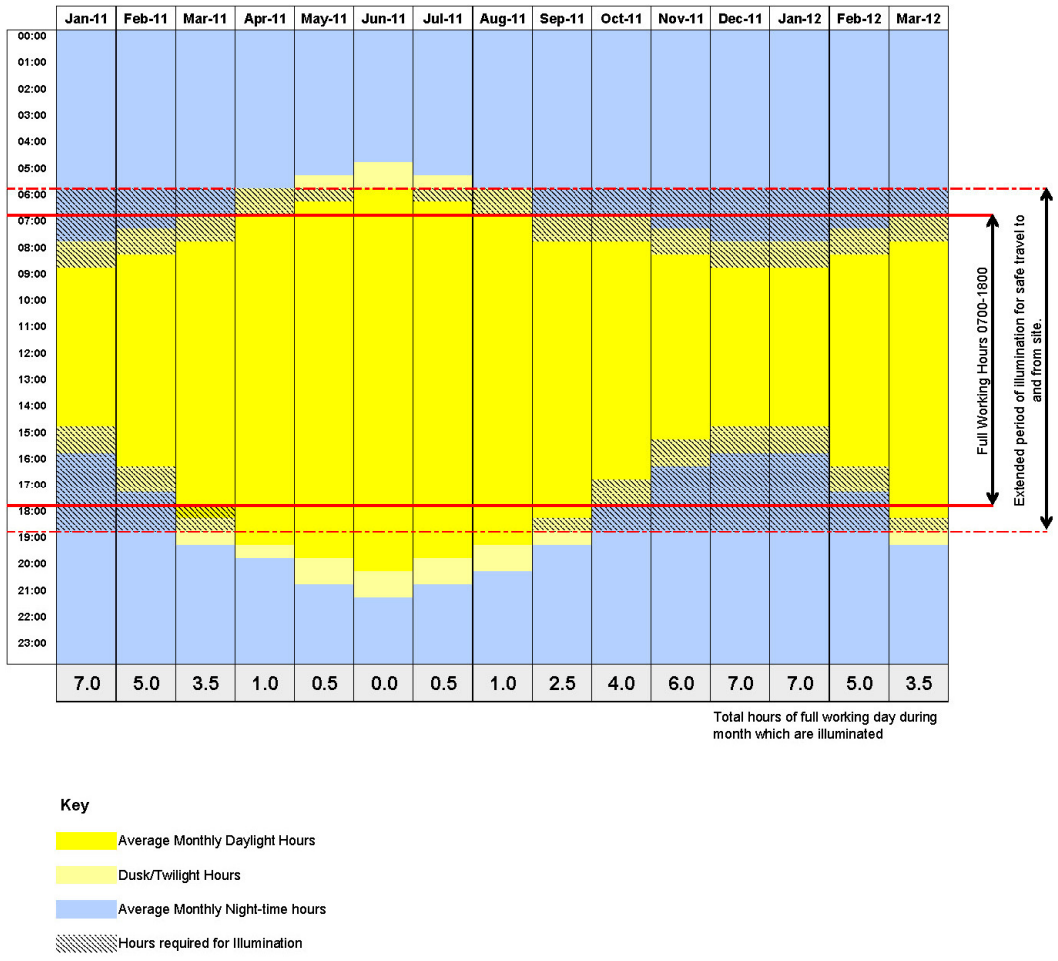
- Traffic areas for slow moving vehicles would require a lighting level of 10lux, which is the equivalent of lighting on a local road.
- Clearance, excavation and loading would require a lighting level of 20lux, which is the equivalent of lighting of a supermarket car park or city centre precinct.
- Building and facility construction areas would require a lighting level of 50lux, which is the equivalent of lighting of a railway station platform or a motorway junction.
- Detailed construction would require a lighting level of 100lux, which is the equivalent of lighting of a building entrance canopy, bus station, local outdoor bowls green, or light during a very dark overcast day.

4.2.10 It is not anticipated that the maximum zone of task lighting illustrated in **Figure 11** would require to be lit at any one time as task lighting would limit the requirement to lighting compound areas, access and haul roads and specific

working areas only. In order to minimise the use and impact of lighting the contractors and subcontractors will be required to comply with the lighting design principles described in this document.

4.2.11 The proposed working hours for the temporary jetty construction activities that would require the use of task lighting are 07:00 – 18:00 Monday to Friday and 07:00 – 13:00 on Saturdays with no night-time working. This means that the potential need for artificial lighting would be primarily restricted to short periods of darkness during working hours at either end of the working day in the November – February period. If earthworks are carried out during darkness, artificial lighting would be required in order to ensure that the works are carried out safely. Health and Safety legislation would require work areas to be properly lit. EDF Energy requires the flexibility of working during these hours in order to meet the project schedule. **Figure 12** illustrates the average hours per day of illumination required.

Figure 12 Illumination Table



No lighting zone

4.2.12 No lighting would be used along the cliff.

5 Lighting Strategy: Operation

5.1 Introduction

5.1.1 The following objectives have been identified for the lighting scheme during the operational phase of the temporary jetty development:

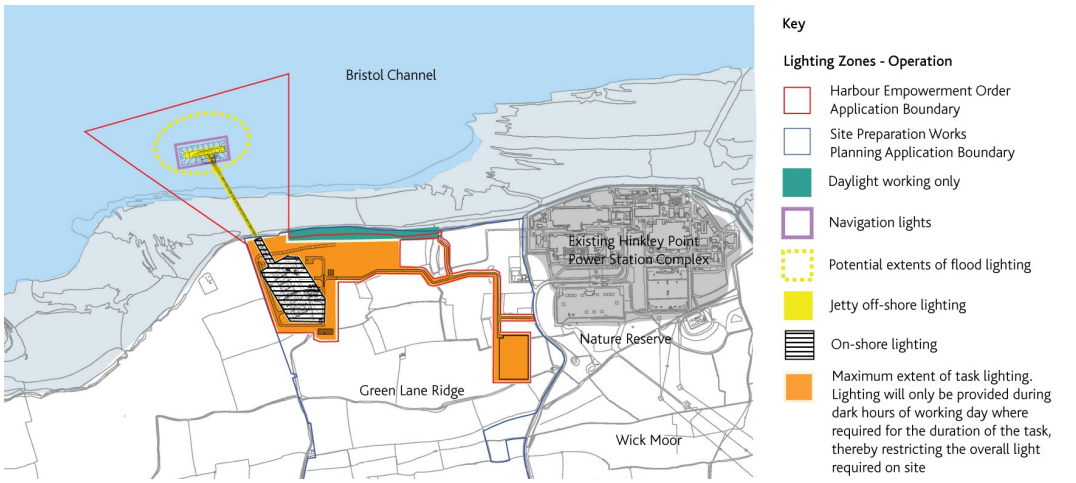
- designing to correct light levels
- locating luminaires away from sensitive receptors
- using shields and baffles to limit light spill
- reducing the height of columns
- using controls to avoid unnecessary illumination
- using full cut-off luminaires to prevent upward light
- directing light downwards to illuminate the task
- considering the choice of luminaires to achieve aims
- using light sources appropriate for use and environmental considerations

5.2 Lighting proposals for the temporary jetty during operation

5.2.1 **Figure 13** illustrates the lighting zones identified within the application site during the operational period. The following lighting zones have been identified upon analysis of the operational requirements:

- Flood lighting area (for safe barge movement/unloading);
- Jetty lighting (off-shore);
- Navigation lights;
- On-shore lighting;
- Task lighting.

