Flood Risk Report

Manor Farm Cable – Laleham Substation Corridor

Juniper Energy Ltd

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Basis of Report

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Table of Contents

Tables in Text

Figures in Text

Appendices

Acronyms and Abbreviations

AEP	Annual Exceedance Probability
aOD	metres above Ordnance Datum
BESS	Battery Energy Storage System
bgl	below ground level
C	Circa
CBS	Cement-Bound Sand
CEMP	Construction Environmental Management Plan
EA	Environment Agency
FRA	Flood Risk Assessment
ha	Hectare
HDD	Horizontal Directional Drilling
LiDAR	Light Detection And Ranging
LLFA	Lead Local Flood Authority
NPPF	National Planning Policy Framework
PPG	Planning Practice Guidance
PPG	Planning Practice Guidance
SED	Special Engineering Difficulty
SLR	SLR Consulting
SuDS	Sustainable Drainage System
SWDS	Surface Water Drainage Strategy
SSSI	Site of Special Scientific Interest
UK	United Kingdom

1.0 Introduction

SLR Consulting Limited (SLR) were commissioned at the instruction of Juniper Energy Ltd to carry out a Flood Risk Assessment (FRA) in relation to an electrical cabling project between Manor Farm, Slough and National Grid (NG) Land at Laleham, Surrey ("the Proposed Development").

The total cable length is circa 8.4km, passing through 3 different planning authorities and would be routed beneath roads, highway verges, greenfield land and made land. A route location plan for the proposed development ("the site") is provided within Appendix A.

1.1 Proposed Development & Regulatory Context

The project relates to the required grid connection for a new data centre and Battery Energy Storage System (BESS) at Manor Farm. This data centre and BESS would be located to the north of Wraysbury Reservoir and west of London Heathrow Airport. Approval for the data centre and BESS are sought under a separate application (P/10076/013).

The proposed project falls within the planning jurisdiction of three different councils, these are:

- Spelthorne Borough Council
- Hillingdon London Borough Council
- Slough Borough Council

Each council is responsible for determining the planning application within its respective areas.

Issues relating to drainage and localised flood risk will be dealt with by Surrey County Council, Hillingdon London Borough Council, and Slough Borough Council, in their role as the Lead Local Flood Authority (LLFA) in their respective areas.

1.2 Objectives

This FRA aims to screen and assess the flood risk posed to the route. A screening assessment (an initial simple assessment) study has been completed to identify whether there are any potential sources of flooding at the site, which may warrant further consideration. For screened-in sources of flood risk, this FRA will consider the flood risk posed to construction activities and the impacts associated with the completed cable.

This report has been completed in accordance with guidance presented within the National Planning Policy Framework[1] and its associated Planning Practice Guidance (PPG)[2], taking due account of current best practice documents relating to the assessment of flood risk published by the British Standards Institution BS8533[3].

This FRA has been prepared under the direction of a Technical Director of SLR who specialises in flood risk and associated planning matters.

1 National Planning Policy Framework: Communities and Local Government (March 2012, Updated February 2025)

2 Planning Practice Guidance, Flood Risk and Coastal Change: Communities and Local Government (March 2014, Last updated August 2022)

3 BS8533:2017, Assessing and managing flood risk in development: Code of Practice (December 2017)

2.0 Baseline Conditions

2.1 Cable Route Location

The cable route is located on the western outskirts of London, approximately 26km west of central London. The data centre and BESS, which marks the northern end of the Laleham cable route is located on the western extent of Poyle. A largely industrial area located approximately 2km west of Heathrow Terminal 5.

A map of the cable route location is displayed within Appendix A.

The cable route starts at the Laleham substation on the western edge of the Queen Mary Reservoir. The route passes westwards through Staines before heading northwards between the Staines Reservoir and the King George VI Reservoir. The route then heads in a northwest direction, passing through Stanwell Moor and over the M25.

The majority of this route is within the jurisdiction of Spelthorne Borough Council, apart from the northern section where it crosses the M25 briefly, entering the jurisdiction of Hillingdon Council before finally heading westwards into Slough Borough Council.

2.2 Cable Route Description

The cable route is approximately 8.4km long and will be routed through a mixture of roads, highway verges, greenfield land and existing made land.

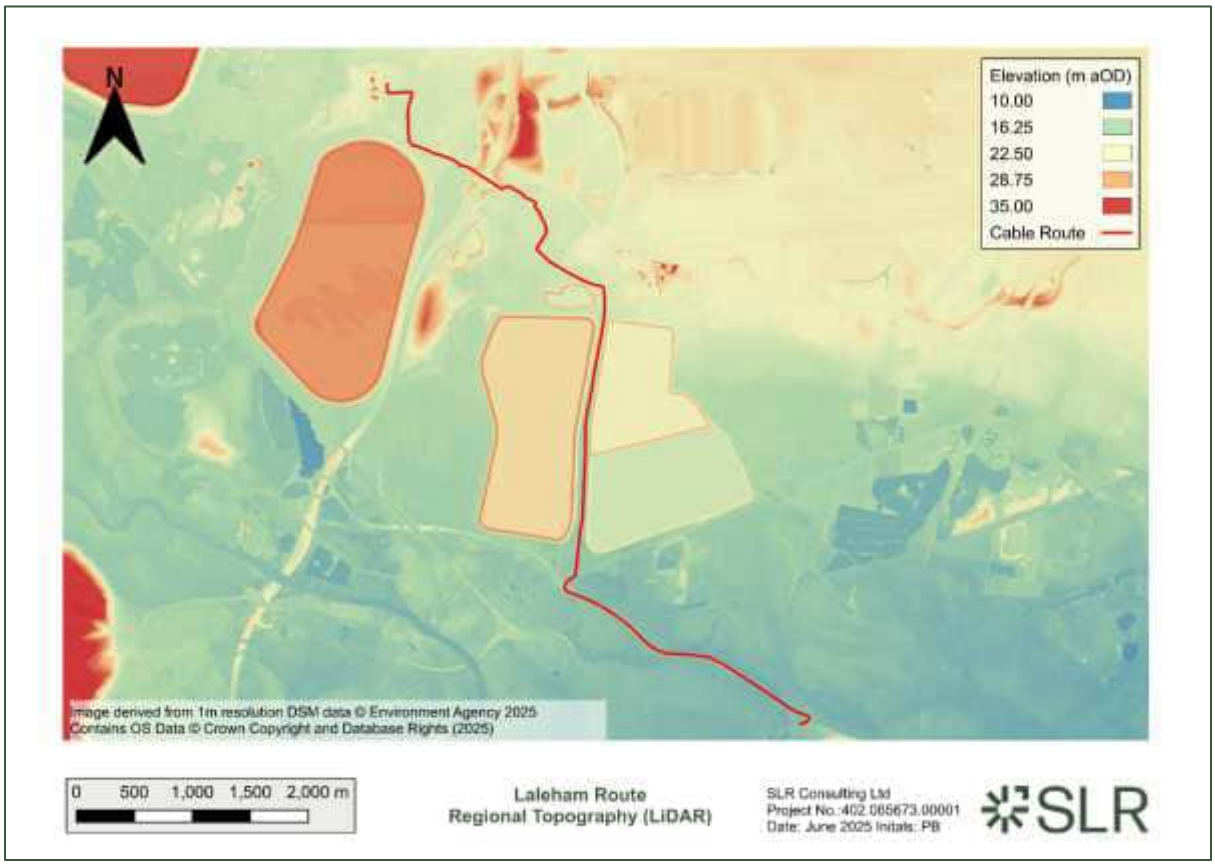
2.3 Regional Topography

Aerial photogrammetric (LiDAR) elevation data for the site has been downloaded from the Environment Agency (EA) open data website[4] and provides information on the regional topography of the area through which the cable route will pass. The LiDAR data included within Figure 1 is provided as a Digital Terrain Model (bare earth model) and therefore shows an estimate of ground levels, excluding surface features such as trees and buildings.

The regional topography of the cable route is indicated with Figure 1.

4 DEFRA Survey Data Downloader, Data Service Platform open data website https://environment.data.gov.uk/survey

Figure 1: Laleham Cable Route



Heathrow Airport, located to the northeast of the cable route, is elevated higher than the surrounding area by approximately 4-5m. In general, elevations along the cable route fall from north to south.

At its northern extent, the route passes through Slough Borough Council and is within the Colne River Valley. The cable route stretches southwards along Poyle Road and then eastwards along Horton Road. This section is elevated between 20.0m aOD and 19.2m aOD. These roads are generally flat and are typically set slightly below the surrounding topography by approximately 0.2 to 0.5m.