Figure 13 Lighting Zones during Operation



Flood lighting

5.2.2 Flood lighting around the jetty head would be required for safe barge movement and unloading. It would be used when barge operations are carried out and would be limited to the area around the jetty head including mooring dolphins.

5.2.3 The final specifications of floodlights are not known at this design stage and will be provided by the contractors. They may include other products than specified below provided that they are similar in construction and illuminance and comply with the calculated illumination averages.

5.2.4 The proposed floodlights (844 70W SON-T type; cat. ref. 844l/070/HS) would be installed on 6m masts and would be aligned to avoid upward light and light spill onto sensitive areas. The following drawings illustrate the proposed locations of floodlights on the temporary jetty during operation (see **Technical Appendix**):

- B1454110/FLA/8004 rev 2 – Hinkley Point – Temporary Aggregate Jetty Typical Jetty Conveyor Emergency Lighting Layout;
- B1454110/FLA/8006 rev 2 – Hinkley Point – Temporary Aggregate Jetty Berthing Head Normal Lighting Layout; and
- B1454110/FLA/8007 rev 2 – Hinkley Point – Temporary Aggregate Jetty Berthing Head Emergency Lighting Layout.

Temporary jetty lighting

5.2.5 The operational lights on the temporary jetty would be provided along its entire length and mounted along the conveyor and on the jetty head. PROTECTA 18W T8 fluorescent luminaire type lights are proposed. These low-powered lights will be mounted at relatively low level to minimise visibility from sensitive receptors. The following drawings illustrate the location of the proposed luminaires on the temporary jetty during operation (see **Technical Appendix**):

- B1454110/FLA/8004 rev 2 – Hinkley Point – Temporary Aggregate Jetty Typical Jetty Conveyor Emergency Lighting Layout;
- B1454110/FLA/8006 rev 2 – Hinkley Point – Temporary Aggregate Jetty Berthing Head Normal Lighting Layout; and
- B1454110/FLA/8007 rev 2 – Hinkley Point – Temporary Aggregate Jetty Berthing Head Emergency Lighting Layout.

Navigation lighting

5.2.6 During operation the temporary jetty would be equipped with navigation lighting according to the according to the IALA Recommendation O-139 'The Marking of Man-Made Offshore Structures'. Two masts with navigation lights would be installed on the jetty head (location to be confirmed). The lights would be visible up to 2 miles from the temporary jetty and directed towards the sea.

On-shore lighting

5.2.7 The on-shore lighting would include haul road lighting and lighting of the stockpile area. The luminaires will be aligned to avoid upward light and light spill onto sensitive areas. The on-shore lighting layout is illustrated on the following drawings (see **Technical Appendix**):

- B1454110/FLA/8008 rev 2 – Hinkley Point – Temporary Aggregate Jetty Stockpile Area Lighting Layout; and
- B1454110/FLA/8009 rev 2 – Hinkley Point – Temporary Aggregate Jetty Stockpile Road Lighting Layout.

On-shore lighting: task lighting

5.2.8 The aim of task lighting is to provide a strategic light source for areas that require an appropriately lit and safe environment to undertake required work operations on-shore. Task lighting will only be provided where required on the site to the recommended light levels and for the duration of the task undertaken thereby restricting the overall light required on the site during temporary jetty construction.

5.2.9 The anticipated design criteria of task lighting is as follows:

- Column heights to be less than 8m;
- Light levels to be between 5 and 50 lux and determined by the task undertaken (100 lux may be required for specific short-term operations); and
- Utilise design features that limit obtrusive light.

5.2.10 Temporary task lighting would be localised to the area of the activity and for its duration only. The task lighting luminance levels for specific operations would be as following:

- Traffic areas for slow moving vehicles would require a lighting level of 10lux, which is the equivalent of lighting on a local road.
- Clearance, excavation and loading would require a lighting level of 20lux, which is the equivalent of lighting of a supermarket car park or city centre precinct.
- Building and facility construction areas would require a lighting level of 50lux, which is the equivalent of lighting of a railway station platform or a motorway junction.
- Detailed construction would require a lighting level of 100lux, which is the equivalent of lighting of a building entrance canopy, bus station, local outdoor bowls green, or light during a very dark overcast day.

5.2.11 It is not anticipated that the maximum zone of task lighting illustrated in **Figure 13** would be required to be lit at any one time. In order to minimise the use and impact of lighting the contractors and subcontractors will be required to comply with the lighting design principles described in this document.

5.2.12 The proposed working hours for the temporary jetty operational activities that would require task lighting are the same as for task lighting during construction (see **paragraph 4.2.11** for details).

6 Appraisal

6.1 Lighting Appraisal

6.1.1 The lighting scheme has been designed to mitigate lighting impact on all receptors identified in **Section 2** in line with the relevant legislation, British Standards, policy and guidance. **Table 1** summarises how the strategy mitigates the impact of lighting on the important lighting receptors.

Table 1 Lighting Appraisal

Receptor	Mitigation measure	Appraisal
Surrounding villages/settlements of Wick, Shurton, Burton, Knighton and Doggetts farm	Reducing upward light, reducing the height of columns to the minimum required, using controls to avoid unnecessary illumination. Use of task lighting (on-shore) within working hours only. Green Lane ridge and rolling landform reduce the impact of lighting, the strong hedgerow field pattern and other vegetation contribute to screening.	The application site is located to the north of the ridge of Green Lane, which would screen the proposed lighting (including off-shore lighting) from the surrounding settlements. Following the implementation of the lighting strategy the impacts of lighting on settlements surrounding the site would be reduced to an absolute minimum. The impact would be either non or barely perceptible during the construction and operation of the temporary jetty. The on-shore operational lighting as well as off-shore construction and operational lighting would be screened by the Green Lane ridge. Short periods of task lighting for specific tasks would be potentially required and vary from 5 to 50lux in the area to the north of Green Lane but this would occur only during working hours and would not have visual impact on the settlements due to screening provided by the Green Lane ridge combined with the avoidance of upward light.
Public Rights of Way	Reducing upward light, reducing the height of columns to the minimum required, using controls to avoid unnecessary illumination. Use of task lighting within working hours only, moving task lighting away from site boundaries. Green Lane ridge and rolling landform reduce the impact of lighting. Strong hedgerow field pattern and other vegetation contribute to screening.	Following the implementation of the lighting strategy the impacts of lighting on PRoW surrounding the site would be minimised. The impact on the majority of the local PRoW located to the south of Green Lane would be either non or barely perceptible during the construction and operation of the temporary jetty. Construction and operational lighting would be visible from PRoW located in the vicinity of the site. The visual impact would be caused by task lighting, offshore construction lighting, the operational stockpile area and road lighting, jetty lighting, and flood lighting required for barge movements/unloading around the jetty head. Green Lane would remain unlit, although lighting within the proposed scheme would be visible from PRoW running along the ridge.

Receptor	Mitigation measure	Appraisal
		It is assessed that the lighting would be most visible from PRoW located on the adjacent coastline west of the site, up to Lilstock. Given the significant level of light pollution from the existing Hinkley Point Power Station Complex, the visual change due to temporary jetty lighting would be low.
Bristol Channel	Appropriate lighting specification, minimising the zone required for flood lighting. Use of task lighting within working hours only. Reducing upward light, reducing the height of columns to the minimum required, using controls to avoid unnecessary illumination.	The lighting impact on Bristol Channel would be very low due to appropriate lighting specifications and controls. Short periods of task lighting for specific tasks would be potentially required and vary from 5 to 100lux in the area to the north of Green Lane. All task lighting, if required, would occur only during working hours Off-shore construction lighting and temporary jetty operational lighting would have vey low and localised impact on Bristol Channel due to upward light reduction, and using controls to avoid unnecessary illumination. Given the significant level of light pollution from the existing Hinkley Point Power Station Complex, the visual change due to temporary jetty lighting would be low. Short periods of flood lighting required during the temporary jetty construction and operation (barge movement/unloading) would have a very low impact on Bristol Channel.
Intertidal area	Appropriate lighting specification, minimising the zone required for flood lighting. Use of task lighting within working hours only. Reducing the height of columns to the minimum required, using controls to avoid unnecessary illumination beyond work areas. Avoidance of excessive illumination.	The lighting impact on the intertidal area would be minimised due to the appropriate lighting specifications and controls proposed. Short periods of task lighting for specific tasks would be potentially required and could vary from 5 to 100lux in the area to the north of Green Lane. All task lighting, if required, would occur only during working hours. Off-shore construction lighting and temporary jetty operational lighting would have a very localised impact on the intertidal area only due to using controls to avoid unnecessary illumination. Short periods of flood lighting required during the temporary jetty construction and operation (barge movement/unloading) would have a very low impact on the intertidal area. Based on the mitigation measures and the significant level of light pollution from the existing Hinkley Point Power Station Complex, the visual change on the intertidal area due to temporary jetty lighting would be low.

Receptor	Mitigation measure	Appraisal
		An assessment of lighting on birds using the intertidal area is presented in Chapter 11 (Volume 2) and the Environmental Statement.
Areas of farmland around the site	Reducing upward light, reducing the height of columns to the minimum required, using controls to avoid unnecessary illumination. Use of task lighting within working hours only; moving task lighting away from site boundaries. Green Lane ridge and rolling landform reduce impact of lighting, strong hedgerow field pattern and other vegetation contribute to screening.	Following the implementation of the lighting strategy the impacts of lighting on farmland surrounding the site would be minimised. The impact on the majority of local farmland to the south of Green Lane would be either non or barely perceptible during the construction and operation of the temporary jetty. Farmland located in the vicinity of the site (north of Green Lane) and along the coastline (west of the site) would be potentially affected by task lighting utilised for specific operations and offshore lighting during construction, and by operational lighting including of the stockpile area and road lighting, jetty lighting, and flood lighting required for barge movements/unloading around the jetty head. It is assessed that the lighting impact would be most visible from farmland located on the adjacent coastline west of the site, up to Lilstock. Given the significant level of light pollution from the existing Hinkley Point Power Station Complex, the visual change due to temporary jetty lighting would be low.
Key bat corridors	Minimising UV light content; maintaining buffers between sensitive bat corridors and luminaires; directing lights downwards.	The lighting impact on the key bat corridors would be minimised by compliance with the current British Standards, minimising UV emissions. Due the distance of the temporary jetty development from the nearest key bat corridors the proposed lighting would have a very low impact on these corridors during construction and operation of the temporary jetty. An assessment of lighting on bats using the site and key bat corridors is presented in Chapter 11 (Volume 2) of the Environmental Statement
Areas of Outstanding Natural Beauty	Compliance with Dark Sky policy and relevant BS. Lighting designed to Environmental Zone E1 standard.	E1 standard ensures the highest level of protection against light pollution, including sky glare, which would mitigate the impact of lighting on the AONB. Following the implementation of the Lighting Strategy, no upward light would be visible from the AONB and light trespass would be reduced to 0lux. Task lighting which would be required during working hours, would have very low impact on the AONB (barely perceptible) due to long distance, reduction of light pollution including upward light and compliance with E1 standard. The impact of the off-shore construction lighting and the

Receptor	Mitigation measure	Appraisal
		off-shore and on-shore operational lighting would be very low due to the long distance of the application site from the AONB, and avoidance of light pollution, including upward light. Given the significant level of light pollution from the existing Hinkley Point Power Station Complex, the visual change from the AONB due to temporary jetty lighting would be very low.
Elevated areas of farmland within the wider LVIA study area	Compliance with Dark Sky policy and relevant BS. Lighting designed to Environmental Zone E1 standard.	The lighting scheme uses E1 standard designed for the most environmentally sensitive areas, such as the AONB. By using this standard the protection of dark sky would be ensured for all other adjacent areas of farmland.