As the route enters Hillingdon, elevations rise at the roundabout of J14 of the M25 to 26.0m aOD, the roundabout is approximately 4.7m above the surrounding elevations.

The cable route continues in a south-eastern direction, passing through the floodplain of the River Colne at Stanwell Moor. Elevations across the floodplain are fairly flat between approximately 19.6m aOD and 18.7m aOD, the lowest elevations along this section are where the route crosses the River Colne and its associated tributaries.

Elevations continue to fall along the route as it passes between the King George VI and the Staines reservoirs, from 20.9m aOD as its northern extent to 15.3m aOD towards its southern extent. The reservoirs are raised above the surrounding topography at 24.6 m aOD and 22.9m aOD.

The final section of the route between the southern extent of the reservoirs and the substations is within the floodplain of the River Thames and is elevated between 19.9m aOD and 13.2m aOD. The highest elevations along this section of the proposed cable route are

along the Staines Bypass, which is embanked above the surrounding topography by up to 6.1m.

2.4 Regional Hydrology

2.4.1 Local Watercourses

There are multiple natural and manmade watercourses along the proposed Laleham cable route. These are outlined below and shown on the plans within Appendix B.

- **Wraysbury River**: The Wraysbury River is an anabranch of the River Colne. The river branches from the River Colne on the southern extent of West Drayton, running under the M4 motorway and adjacent to the Wraysbury Reservoir. The river rejoins the River Colne shortly before it flows into the River Thames at Staines. The river is a designated 'Main River' and is culverted several times under the M25 and M4 motorways. The project reference for this watercourse crossing is L-1.
- **River Colne:** The River Colne forms from a spring in North Mymms Park in Hertfordshire. The cable route crosses the river adjacent to the Poyle Interchange on the M25. Upstream of Stanwell Moor, the catchment area of the River Colne is 885km^2. At the point of the crossing, the river has split into three branching channels (one referred to as the Hithermoore stream), which reform into one main channel shortly south of the crossing point. The project references for these three crossings are L-5, L-6 and L-7. The river continues in a southward direction through the Colne Valley regional park ultimately draining to the Thames at Staines. The river is a designated 'Main River'.
- **Unnamed Ditch 02:** An unnamed drainage ditch with an approximate length of 2km forms towards the western edge of Heathrow airport along the edge of Stanwell Moor Road. The ditch runs in a southwestern direction, flowing through Stanwell Moor and along the western edge of King George VI Reservoir where it joins the River Colne. At the point where the route crosses Unnamed Ditch 02, the upstream catchment of the ditch is 1.83km^2. The Project reference for this watercourse crossing is L-9.
- **Unnamed Main River 01:** An unnamed Main River is indicated to start in greenspace to the west of Heathrow Airport. The watercourse flows southwards under Airport Way and along Spout Lane towards Stanwell Lane. The Main River is indicated to be culverted through Stanwell Moor, joining the Unnamed Ditch 02 to the south of Stanwell Moor. At the point where the route crosses Unnamed Main River 01 the upstream catchment of the ditch is 0.2km^2. The Project reference for this watercourse crossing is L-8.
- **Longford River:** The Longford River is an artificial waterway which diverts water from the River Colne to Busy Park and Hampton Court Palace. Where it runs close to the Laleham cable route, the river flows around the border of Heathrow Airport, running side by side with the Duke of Northumberland River. At its closest point, the river is approximately 450m away or the cable route.
- **Duke of Northumberland's River:** The Duke of Northumberland's River is an artificial watercourse. The watercourse draws water from the River Colne and other smaller streams. Where it runs close to the Laleham route, the river flows around the border of Heathrow Airport, running side by side with the Longford River. At its closest point, the river is approximately 460m away from the cable route and is a designated 'Main River'.

- **River Ash:** The River Ash is a distributary of the River Colne and is designated as a Main River. It splits from the River Colne at the River Ash sluice gate and flows in a southeastern direction through the northern extent of Staines. The river flows through a mainly urban area with frequent culverts under roads. The River Ash flows in a general western direction along the border of Queen Mary Reservoir, through Shepperton Studios, towards its confluence with the River Thames. The route crosses the River Ash three times as it passes through Staines. The Project references for these three crossings are L-10, L-14 and L-16.
- **Unnamed Drain 01:** An unnamed drainage ditch with an approximate length of 0.7km rises within Short Wood Common and runs southwards along the edge of Shortwood North Allotments flowing under the Staines by-pass (A308) where it joins the River Ash on the southern side. At the point where the route crosses Unnamed Ditch 01 the upstream catchment of the ditch is 0.7km^2. The Project reference for this watercourse crossing is L-13.

2.4.2 Watercourse Crossings

Multiple watercourse crossings are proposed over the cable route. Each of the crossings is outlined below within Table 1. As part of the assessment, the crossing type has been based on the information supplied.

Table 1: Proposed Watercourse Crossings

Crossing Number	Watercourse Name	Crossing Type	Crossing Description	Main River
L-1	Wraysbury River	Open Cut	Cable to be installed using open-cut methodology to the south of the existing highway bridge crossing (Horton Road) over the Wayrsbury River	Yes
L-5	River Colne (Hithermoor Stream)	Open Cut within Highway Bridge	Cable to be installed in the existing culverted crossing (Horton Road) over Hithermoore Stream.	Yes
L-6	River Colne	Open Cut within Highway Bridge	Cable to be installed in the existing highway bridge crossing (Horton Road) over the River Colne offshoot.	Yes
L-7	River Colne	HDD	Cable to be installed under Horton Road under the River Colne,	Yes
L-8	Unnamed Main River 01	Open Cut within Highway Bridge or Trenchless	Cable to be installed in the existing culvert crossing (Horton Road) over the River Colne offshoot.	Yes
L-9	Unnamed Ditch 02	Open Cut within Highway Bridge or Trenchless	Cable to be installed in the existing culvert crossing (Horton Road) over the unnamed River Colne tributary.	Yes
L-10	River Ash	Open Cut within Highway Bridge	Cable to be installed in the existing culvert crossing (London Road interchange) over the River Ash.	Yes

Crossing Number	Watercourse Name	Crossing Type	Crossing Description	Main River
L-13	Unnamed Drain 01	Open Cut within Highway Bridge	Crossing of the EA watercourse - tributary of the River Ash. Installed within the Staines By-Pass.	No
L-14	River Ash	Open Cut within Highway Bridge	Crossing of EA Watercourse - River Ash. Installed within the Staines By-Pass.	Yes
L-16	River Ash	Open Cut within Highway Bridge or Trenchless,	Crossing of EA Watercourse - River Ash. Installed within the Fordbridge Roundabout.	Yes
L-17	Staines Aqueduct	Trenchless	Crossing of Thames Water Aqueduct via a trenchless methodology	Yes

2.4.3 Other Waterbodies

There are several additional waterbodies within the vicinity of the cable route; these include canals and lakes.

- **Hithermoor Lake**: This lake is adjacent to the River Colne and is connected to the River Colne at its downstream and upstream ends. The lake was dug approximately 30 years ago in conjunction with two flood relief channels to provide flood relief protection for the Hithermoor area. The lake covers an approximate area of 1.6ha and is located 350m southwest of L-9.
- **King George VI Reservoir**: The reservoir is located to the north of Staines and the south of Stanwell Moor. The reservoir was created in November 1947 and is owned and operated by Thames Water. The reservoir covers an area of approximately 140ha and is constructed with an earthen embankment built up from the surrounding area.
- **Staines Reservoirs:** The reservoirs are a series of two reservoirs constructed with an earthen embankment located to the north of Staines and the south of Stanwell Moor. The two reservoirs are separated by an embankment dam and were built in 1902. The reservoirs are filled from the Staines Reservoir Aqueduct and cover an area of 172ha.
- **Staines Reservoirs Aqueduct:** The Staines Reservoir Aqueduct is a 14km aqueduct that runs in two sections. The first section abstracts water from the River Thames just upstream of Bell Weir. Water flows along the aqueduct under gravity towards the Birch Green Pumping Station within a concrete-lined channel passing under the River Wraysbury and the River Colne. This section of the aqueduct then terminates at a permanently closed sluice gate with water pumped northward into the King George VI and Staines Reservoirs. The remaining length of the aqueduct from the Crooked Billet roundabout to Kempton Park Water Treatment Works transfers water by gravity from the reservoirs to the treatment works. The route crosses the aqueduct. The project reference for this crossing is L-17.
- **Queen Mary Reservoir:** The reservoir is located to the south of Ashford and the A308 and the north of Littleton. The reservoir was opened in June 1925 and covers an area of 286ha with a capacity of 30.4 million m^3. Water is abstracted from the River Thames downstream of Penton Hook Weir and flows via the Laleham Aqueduct to a pumping station which lifts water into the reservoir. Water is discharged at the north end of the reservoir into the Staines Reservoir Aqueduct.
- **Shortwood Pond:** This is a small, approximately 2.2ha, pond that sits within the Shortwood Common Site of Special Scientific Interest (SSSI). The pond is characterised by shallow drawn-out margins, which makes it an important habitat for flora and fauna. The pond was dug in the 1850s to provide water, abstracted from the underlying chalk aquifer, for cattle[5].
- **Unnamed Waterbody 01:** A linear unnamed water body is found to the south of the cable route towards the Laleham Substation. The waterbody stretches south of the