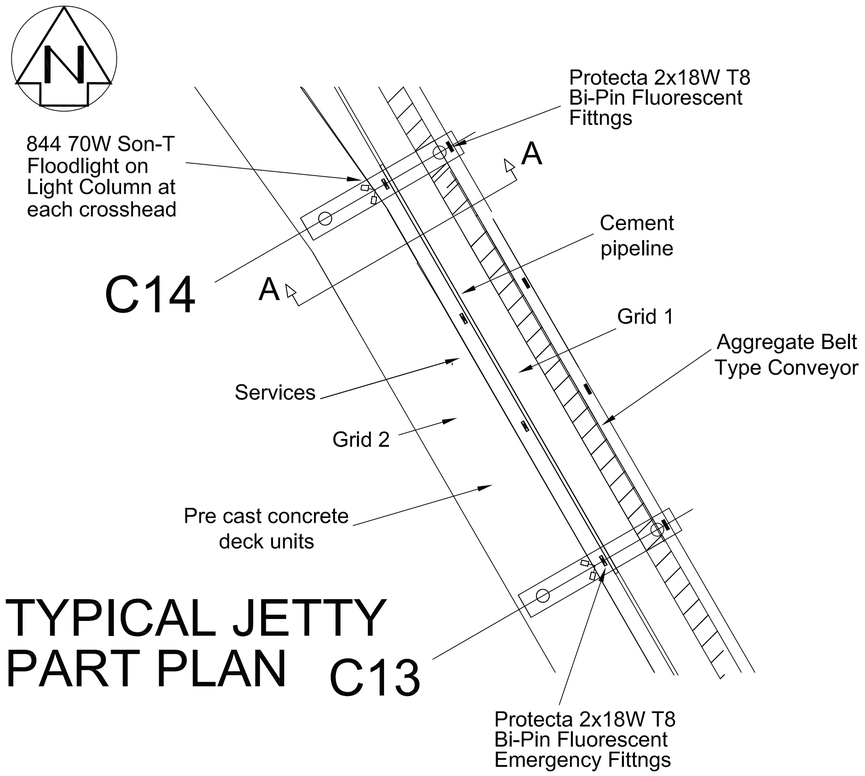
7 Technical Appendix

STATUTORY REGULATIONS
COSHH Regulations 1988 Electricity at Work CE Marking Low Voltage Directive Electromagnetic Compatibility Regulations Health and Safety Electricity at Work Regulations

ELECTRICAL INSTALLATION			
ITEM	**CODE or STANDARDS**		
General – Wiring Regulations	BS.7671		
Installation / Maintenance of Equipment	BS.6423	BS.5730	BS.6626
Earthing and Lightning Protection	BS.7430	BSEN6230 5	
Road Lighting	BS.5489		
Emergency Lighting	BS5266 Pt.1	BSEN.1838	

Drawing number / Rev

B1454110/FLA/8004



TYPICAL JETTY PART PLAN C13

TARGET GRID SUMMARIES

Grid 1 is x-y plane at Z= 0.0 Horizontal Lux
Limits: from x= 24.3 to x= 56.3 ,from y= 66.2 to y= 108.2
Average= 2.167 Minimum/Average=0.462
Maximum= 6.000 Minimum/Maximum=0.167
Minimum= 1.000 Number Points= 294
Grid 2 is x-y plane at Z= 0.6 Horizontal Lux
Limits: from x= 20.0 to x= 45.5 ,from y= 70.8 to y= 101.8
Average= 0.824 Minimum/Average=0.000
Maximum= 8.000 Minimum/Maximum=0.000
Minimum= 0.000 Number Points= 728

FLOODLIGHT/LUMINAIRE SUMMARY

844 70W SON-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
Cat.Ref. 844I/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 6m
Number Luminaires= 4 Number Locations= 2

PROTECTA 2X18W T8 BI-PIN GRP. BODY EMERGENCY SAFE AREA
Cat.Ref. PRGI/218/BI/EM Lumens per lamp= 1350.0 LLF= 0.700
Mounting Height= 3m Tilt= 0 degrees Cant= 30 degr
Number Luminaires= 4

PROTECTA 2X18 T8 BI-PIN GRP. BODY SAFE AREA
Cat.Ref. PRGI/218/BI Lumens per lamp= 1350.0 LLF= 0.700
Mounting Height= 3m Tilt= 0 degrees Cant= 30 degr
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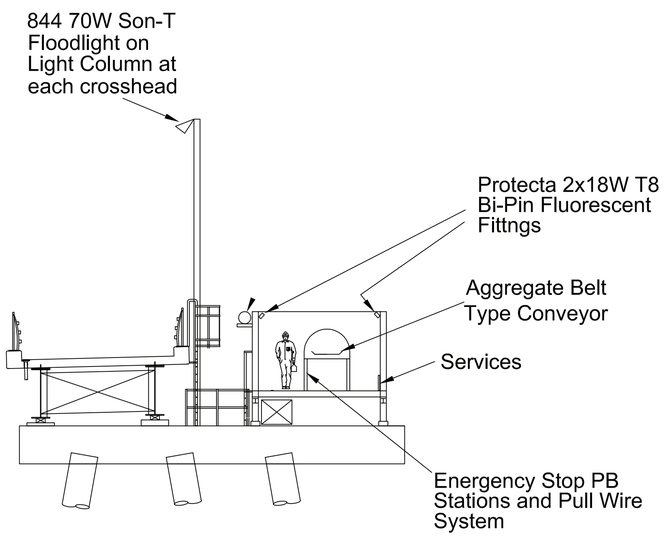
Total Number Luminaires= 12



TYPICAL SECTION

LOOKING NORTH

NOTES:

1. LAYOUT IS BASED ON CHALMIT LIGHTING FITTINGS AND CALCULATIONS. CONTRACTOR MAY USE OTHER MAKERS PRODUCTS PROVIDED THAT THE PRODUCTS ARE SIMILAR IN CONSTRUCTION AND ILLUMINANCE AND COMPLY WITH THE CALCULATED ILLUMINATION AVERAGES AS SHOWN

REFERENCE DRAWINGS

1. B1454110/FLA/8001 OVERALL LAYOUT SITE ALLOCATION PLAN

REVISION	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
2	26-01-2011	[redacted]		PRELIM	FOR CLIENT APPROVAL	[redacted]
1	26-01-2011			PRELIM	APPROVED FOR ENGINEERING	
0	24-11-2010			PRELIM	INITIAL ISSUE	

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UNIQUE REFERENCE NUMBER
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SUPPLIER WBS CODE

SUPPLIER COMPANY TRADE NAME
JACOBS ENGINEERING

EDF-SUPPLIER CONTRACT NR	ITEM NUMBER	ELEMENTARY SYSTEM	BUILDING
DEVCO-001		N/A	N/A

SCALE 1:2000 @A1

LINE/SERIE/SITE
NUCL/REP/EPR/UKEPR

IPS Yes ☐ No ☐

FORMAT A1

DOCUMENT TITLE :
HINKLEY POINT - TEMPORARY AGGREGATE JETTY
TYPICAL JETTY CONVEYOR
EMERGENCY LIGHTING LAYOUT

DOCUMENT TYPE : DRAWING

DOCUMENT CLASSIFICATION CODE 02C00

PAGE

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SUBCONTRACTOR INTERNAL IDENTIFICATION NR

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zsacocmuvnwxirfkhbdpqgyjlt 71423855690
0 1 2 3 4 5 6 7 8 9 10

ACCESSIBILITY :
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☐ EDF access • Must not be distributed outside of EDF except by a Section Manager
☐ Free access • Unrestricted distribution

Drawing number / Rev

B1454110/FLA/8006

TARGET GRID SUMMARIES
Dolphin Grid is x-y plane at Z= 0.0 Horizontal Lux
Limits: from x= 186.7 to x= 339.7 ,from y= 475.1 to y= 508.1
Average= 76.259 Minimum/Average=0.288
Maximum= 254.000 Minimum/Maximum=0.087
Minimum= 22.000 Number Points= 112
Berthing Head Grid is x-y plane at Z= 0.0 Horizontal Lux
Limits: from x= 233.4 to x= 298.4 ,from y= 491.5 to y= 519.5
Average= 21.772 Minimum/Average=0.046
Maximum= 102.000 Minimum/Maximum=0.010
Minimum= 1.000 Number Points= 927

FLOODLIGHT/LUMINAIRE SUMMARY

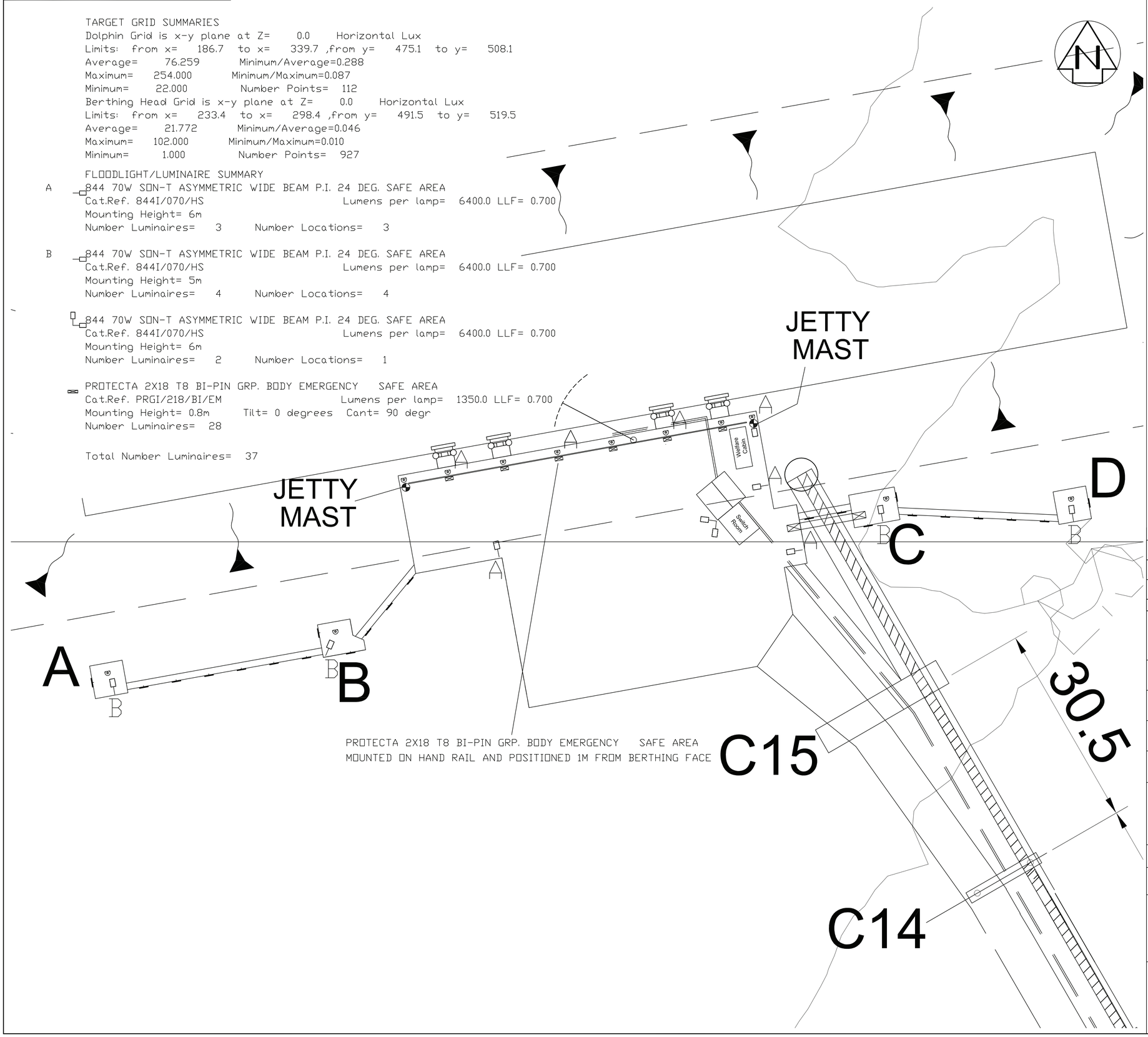
A 844 70W SON-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
Cat.Ref. 844I/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 6m
Number Luminaires= 3 Number Locations= 3

B 844 70W SON-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
Cat.Ref. 844I/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 5m
Number Luminaires= 4 Number Locations= 4

844 70W SON-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
Cat.Ref. 844I/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 6m
Number Luminaires= 2 Number Locations= 1

PROTECTA 2X18 T8 BI-PIN GRP. BODY EMERGENCY SAFE AREA
Cat.Ref. PRGI/218/BI/EM Lumens per lamp= 1350.0 LLF= 0.700
Mounting Height= 0.8m Tilt= 0 degrees Cant= 90 degr
Number Luminaires= 28

Total Number Luminaires= 37



NOTES:

1. LAYOUT IS BASED ON CHALMIT LIGHTING FITTINGS AND CALCULATIONS. CONTRACTOR MAY USE OTHER MAKERS PRODUCTS PROVIDED THAT THE PRODUCTS ARE SIMILAR IN CONSTRUCTION AND ILLUMINANCE AND COMPLY WITH THE CALCULATED ILLUMINATION AVERAGES AS SHOWN
2. LIGHTS ON THE BERTHING FACE ARE TO BEMOUNTED ON THE HAND RAIL SUCH THAT CLEAR ACCESS IS AVAILABLE FOR CRANES TO WORK ABOVE THE HANDRAIL
3. THE BERTHING FACE LIGHTS ARE TO BE SUITABLE FOR EASY DISCONNECTION (PLUG & SOCKET) TO ALLOW REMOVAL OF THE DEMOUNTABLE HAND RAIL