5 Hydro International, Hydro's Downstream Defender® Saved Threatened Wetland, Case Study, Found at: https://www.externalworksindex.co.uk/Docs/28683_1572452356175/preview/Downstream-Defender-Shortwood-Pond-Protection-Case-Study.pdf

Laleham substation and the Staines Reservoir Aqueduct, the waterbody has an approximate area of 11ha and has been created from sand and gravel quarrying.

2.5 Regional Geological and Hydrogeological Features

2.5.1 Geology

Bedrock Geology

British Geological Survey (BGS) mapping[6] Indicates that the bedrock along the Laleham cable route is consistent and almost entirely consists of the London Clay Formation. The London Clay Formation is described by the BGS as:

"Bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay."

Superficial Geology

The superficial geology is the youngest geological deposits formed during the most recent period of geological time. They represent the upper layers and rest upon older deposits referred to as bedrock geology. Superficial deposits are mostly unconsolidated sediments (sand, gravel, silt and clay) and are generally classified based on the mode of origin or their composition.

Due to its positioning within the floodplains of the River Colne and River Thames the cable route mostly passes through sand and gravel deposits related to fluvial deposition of sediments. The following list summarises the deposits the cable route passes through:

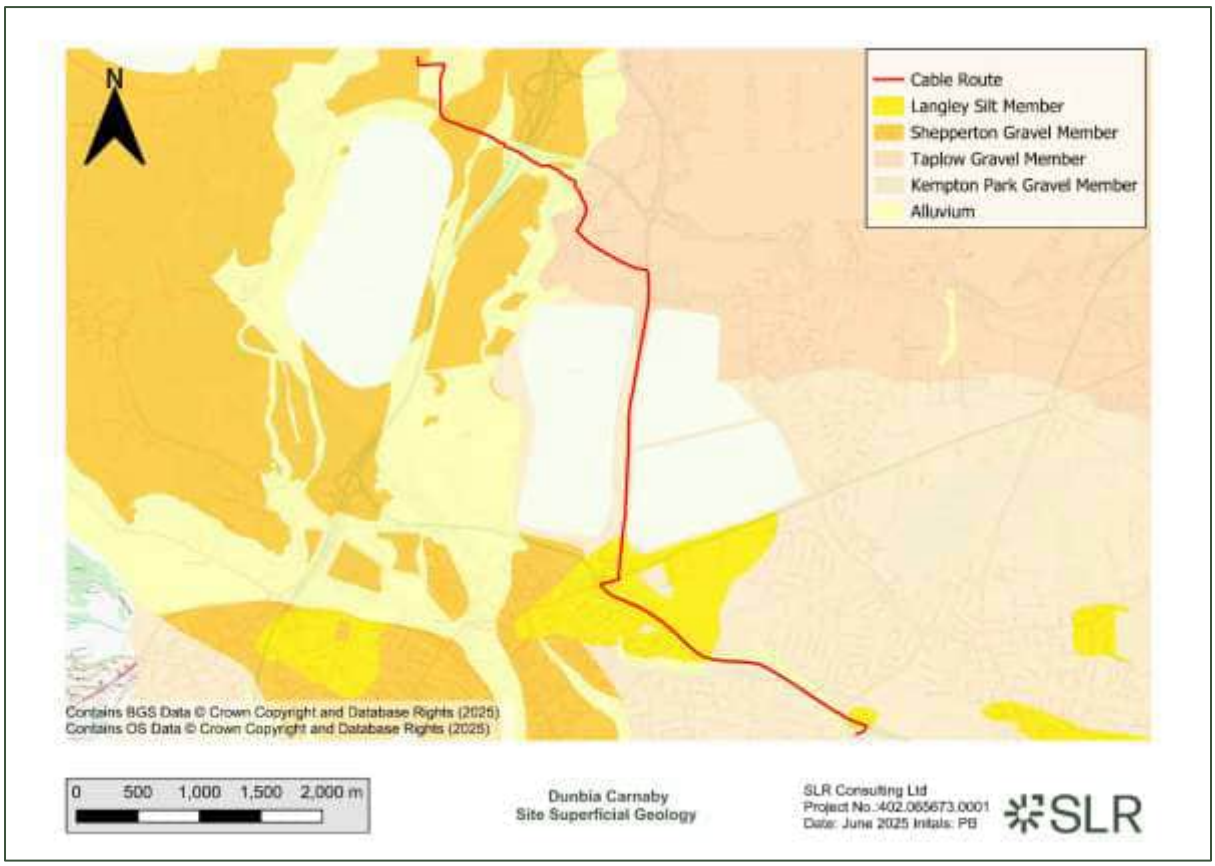
- Alluvium (Clay, silt, sand and gravel)
- Shepperton Gravel Member (Gravel with clay and sand).
- Langley Silt Member (varies from silt to clay, commonly yellow-brown and massively bedded)
- Taplow Gravel Member (Sand and gravel, locally with lenses of silt, clay or peat),
- Kempton Park Gravel Member (Sand and gravel, locally with lenses of silt, clay or peat),

Superficial deposits within the Colne River Valley consist of Alluvium and the Shepperton Gravel Member. Outside of the Colne River Valley, geologies consist of the Taplow Gravel Member, Langley Silt Member and the Kempton Park Gravel Member.

A map of the superficial geologies of the cable route is demonstrated below in Figure 2.

6 British Geological Survey Onshore Geoindex, available at https://mapapps2.bgs.ac.uk/geoindex/home.html (Accessed January 2024)

Figure 2: Superficial Geology



The National Soil Resources Institute[7] indicates that the soils are varied across the cable route. Soils within the Colne River Valley are classified as "*Loamy and clayey floodplain soils with naturally high groundwater*" with naturally wet drainage.

The remaining area, apart from where the route repasses through the flood plain of the River Colne consists of *"Freely draining slightly acid loamy soils"* with freely draining drainage.

2.5.2 Hydrogeology

Bedrock Geology

The bedrock geology of 'London Clay' is classified as an Unproductive aquifer[8] which is defined as rocks that '*have negligible significance for water supply or baseflow to rivers, lakes and wetlands. They consist of bedrock or superficial deposits with low permeability that naturally offer protection to any aquifers that may be present beneath*.'

Superficial Geology

The following layers are given the following designation where the following definition applies:

7 Soilscapes Map, Cranfield Soil and Agrifood Institute, Available at http://www.landis.org.uk/soilscapes/ (Accessed March 2025)

8 Magic Map Application, managed by Natural England, https://magic.defra.gov.uk/MagicMap.aspx (Accessed January 2024)

- Principal aquifer is defined as a "*rocks that provide significant quantities of water and can support water supply and/or baseflow to rivers, lakes and wetlands on a strategic scale. They typically have a high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage*."
- Secondary A: "*permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers*".
- Secondary B "*predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers"*.

The following layers are defined as:

- Alluvium- Secondary A
- Shepperton Gravel Member- Principal
- Langley Silt Member- Unproductive
- Taplow Gravel Member- Principal
- Kempton Park Gravel Member- Principal

The vast majority of the cable route is not within a Source Protection Zone (SPZ). This is apart from two sections of the route through Staines. This section is within a SPZ3 (Total Catchment) and is defined as an '*area around a supply source within which all the groundwater ends up at the abstraction point.'*

3.0 Planning Policy and Guidance

3.1 Proposal Summary

3.1.1 Laleham Cable Route

The project relates to proposals to install cables to connect NG transmission substations at Laleham to the proposed data centre and BESS. The data centre/BESS site is located approx. 6.5km from Laleham substation, as the crow flies. The cabling will provide the power required for the data centre to operate and a connection to the national grid for the BESS.