REFERENCE DRAWINGS

1. B1454110/FLA/8001 OVERALL LAYOUT SITE ALLOCATION PLAN

REVISION	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
2	26-01-2011	[redacted]		PRELIM	FOR CLIENT APPROVAL	[redacted]
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0	24-11-2010			PRELIM	INITIAL ISSUE	

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DRAWING NO. B1454110/FLA/8006 rev 2

SUPPLIER WBS CODE

SUPPLIER COMPANY TRADE NAME
JACOBS ENGINEERING

EDF-SUPPLIER CONTRACT NR	ITEM NUMBER	ELEMENTARY SYSTEM	BUILDING
DEVCO-001		N/A	N/A

SCALE 1:2000 @A1

LINE/SERIE/SITE
NUCL/REP/EPR/UKEPR

IPS Yes ☐ No ☐

FORMAT A1

DOCUMENT TITLE :
HINKLEY POINT - TEMPORARY AGGREGATE JETTY BERTHING HEAD NORMAL LIGHTING LAYOUT

DOCUMENT TYPE : DRAWING

DOCUMENT CLASSIFICATION CODE 02C00

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Drawing number / Rev

B1454110/FLA/8007

TARGET GRID SUMMARIES
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Average= 76.259 Minimum/Average=0.288
Maximum= 254.000 Minimum/Maximum=0.087
Minimum= 22.000 Number Points= 112
Berthing Head Grid is x-y plane at Z= 0.0 Horizontal Lux
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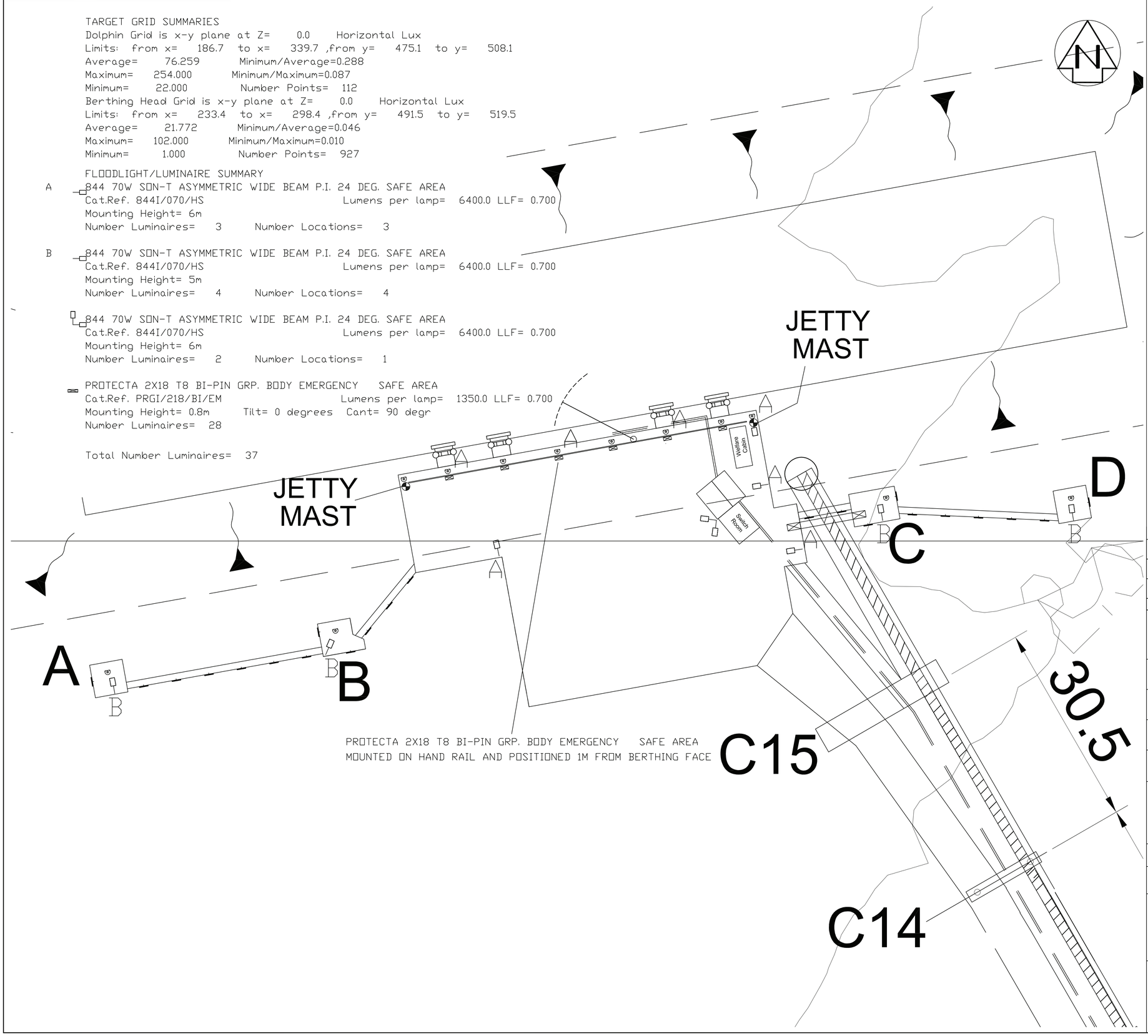
Mounting Height= 6m
Number Luminaires= 3 Number Locations= 3

B 844 70W SON-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
Cat.Ref. 844I/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 5m
Number Luminaires= 4 Number Locations= 4

844 70W SON-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
Cat.Ref. 844I/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 6m
Number Luminaires= 2 Number Locations= 1

PROTECTA 2X18 T8 BI-PIN GRP. BODY EMERGENCY SAFE AREA
Cat.Ref. PRGI/218/BI/EM Lumens per lamp= 1350.0 LLF= 0.700
Mounting Height= 0.8m Tilt= 0 degrees Cant= 90 degr
Number Luminaires= 28

Total Number Luminaires= 37



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3. THE BERTHING FACE LIGHTS ARE TO BE SUITABLE FOR EASY DISCONNECTION (PLUG & SOCKET) TO ALLOW REMOVAL OF THE DEMOUNTABLE HAND RAIL

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UNIQUE REFERENCE NUMBER
DRAWING NO. B1454110/FLA/8007 rev 2

SUPPLIER WBS CODE

SUPPLIER COMPANY TRADE NAME
JACOBS ENGINEERING

EDF-SUPPLIER CONTRACT NR	ITEM NUMBER	ELEMENTARY SYSTEM	BUILDING
DEVCO-001		N/A	N/A

SCALE 1:2000 @A1

LINE/SERIE/SITE
NUCL/REP/EPR/UKEPR

IPS Yes ☐ No ☐

FORMAT A1

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DOCUMENT TYPE :	DOCUMENT CLASSIFICATION CODE	PAGE
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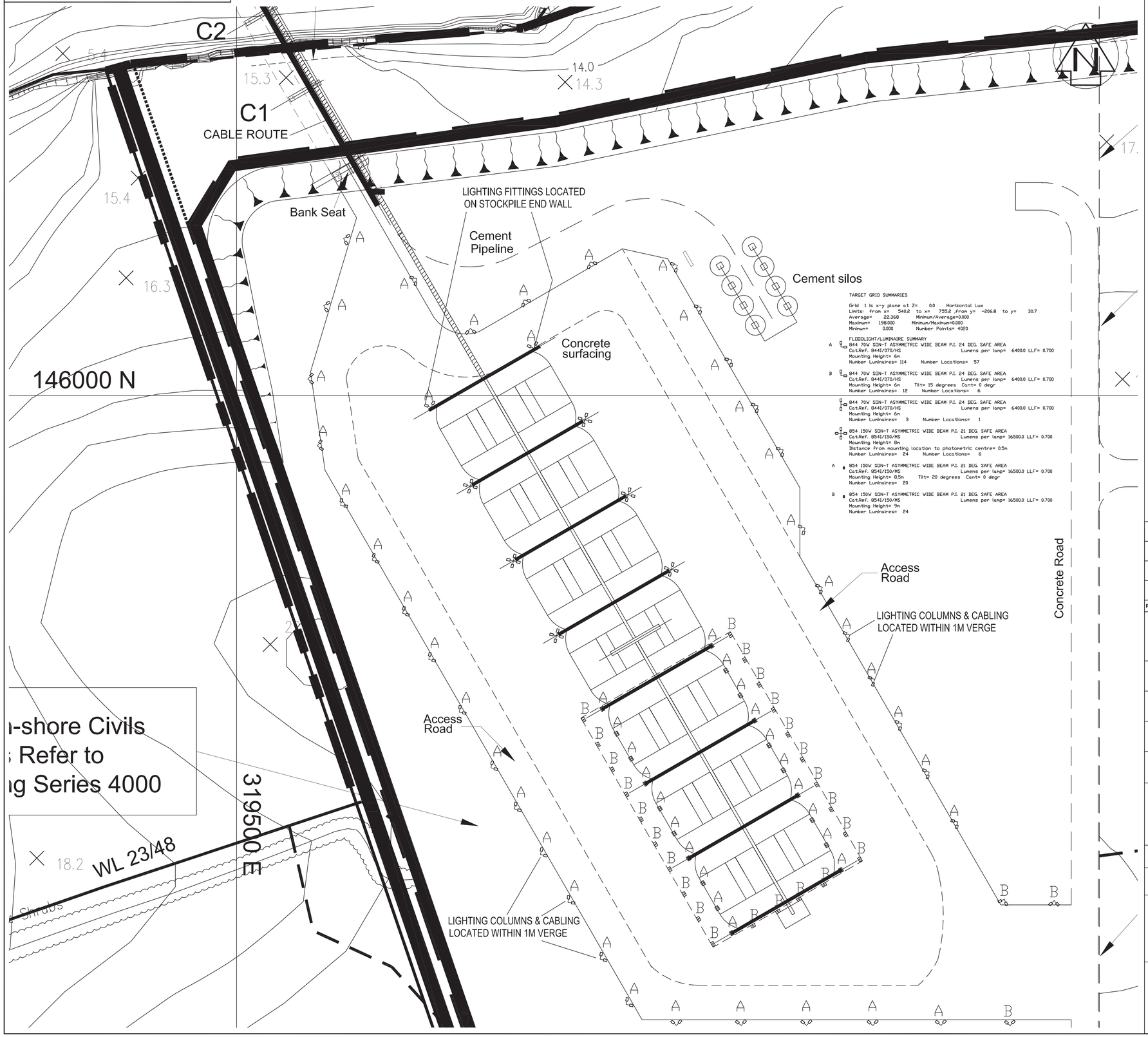
Drawing number / Rev

B1454110/FLA/8008



TARGET GRID SUMMARIES

Grid 1 Is x-y plane at Z= 0.0 Horizontal Lux
Limits: from x= 540.2 to x= 755.2 ,from y= -206.8 to y= 30.7
Average= 22.368 Minimum/Average=0.000
Maximum= 198.000 Minimum/Maximum=0.000
Minimum= 0.000 Number Points= 4020

FLOODLIGHT/LUMINAIRE SUMMARY

A 844 70W SDN-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
CatRef. 8441/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 6m
Number Luminaires= 114 Number Locations= 57

B 844 70W SDN-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
CatRef. 8441/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 6m Tilt= 15 degrees Cant= 0 degr
Number Luminaires= 12 Number Locations= 6

844 70W SDN-T ASYMMETRIC WIDE BEAM P.I. 24 DEG. SAFE AREA
CatRef. 8441/070/HS Lumens per lamp= 6400.0 LLF= 0.700
Mounting Height= 6m
Number Luminaires= 3 Number Locations= 1

854 150W SDN-T ASYMMETRIC WIDE BEAM P.I. 21 DEG. SAFE AREA
CatRef. 8541/150/MS Lumens per lamp= 16500.0 LLF= 0.700
Mounting Height= 8m
Distance from mounting location to photometric centre= 0.5m
Number Luminaires= 24 Number Locations= 6

A 854 150W SDN-T ASYMMETRIC WIDE BEAM P.I. 21 DEG. SAFE AREA
CatRef. 8541/150/MS Lumens per lamp= 16500.0 LLF= 0.700
Mounting Height= 8.5m Tilt= 20 degrees Cant= 0 degr
Number Luminaires= 20

B 854 150W SDN-T ASYMMETRIC WIDE BEAM P.I. 21 DEG. SAFE AREA
CatRef. 8541/150/MS Lumens per lamp= 16500.0 LLF= 0.700
Mounting Height= 9m
Number Luminaires= 24

NOTES:

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2. CABLE ROUTING FOR STREET LIGHTING TO UTILIZE A LOCAL DEDICATED DUCT SYSTEM

REFERENCE DRAWINGS

1. B1454110/FLA/8008 OVERALL LAYOUT SITE ALLOCATION PLAN

REVISION	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
3	13-06-2011	[redacted]		PRELIM	UPDATED	[redacted]
2	26-01-2011			PRELIM	FOR CLIENT APPROVAL	
1	26-01-2011			PRELIM	APPROVED FOR ENGINEERING	
0	24-11-2010			PRELIM	INITIAL ISSUE	