The cable installation works for the Laleham corridor will involve the following:

- The excavation of a temporary trench to accommodate the cabling infrastructure consisting of up to two 132 kV dual circuits, together with associated communications cabling – unless:
    - A trenchless solution is proposed, e.g. under the M25 J14
    - Or under a watercourse;
    - Or a open cut watercourse.
- Each 132kV circuit will consist of one strand per phase, with each strand located in a separate duct (for reference this means 8 ducts incl. communications).
- The construction trench will be up to 1.0m wide and up to 3m deep, the depth is expected to vary due to existing buried services (specially designed trenchless solutions such as the M25 Junction 14 crossings may result in an increase in the installation depth);
- The construction trench will be infilled once the required cabling components have been laid; and
- At 500m intervals along the grid connection route, it is necessary to install a junction box where lengths of the cable can be joined together. Each junction box would be below ground level and would measure c.500mm x 300mm.

A plan for the proposed development is included in Appendix A.

In terms of this flood risk assessment, it can be confirmed that the design of the Proposed Development ensures that;

- The completed cable (including the junction boxes) will be sealed to prevent ingress of water and will not be affected by contact with groundwater or flood water of any kind; and
- Once the cable is installed the ground surface will be restored to the existing level.

In relation to the flood risk vulnerability, as outlined in Annex 3 of the NPPF[9], the proposed cable route is classified as an '*Essential utility infrastructure',* which is classified as a *'Essential infrastructure'* development type.

9 Annex Three: Flood risk Vulnerability Classification. Accessed December 2023, https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification

In line with guidance for non-residential developments, this assessment considers the risks posed to the scheme with an anticipated lifetime of 75 years.

3.2 National Planning Policy

This FRA report has been completed in accordance with the guidance presented in the NPPF[10]. and with reference to PPG[2].

3.3 Local Planning Policy

The length of the proposed cable corridor from the facility to Laleham is approximately 8,400m. A breakdown of the cable corridor distance by council for each application is shown in

Table 2: Approximate Cable Corridor Length by Local Authority

Council	Approximate Cable Corridor Length (m)
Hillingdon	272
Slough	916
Spelthorne	7,231

Relevant local policy is discussed below.

3.3.1 Spelthorne Council Local Plan

Adopted in 2009, Spelthorne Council's Core Strategy and Policies Development Plan[11] is part of its Local Development Framework. It contains the vision, objectives, and strategic policies that set out the overall approach to future development in Spelthorne.

The council is working on a new emerging local plan for the period 2024-2039[12]. The examination of the local plan was paused in 2023, and as of 2025, the examination of the local plan is ongoing.

The relevant policies are demonstrated below; the current local plan policies are referred to as adopted, whereas the emerging policies are referred to as emerging.

Policy LO1: Flooding (Adopted)

The Council will seek to reduce flood risk and its adverse effects on people and property in Spelthorne by:

a) supporting appropriate comprehensive flood risk management measures within or affecting the Borough which are agreed by the Environment Agency,

b) reducing the risk of flooding from surface water and its contribution to fluvial flooding by requiring all developments of one or more dwellings and all other

10 Environment Agency, Flood Risk Assessments: Climate change allowances. February 2016, Updated May 2022

11 Core Strategy and Policies, Development Plan Document, Adopted 26 February 2009 Spelthorne Borough Council, accessed at: https://www.spelthorne.gov.uk/article/17620/Development-Plan-2009

12 Pre-submission Spelthorne Local Plan, 2022-2037, June 2022, Spelthorne Borough Council accessed at: https://www.spelthorne.gov.uk/localplan

development over 100m² of floorspace in the Borough to have appropriate sustainable drainage schemes,

c) maintaining flood storage capacity within Flood Zone 3 by refusing any form of development on undeveloped sites which reduces flood storage capacity or impedes the flow of flood water,

d) maintaining the effectiveness of the more frequently flooded area (Zone 3b) of the floodplain to both store water and allow the movement of fast flowing water by not permitting any additional development including extensions,

e) not permitting residential development or change of use or other 'more vulnerable' uses within Zone 3a or 'highly vulnerable uses' within Zone 2 where flood risks cannot be overcome,

f) supporting the redevelopment of existing developed sites in the urban area in Zones 3a and 3b for 'less vulnerable' uses where:

i a minimum increase of flood storage capacity of 20% can be secured (all flood storage areas to be effective at all times throughout the lifetime of the structure/use and do not create unacceptable risks to people in times of flood),

ii it reduces impedance to the flow of flood water where there would be flowing flood water,

iii appropriate access for the maintenance of water courses is maintained,

iv there is no adverse impact on the integrity and effectiveness of flood defence structures.

g) requiring any development in Zones 2, 3a and 3b to be designed to be flood resilient/resistant,

h) requiring all development proposals within Zones 2, 3a and 3b, and development outside this area (Zone 1) on sites of 0.5ha or of 10 dwellings or 1000m2 of non-residential development or more, to be supported by an appropriate Flood Risk Assessment.

Policy E3: Managing Flood Risk (Emerging)

1) Flood zones in Spelthorne Borough are determined by definitions contained within national planning practice guidance and the Council's Strategic Flood Risk Assessment (Level 1).

2) To reduce the overall and local flood risk and manage water resources development must be located, designed and laid out to ensure that it I safe, the risk from flooding is minimised (whilst not increasing flooding risk elsewhere) and that residual risks ae safely managed.

3) New development will be guided to areas of lowest flood risk from all sources of flooding through the application of the sequential test. Where individual sites contain different flood zones, the layout of the site will be expected to minimise flood risk. The exception test will continue to be applied where national planning policy advises that this is necessary.

4) All development proposals are required to demonstrate that land drainage will be adequate and that they will not result in an increase in surface water run-off. The

Council will expect incorporating SuDs (Sustainable Drainage Systems) to manage surface water drainage, unless it can be demonstrated that they are not appropriate.

5) Development in Flood Zones 2 and 3a and on a dry island will be permitted provided that:

(a) the vulnerability of the proposed use is appropriate for the level of flood risk on the site (see table below);

(b) the proposal passes the sequential and exception test (where required) as outlined in the NPPF and guidance;

(c) a site-specific flood risk assessment demonstrates that the development, including will be safe for its lifetime (taking into account climate change) without increasing flooding elsewhere, and will, where possible, reduce flood risk overall;

(d) safe access and egress is demonstrated for residential development of one or more net additional units;

(e) the scheme incorporates flood protection, flood resilience and resistance measures appropriate to the character of the area and;

(f) applications include appropriate flood warning and evacuation and site drainage systems take account of storm events and flood risk of up to 1 in 100 year event with an appropriate allowance for climate change.

6) applications must be supported by Flood Risk Assessments where appropriate that demonstrate the development will be safe, not increase flood risk elsewhere, and maximise opportunities to reduce flood risk. 1 in 20 year – Flood Zone 3b

7) Within the 1 in 20 year (5% AEP) extent;

(a) the provision of essential infrastructure will be supported but in principle the land should remain undeveloped to maintain flood storage capacity and not impede the flow of flood water.

(b) development vulnerability should be reduced and change of use to a higher vulnerability classification will not be permitted;

(c) extensions or re-development of buildings may be considered, subject to the following:

i) the footprint of the building should be reduced where possible and should not be increased,

ii) finished floor levels should be raised where possible;

iii) surface water runoff rates and volumes from the site should be reduced;

iv) floodplain storage capacity should be increased and space created for flooding to occur by restoring functional floodplain;

v) impedance to floodwater flow should be reduced;

vi) flood resistance and resilience measures be incorporated and;

vii) inclusion of measures to ensure development remains safe for users in time of flood .

8) Schemes which deliver a betterment will be supported, subject to consultation with the Environment Agency where required and meeting other policy requirements of the Plan.

9) Within the 1 in 20 year (5% AEP) extent basements, basement extensions, conversions of basements to a higher vulnerability classification are not permitted. Basement car parks (or similar development) which are designed to allow the inflow and egress of flood water may be permitted River Thames Scheme

10) The Council supports proposals for strategic flood relief measures, including the proposed flood channel through the Borough as part of the River Thames Scheme. The proposed route of the channel and the land adjacent to it, as shown on the Policies Map will be safeguarded for this purpose.

3.3.2 Slough Council Local Plan

The Local Development Plan for Slough sets out the long term overall vision for how the area should develop, and a strategy for how this should take place. The council is currently at the early stages of preparing a new Local Plan. The previous local plan was adopted in 2004, however, the relevant policies to Flood Risk have been struck out and as such, are not currently relevant.