EDF
DIRECTION PRODUCTION INGENIERIE
CNEN

1st partner

2nd partner

UNIQUE REFERENCE NUMBER
DRAWING NO. B1454110/FLA/8008 rev 3

SUPPLIER WBS CODE

SUPPLIER COMPANY TRADE NAME
JACOBS ENGINEERING

EDF-SUPPLIER CONTRACT NR	ITEM NUMBER	ELEMENTARY SYSTEM	BUILDING
DEVCO-001		N/A	N/A

SCALE 1:2000 @A1

LINE/SERIE/SITE
NUCL/REP/EPR/UKEPR

IPS: Yes ☐ No ☐

FORMAT A1

DOCUMENT TITLE :
HINKLEY POINT - TEMPORARY AGGREGATE JETTY STOCKPILE AREA LIGHTING LAYOUT

DOCUMENT TYPE :	DOCUMENT CLASSIFICATION CODE	PAGE
DRAWING	02C00	

SUBCONTRACTOR COMPANY TRADE NAME	SUBCONTRACTOR INTERNAL IDENTIFICATION NR

[redacted]

This staff must be entirely readable
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zsaeocmuvnwxirfkhbdpqgyjlt 71423855690
0 1 2 3 4 5 6 7 8 9 10

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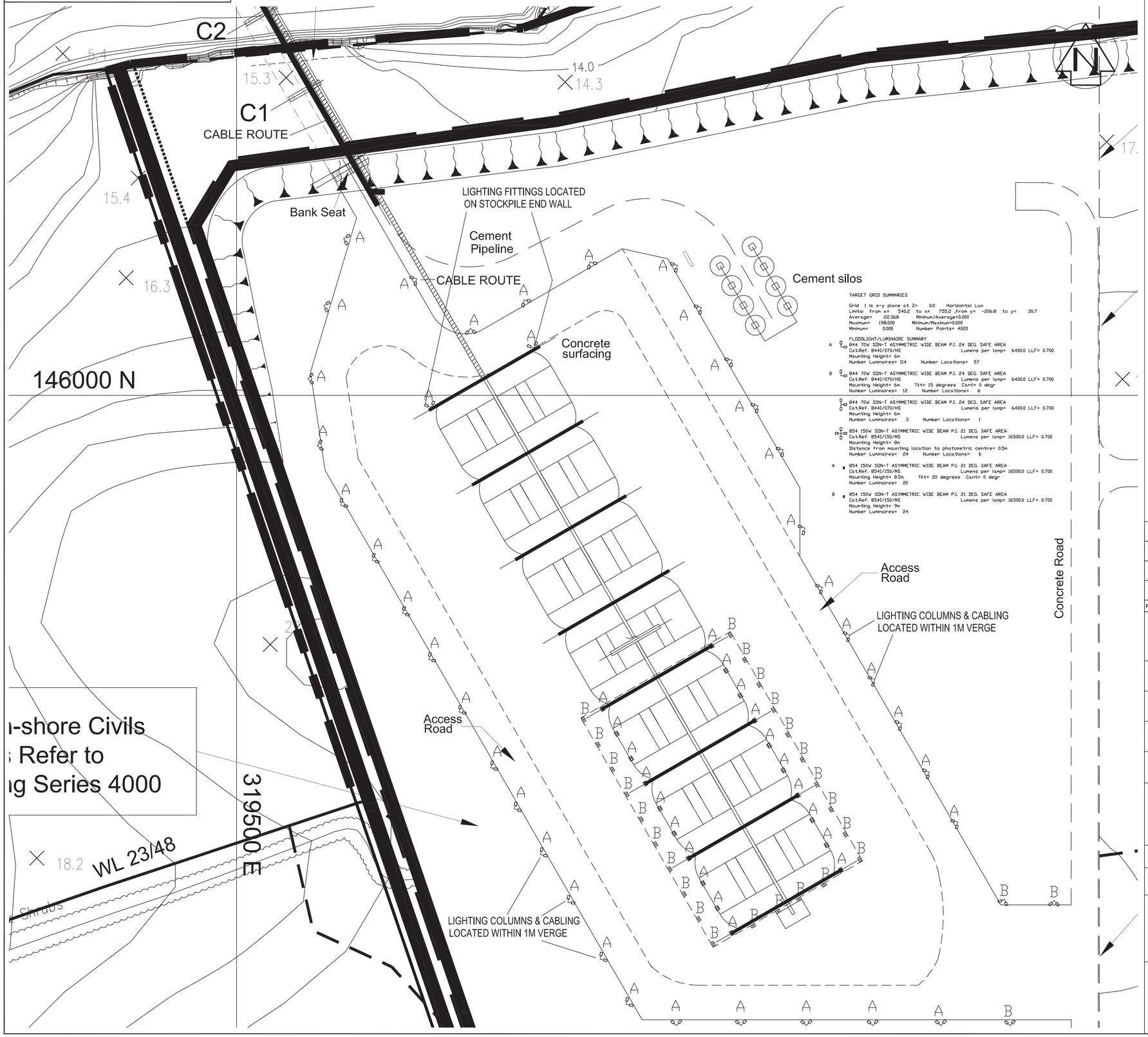
Drawing number / Rev

B1454110/FLA/8009



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REFERENCE DRAWINGS

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2	26-01-2011			PRELIM	FOR CLIENT APPROVAL	
1	26-01-2011			PRELIM	APPROVED FOR ENGINEERING	
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EDF
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1st partner

2nd partner

UNIQUE REFERENCE NUMBER
DRAWING NO. B1454110/FLA/8009 rev 3

SUPPLIER WBS CODE

SUPPLIER COMPANY TRADE NAME
JACOBS ENGINEERING

EDF-SUPPLIER CONTRACT NR	ITEM NUMBER	ELEMENTARY SYSTEM	BUILDING
DEVCO-001		N/A	N/A

SCALE 1:2000 @A1

LINE/SERIE/SITE
NUCL/REP/EPR/UKEPR

IPS: Yes ☐ No ☐

FORMAT A1

DOCUMENT TITLE :
HINKLEY POINT - TEMPORARY AGGREGATE JETTY STOCKPILE ROAD LIGHTING LAYOUT

DOCUMENT TYPE :	DOCUMENT CLASSIFICATION CODE	PAGE
DRAWING	02C00	

SUBCONTRACTOR COMPANY TRADE NAME

SUBCONTRACTOR INTERNAL IDENTIFICATION NR

[redacted]

This staff must be entirely readable
For A0 and A1 : ABERPFTHLLJOOCGQUVWMNSZXKY
zsaeocmuvnwxirfkhbdpqgyjlt 71423855690

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