Of relevance is the Slough Local Development Framework 'Core Strategy Development Plan Document' which was adopted in December 2008 and covers the Slough area up to 2026. Strategic Objective J from this states:

"To reduce areas subject to risk of flooding and pollution and control the location of development in order to protect people and their property from the effects of pollution and flooding."

Further relevant policies are indicated below.

Core Policy 8 (Sustainability and the Environment)

[…]

4. Flooding

a) Development will only be permitted where it is safe and it can be demonstrated that there is minimal risk of flooding to the property and it will not impede the flow of floodwaters, increase the risk of flooding elsewhere or reduce the capacity of a floodplain; and

b) Development must manage surface water arising from the site in a sustainable manner which will also reduce the risk of flooding and improve water quality.

3.3.3 Hillingdon Council Local Plan

The Local Plan is the foundation for how planning will be controlled in Hillingdon, it sets out the future development strategy for the borough and is formed from two parts. Part 01[13] sets

13 A vision for 2026, Local Plan: Part , Strategic Policies, Adopted November 2012. Hillingdon London, Accessed at https://www.hillingdon.gov.uk/local-plan-and-review

out the overall level and broad locations of growth up to 2026. It is supported by more detailed policies and allocations set out in the Local Plan Part 02[14].

Of relevance are the following policies:

Policy EM6: Flood Risk Management (Part 1)

The Council will require new development to be directed away from Flood Zones 2 and 3 in accordance with the principles of the National Planning Policy Framework (NPPF).

The subsequent Hillingdon Local Plan: Part 2 -Site Specific Allocations LDD will be subjected to the Sequential Test in accordance with the NPPF. Sites will only be allocated within Flood Zones 2 or 3 where there are overriding issues that outweigh flood risk. In these instances, policy criteria will be set requiring future applicants of these sites to demonstrate that flood risk can be suitably mitigated.

The Council will require all development across the borough to use sustainable urban drainage systems (SUDS) unless demonstrated that it is not viable. The Council will encourage SUDS to be linked to water efficiency methods. The Council may require developer contributions to guarantee the long term maintenance and performance of SUDS is to an appropriate standard.

Policy DMEI 8: Waterside Development (Part 2)

A) Development on sites that adjoin or include a watercourse should:

i) have regard to the relevant provisions of the Thames River Basin Management Plan and any other relevant Catchment Management Plans;

ii) not extend within 8 metres of the top of the bank of a main river or 5 metres either side of an ordinary watercourse or an appropriate width as may be agreed by the Council;

iii) where feasible, secure the implementation of environmental enhancements to open sections of river or watercourse; and

iv) where feasible, implement a scheme for restoring culverted sections of river or watercourses which must include an adequate buffer for flooding and maintenance purposes.

B) Where on-site environmental enhancements or deculverting are financially viable but not feasible, the Council will seek a financial contribution towards relevant projects for the enhancement or deculverting of other sections of rivers or watercourses.

C) Existing wharves and their access will be protected for continued use.

D) Proposals that would adversely affect the infrastructure of main rivers and ordinary watercourses, or which fail to secure feasible enhancements or deculverting, will be resisted.

E) Development located in or adjacent to watercourses should enhance the waterside environment and biodiversity by demonstrating a high design quality

14 London Borough of Hillingdon, Local Plan Part 2, Development Management Policies Adopted 16 January 2020, accessed https://www.hillingdon.gov.uk/local-plan-and-review

which respects the historic significance of the canal and character of the waterway and provides access and improved amenity to the waterfront.

F) All development alongside or that benefits from a frontage on the Grand Union Canal will be expected to contribute to the improvement of the Canal.

Policy DMEI 9: Management of Flood Risk (Part 2)

A) Development proposals in Flood Zones 2 and 3a will be required to demonstrate that there are no suitable sites available in areas of lower flood risk. Where no appropriate sites are available, development should be located on the areas of lowest flood risk within the site. Flood defences should provide protection for the lifetime of the development. Finished floor levels should reflect the Environment Agency's latest guidance on climate change.

B) Development proposals in these areas will be required to submit an appropriate level Flood Risk Assessment (FRA) to demonstrate that the development is resilient to all sources of flooding.

C) Development in Flood Zone 3b will be refused in principle unless identified as an appropriate development in Flood Risk Planning Policy Guidance. Development for appropriate uses in Flood Zone 3b will only be approved if accompanied by an appropriate FRA that demonstrates the development will be resistant and resilient to flooding and suitable warning and evacuation methods are in place.

D) Developments may be required to make contributions (through legal agreements) to previously identified flood improvement works that will benefit the development site.

E) Proposals that fail to make appropriate provision for flood risk mitigation, or which would increase the risk or consequences of flooding, will be refused.

3.4 Flood Zone Classification

The definition of Flood Zones is provided in PPG *Table 1: Flood Zones*:

- Zone 1 - Low Probability (Flood Zone 1) is defined as land which could be at risk of flooding from fluvial or tidal flood events with less than 0.1% annual probability of occurrence (1:1,000 year) i.e. considered to be at ‘low probability’ of flooding.
- Zone 2 - Medium Probability (Flood Zone 2) is defined as land which could be at risk of flooding with an annual probability of occurrence between 1% (1:100 year) and 0.1% (1:1,000 year) from fluvial sources and between 0.5% (1:200 year) and 0.1% (1:1,000 year) from tidal sources i.e. considered to be at ‘medium probability’ of flooding.
- Zone 3a - High Probability (Flood Zone 3a) is defined as land which could be at risk of flooding with an annual probability of occurrence greater than 1% (1:100 year) from fluvial sources and greater than 0.5% (1:200 year) from tidal sources i.e. considered to be at ‘high probability’ of flooding.
- Zone 3b - the Functional Floodplain (Flood Zone 3b) This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of a functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:

- land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or
- land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

Plans showing flood zones along the Laleham cable route are provided in Appendix C. These confirm that the route extends across areas designated as Flood Zones 1, 2 and 3.

Details on the division between Flood Zone 3a and 3b are set out in the Strategic Flood Risk Assessments, as published by the three planning authorities. Where the route crosses a watercourse, it is inevitable that it will extend into the area of Flood Zone 3b.

3.4.1 Flood Risk Compatibility

In reference to Table 2 of the flood risk and coastal change PPG reproduced as Table 3 below the development (*'essential infrastructure'*) is appropriate within all flood risk zones.

In the areas where the route extends across land designated as Flood Zone 3a and 3b it is necessary to demonstrate that the requirements of the Exception Test are met.

Table 3: Flood Risk Vulnerability and Flood Zone 'incompatibility'

Flood Risk Vulnerability Classification (PPG Table 2)		Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone (PPG Table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	Exception Test Required	✓	✓	✓
	Zone 3a	Exception Test Required	x	Exception Test Required	✓	✓
	Zone 3b (functional floodplain)	Exception Test Required	x	x	x	✓

Key: ✓ Exception Test is not required x Development should not be permitted

3.4.2 Sequential Test

With regards to the Sequential Test the EA note that:

> *"The approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding."*[15]

Juniper Energy Limited considered various options for the cable route between the data centre and the substation. All routes considered involve multiple watercourse crossings and pass through areas of high flood risk. It has been concluded that no

feasible alternative routes exist that can avoid crossing watercourses and areas of increased flood risk.

This report concludes that the risk to the cable once installed will be very low. The report also indicates that the implementation of adequate measures during the construction phase (Section 5.0) will manage flood risk for the short period whilst the cable is under construction.

3.4.3 Exception Test

With reference to Table 2 of the flood risk and coastal change PPG, reproduced as Table 3 above, the Exception Test needs to be passed for '*Essential Infrastructure'* located within Flood Zone 3a and 3b.

As stated within the NPPF, for a development to pass the Exception Test it must satisfy the following points.

- development that has to be in a flood risk area will provide wider sustainability benefits to the community that outweigh flood risk; and
- the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

The proposed development is classed as '*Essential Infrastructure'* and is required to facilitate the proposed data centre and BESS. These aspects of the wider development are aligned with strategic government targets for economic growth and zero carbon which, at a strategic level, are critical in the delivery of sustainability benefits. The wider planning reports produced as part of this proposal further set out how part one of the Exception Test is satisfied.

This report concludes that the flood risk posed to the cable once installed will be very low. Furthermore, Section 5.0, highlights the measures that would be undertaken during the construction phase to ensure that the flood risk to the construction would be mitigated. As such, the Exception Test is deemed to be met.

3.5 Climate Change

In February 2016, the Environment Agency issued updated guidance on the impacts of climate change on flood risk in the UK to support the NPPF[15]. This was most recently updated in May 2022 and advice sets out that peak rainfall intensity, sea level, peak river flow; offshore wind speed and extreme wave heights are all expected to increase in the future as a result of climate change. Consideration of the changes to these parameters should use the allowances outlined below based on the anticipated lifetime of the development.

Allowances in relation to sea levels, offshore wind speed and extreme wave height are only relevant to sites situated near the sea or tidal water bodies. These are therefore not of relevance to this assessment and are not considered further.

The guidance acknowledges that there is considerable uncertainty with respect to the absolute level of change that is likely to occur. As such, the document provides estimates of

15 Environment Agency, Flood Risk Assessments: Climate change allowances. February 2016, Updated May 2022

possible changes that reflect a range of different emission scenarios. Updates issued in July 2021 and May 2022 brought the advice in line with the findings of UK Climate Projections 2019 (UKCP19).

Allowances for changes in rainfall and peak fluvial flows are provided by the Environment Agency on a catchment basis. The proposed Laleham cable route extends across two different management catchments. These are;

- The Colne Management Catchment (covering the majority of the route); and
- The Maidenhead and Sudbury Management Catchment (covering a small section at the northern end of the route)

3.5.1 Peak Rainfall Intensity

For peak rainfall intensity the PPG guidance states that flood risk assessments for developments with a lifetime between 2061 and 2100 (i.e. non-residential development), the central allowance for the 2070's epoch for both the 3.3% AEP storm event and 1% annual exceedance probability (AEP) storm event should be used. However, where the 2050's epoch is higher than the 2070's the higher allowance should be applied.

As detailed in Table 4, Peak Rainfall Intensity Allowances, for both management catchments along the Laleham cable route, this equates to a 25% uplift on the 3.3% AEP event and a 25% uplift for the 1% AEP event.

Table 4: Peak Rainfall Intensity Allowances

Management Catchment	Annual Exceedance Probability (%)	Allowance Category	Total potential change anticipated for the 2050s	Total potential change anticipated for the 2070s
Colne	3.3	Upper End	35%	35%
		Central	20%	25%
	1	Upper End	40%	40%
		Central	20%	25%
Maidenhead and Sunbury	3.3	Upper End	35%	35%
		Central	20%	25%
	1	Upper End	40%	40%
		Central	20%	25%

3.5.2 Peak Fluvial Allowance

Peak River Flow Allowances provided by the Environment Agency show the anticipated changes to peak flows by management catchment. Guidance states that for *"essential infrastructure"* located in Flood Zone 2 or 3 the *"higher central"* allowance should be considered.

As shown in Table 5 for the Colne Catchment, this equates to a 35% increase in peak flow by the end of the anticipated lifetime of the development..

For the Maidenhead and Sunbury Catchment, this equates to a 47% increase in peak flow by the end of the anticipated lifetime of the development.

Table 5: Peak Fluvial Allowances

Management Catchment	Allowance Category	Total potential change anticipated for 2020s	Total potential change anticipated for 2050s	Total potential change anticipated for 2080s
Colne	Upper End	30%	38%	72%
	Higher Central	16%	16%	35%
	Central	10%	8%	21%
Maidenhead and Sunbury	Upper End	32%	45%	81%
	Higher Central	19%	25%	47%
	Central	14%	17%	35%

4.0 Potential Sources of Flooding

4.1 Methodology and Best Practice

This FRA report has been prepared in accordance with the advice and requirements prescribed in current best practice documents relating to the management of flood risk in development published by the Construction Industry Research and Information Association (CIRIA)[16], and British Standard BS8533[3].

A screening study has been completed to identify whether there are any potential sources of flooding at the site which may warrant further consideration. If required, any potential significant flooding issues identified in the screening study are then considered in subsequent sections of this assessment.

4.2 Screening Study

Potential sources of flooding include:

- Flooding from the sea or tidal flooding;
- Flooding from rivers or fluvial flooding;
- Flooding from surface water and overland flow;
- Flooding from groundwater;
- Flooding from sewers;
- Flooding from reservoirs, canals, and other artificial sources; and
- Flooding from infrastructure failure.

The flood risk from each of these potential sources is discussed below and summarised in Section 4.6. Due to the size of the cable route (and to make this assessment easier for individual planning authorities to review), this report has broken the cable route by council area.

4.3 Spelthorne Council

The largest section of the Laleham cable route is within the jurisdiction of Spelthorne Borough Council and covers approximately 7.3km of the 8.4km route. This section of the route stretches from junction 14 of the M25 down to the Laleham Substation. Due to the length of this part of the route, for the purpose of assessment, it is broken down (in places) into three sections. These are as follows:

- Section 01: Between Junction 14 of the M25 and the A3044
- Section 02: The section along the A3044 between the King George VI Reservoir and the Staines Reservoirs up to the junction between London Road and the A308.
- Section 03: The final section along the A308 (Staines Bypass) up to the Laleham Substation.

16 CIRIA Report C624, Development and flood risk: guidance for the construction industry

4.3.1 Flooding from the Sea or Tidal Flooding

All parts of the Spelthorne Council part of the Laleham cable route are remote from the coast and are situated at an elevation of over 14m aOD.

On this basis, the risk associated with sea or tidal flooding to the construction and ongoing presence of the proposed cable is considered negligible and is not considered further.

4.3.2 Flooding from River or Fluvial Flooding

Fluvial flooding from rivers occurs when water levels rise higher than bank levels, causing floodwater to spill across adjacent land. Once the cable route is complete, the cable will be buried to a minimum depth of 900mm with the ground reinstated above to the current level. The completed cable will therefore not be at risk of flooding and will not affect the storage and or conveyance of fluvial flood water.

On this basis, the risk associated with river or fluvial flooding posed to and arising from the ongoing presence of the proposed cable route (once constructed) is considered negligible and is not considered further.

If fluvial flooding occurred during the construction phase it is feasible that the construction process could be disturbed and / or adverse impacts might arise from the temporary structure of landforms. The spatial distribution of fluvial flood risk is therefore considered further to confirm if control measures need to be put in place.

Section 01:

Section 01 of the Spelthorne Council part of the cable route stretches from Junction 14 M25 through Stanwell Moor towards the King George VI Reservoir. This section of the route includes the watercourse crossings of L-1, L-6, L-7, L-8 and L-9.

L-5, L-6 and L-7 relate to crossings of the River Colne as it flows in a southern direction through Stanwell Moor.

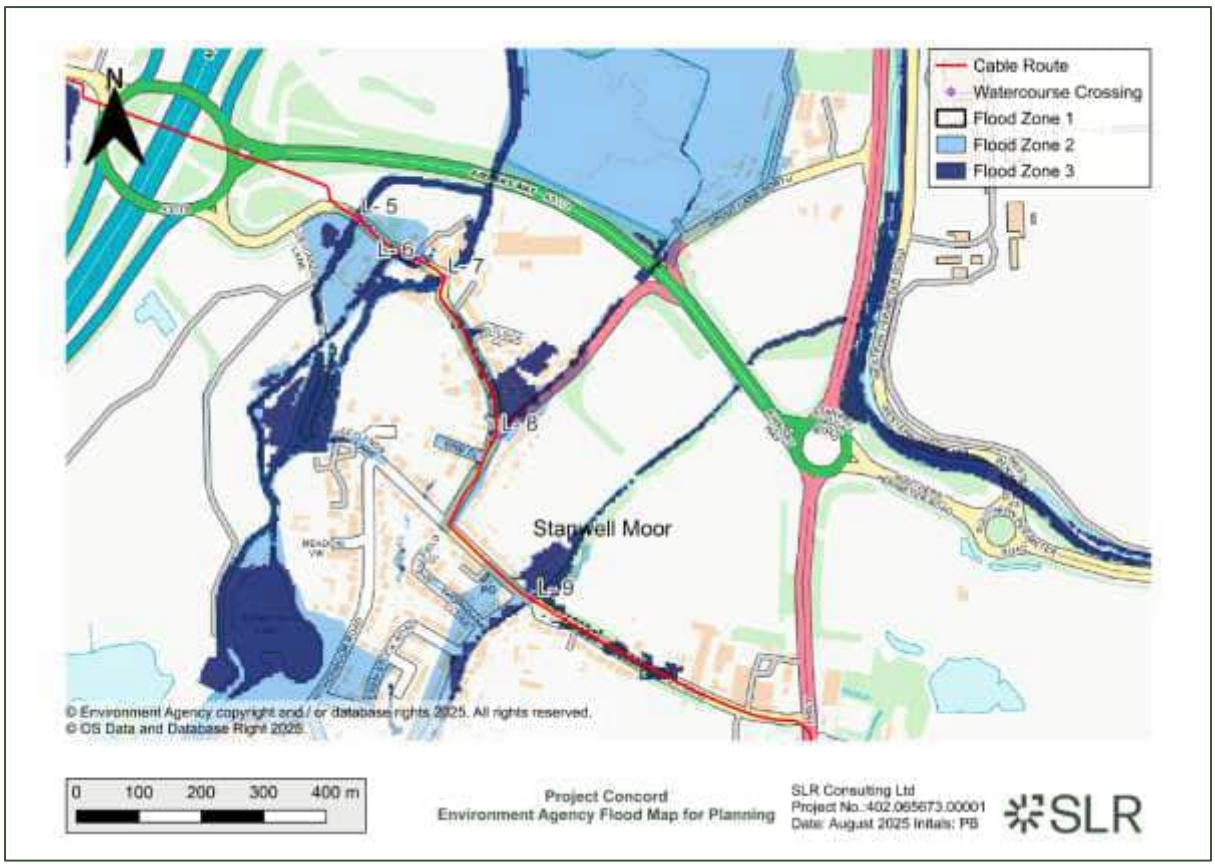
L-8 relates to the crossing of a culverted main river (Unnamed Main River 01) with L-9 crossing of Unnamed Ditch 02 a further main river which crosses under Horton Road. During extreme flood conditions, both the Unnamed Main River 01 and the Unnamed Ditch 02 will receive and convey excess flood flows from the River Colne catchment.

This section of the cable route runs across land designated as Flood Zones 1, 2 and 3, with the areas of Flood Zone 3 located directly around the crossing points and along the channels. Flood Zone 2 is located more widely around the channels, particularly between L-5 and L-6 and to the south of L-8 along the Horton Road. This is depicted with Figure 3 with full mapping depicted within Appendix C.

According to the Spelthorne SFRA[17] none of the areas adjacent to the channels are indicated to be Flood Zone 3b. However, the channels which the cable route crosses would be the functional floodplain and are therefore considered to be Flood Zone 3b.

17 Spelthorne Borough Council, Strategic Flood Risk Assessment, Spelthorne Borough Council. February 2018, AECOM

Figure 3: Spelthorne Council, Section 01, Flood Zones



An examination of the recorded flood outlines dataset[18] indicates that the Flood Zone 2 has been defined by the outlines of past flood events along the River Colne. Around each watercourse crossing there the following historic flood events are recorded.

- Land to the south of L-1: Flooding in October to November 2000, January to December 2000 and December 2002 to January 2003.
- Area stretching west to L-6: Flooding in October to November 2000, January to December 2000.
- North and South of L-7: Flooding in December 2002 to January 2003.
- Area around L-8: Flooding in October to November 2000, January to December 2000, February 2009 and October 1993.
- Area around L-9: October 1993, October to November 2000 and January to December 2000.

All flood events, apart from February 2009, are indicated to be caused by '*channel capacity exceeded (no raised defences)'*. The February 2009 flood event around L-8 is indicated to be caused by '*obstruction/blockage – culvert'.*

18 Recorded Flood Outlines, DEFRA Data Services Platform, Environment Agency https://environment.data.gov.uk/dataset/8c75e700-d465-11e4-8b5b-f0def148f590

Based on the flood mapping and the history of flooding locally, it is concluded that flooding may occur in this area in response to high flows along the River Colne. If such flooding occurred during the period of construction, this could result in a risk to the construction staff and process and also a minor impact on the severity of flooding on adjacent land. This flood risk posed to the construction phase will be mitigated by appropriate control measures outlined in Section 5.0.

Section 02

Section 02 of the Spelthorne Council part of the cable route is entirely within Flood Zone 1, is not within a recorded flood outline and is not indicated to flood in the flood data provided within the flood map for planning. As such, the fluvial flood risk to this section is low and is not considered further.

Section 03

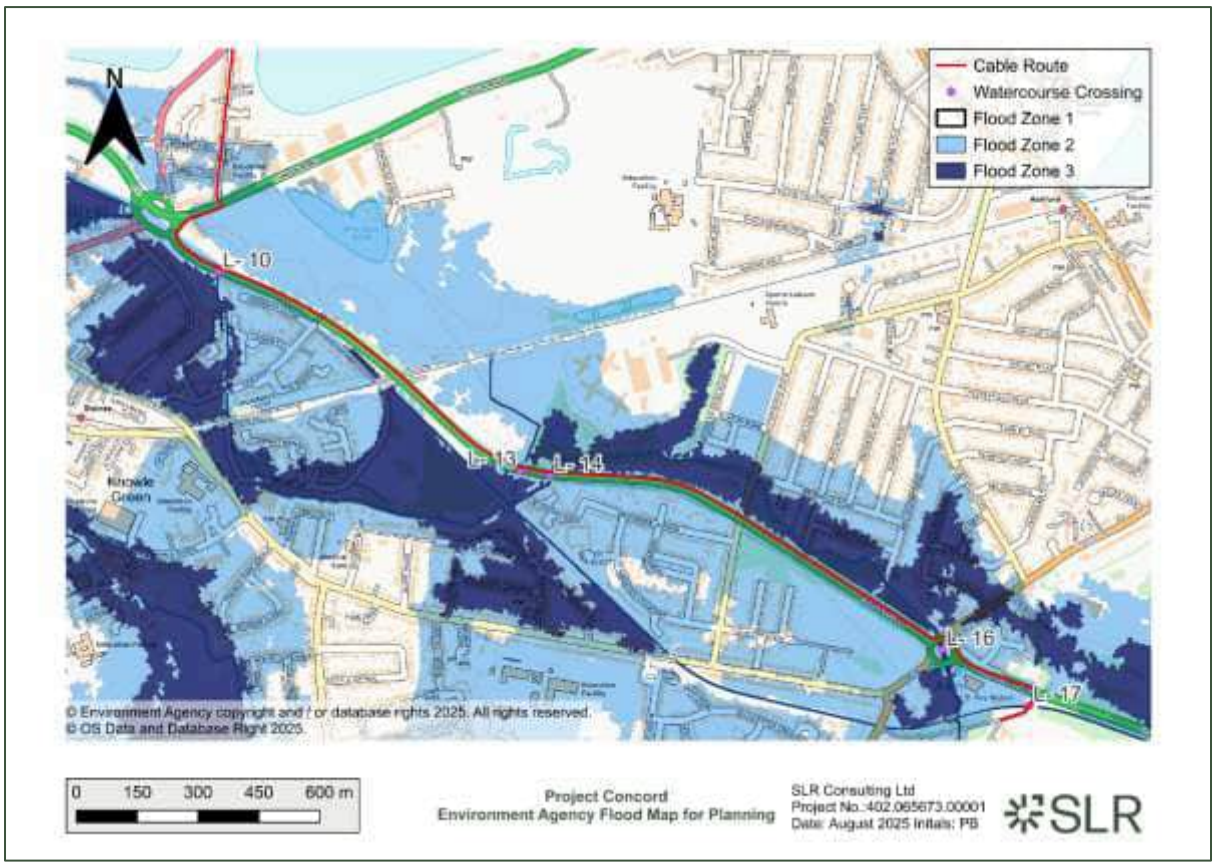
Section 03 of the Spelthorne Council part of the cable route stretches from the south of the Staines and King George VI Reservoirs south eastwards towards the Laleham Substation. The route travels southwards along Stanwell New Road to the Crooked Billet Roundabout before heading along the A308. Lastly, the route passes along the Kingston Road before heading down an access road to the Laleham substation.

This section of the route includes the watercourse crossings of L-10, L-13, L-14, L-16 and L-17. L-10, L-13, L-14 and L-16 relate to crossings of the River Ash and Unnamed Drain 01 which is closely associated with the River Ash. L-17 is the crossing of the Staines Reservoir Aqueduct which is not a fluvial waterbody.

This section of the cable route runs across land designated as Flood Zones 1, 2 and 3, with the majority of the section within Flood Zone 2. The only places where this section passes through Flood Zone 3 relate to the path of the River Ash. This is depicted with Figure 4 with full mapping depicted within Appendix C.

Aside from the river channel, none of the areas within this section is indicated to be Flood Zone 3b.

Figure 4: Spelthorne Council, Section 03, Flood Zones Map



An examination of the recorded flood outlines dataset[18] indicates that the Flood Zone 2 has not been defined by the outlines of past flood events. Around each watercourse crossing, there are the following recorded historic flood events.

- At L-10: Flooding in January to December 1947
- Land to the south of L-10: Flooding in January to December 1947, Flooding in January to February 2014 and Flooding in November to February 2013 to 2014.
- Land at L-13 and L-14: Flooding in January to December 1947
- Land north and south of L-13 and L-14: Flooding in January to February 2014.
- Land at L-16: Flooding in January to December 1947, flooding in December 2002 to January 2003 and flooding in November 2013 to December 2014.
- Within the channel at L-17: Flooding in November 2013 to December 2014

All flood events are indicated to be caused by '*channel capacity exceeded (no raised defences)'*. Staines itself has a record of significant flooding, specifically from the River Thames with major events in 1900 and 1929, 1947, 1959, 1974 and 2003.

The winter of 2013-14 led to further flooding experienced due to the exceptional and unprecedented rainfall that fell. The flooding affected the areas of Shepperton, Littleton and Laleham and Sunbury, resulting in the internal flooding of approximately 130 properties within these areas. Further fluvial flooding was associated with the River Ash, which caused some localised internal flooding.

Some of this section is raised on the highway and in these areas, the annual probability of fluvial flooding is less than 1 in 1000; in the large majority of the section the annual probability of fluvial flooding is less than 1 in 100. This includes all of the watercourse crossings except for L-16[19].

The route at L-16 and on the approaches to either side would be at risk of flooding in the event of high flows along the River Ash. If such flooding occurred during the period of construction, this could result in a risk to the construction staff and process and also a minor impact on the severity of flooding on adjacent land. This flood risk posed to the construction phase will, however, be mitigated by appropriate control measures outlined in Section 5.0.

4.3.3 Flooding from Surface Water and Overland Flow

Surface water flooding is flooding that occurs when heavy rainfall exceeds the capacity of the ground or localised drainage networks to receive flows and water propagates across the ground surface ponding in any low areas. The potential for such flooding is often exacerbated by wet antecedent conditions or poor maintenance of drainage systems.

Once the cable route is complete, the cable will be buried to a minimum depth of 900mm and the ground will be reinstated above to the current levels. The completed cable will therefore not be at risk of flooding and the completed cable will also not affect the storage and or conveyance of surface water runoff.

On this basis, the risk associated with surface water flooding posed to and arising from the ongoing presence of the proposed cable route (once constructed) is considered negligible and is not considered further.

If, however, surface water flooding occurred during the construction phase it is feasible that the construction process could be disturbed and / or adverse impacts might arise from the temporary structure of landforms. The spatial distribution of surface water flood risk is therefore considered further to confirm if control measures need to be put in place.

The Risk of Flooding Surface Water (RoFSW) map[20] provided by the EA includes mapping of surface water flood risk[21]. Surface water modelling has been undertaken in order to establish areas at risk of surface water flooding based on the latest hydrological techniques and surface terrain data. Extract from this mapping along the proposed Laleham cable route are presented in Appendix C.

19 Flood Map for Planning, Get Flood Risk Data for England, Environment Agency Accessed June 2025. https://flood-map-for-planning.service.gov.uk/map?seg=rsd,pd,mr&cz=504728.5,171482.5,16.56

20 Environment Agency: Risk of flooding from surface water- understanding and using the map, Risk of Surface Water Flooding. Environment Agency, January 2025, https://www.gov.uk/government/publications/flood-risk-maps-for-surface-water-how-to-use-the-map/risk-of-flooding-from-surface-water-understanding-and-using-the-map

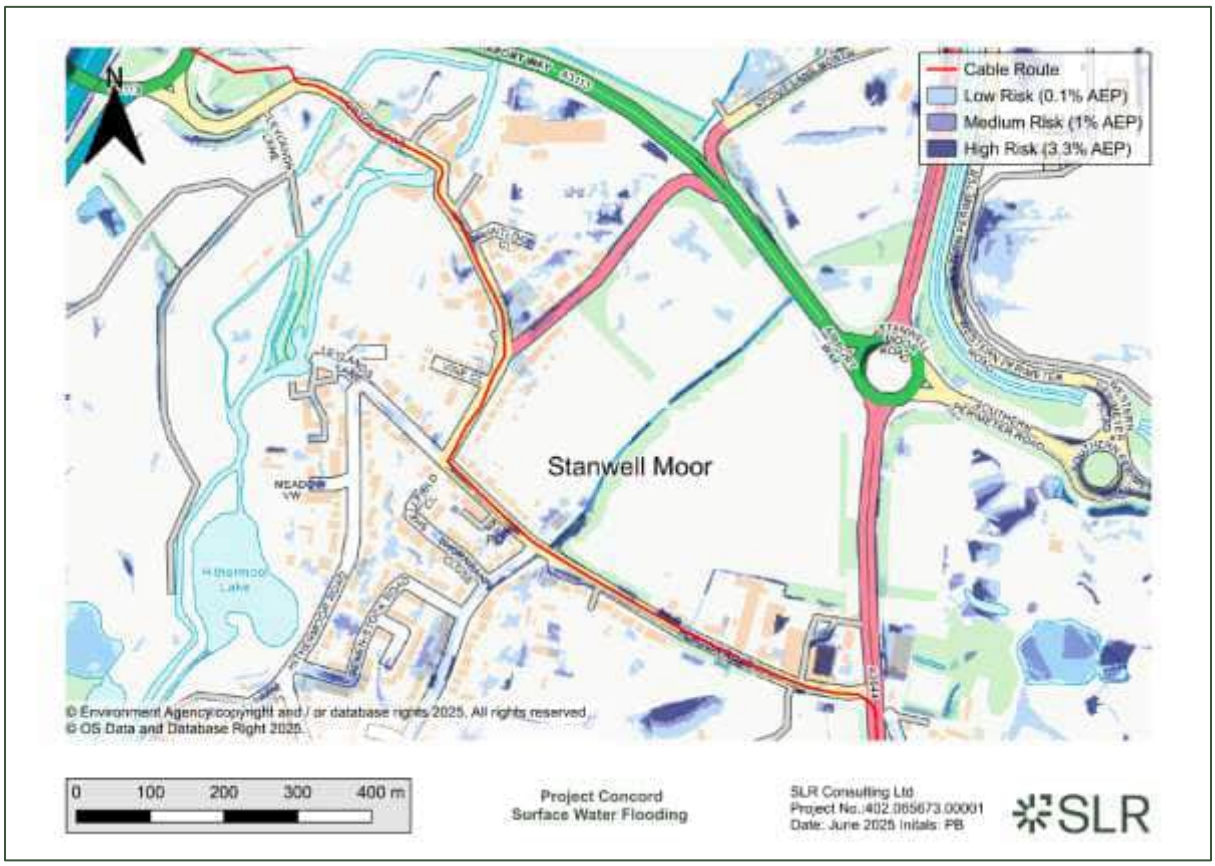
21 Environment Agency defines the surface water flood risk categories as:

- **Very Low**: less than 1 in 1,000 annual probability of flooding in any given year;
- **Low**: less than 1 in 100 annual probability but greater than or equal to 1 in 1,000 annual probability of flooding in any given year;
- **Medium**: between 1 in 100 annual probability and 1 in 30 annual probability of flooding in any given year; and
- **High**: greater than 1 in 30 annual probability of flooding in any given year.

Section 01

This section follows Horton Road eastwards towards the A3044. Mapping indicates that the majority of the section along Horton Road is at very low risk of surface water flooding. However, there are pockets of higher surface water flood risk in several hotspots, including towards Flintlock Close, Spout Lane (L-8) and around L-9. This is demonstrated in Figure 5.

Figure 5: Spelthorne Council, Section 01, Surface Water Flooding



An examination of the data within the Spelthorne Borough Council SFRA indicates that the area of surface water flooding at L-8 has been designated by Surrey County Council (SCC) as a '*Wetspots*'. A Wetspot is a term used by the LLFA to describe the location of a surface water flood incident that has been reported.

An examination of flood depths indicates that no areas along Horton Road exceed depths of 0.6m. There are pockets of areas that could exceed 0.3m during a low probability (0.1% AEP) storm event, these are towards L-1, L-8 and towards where Horton Road meets the A3044. An examination of these areas reveals that these are areas where surface water is collecting within drainage ditches, or in the case of L-8, is collecting in a depression of a front garden.

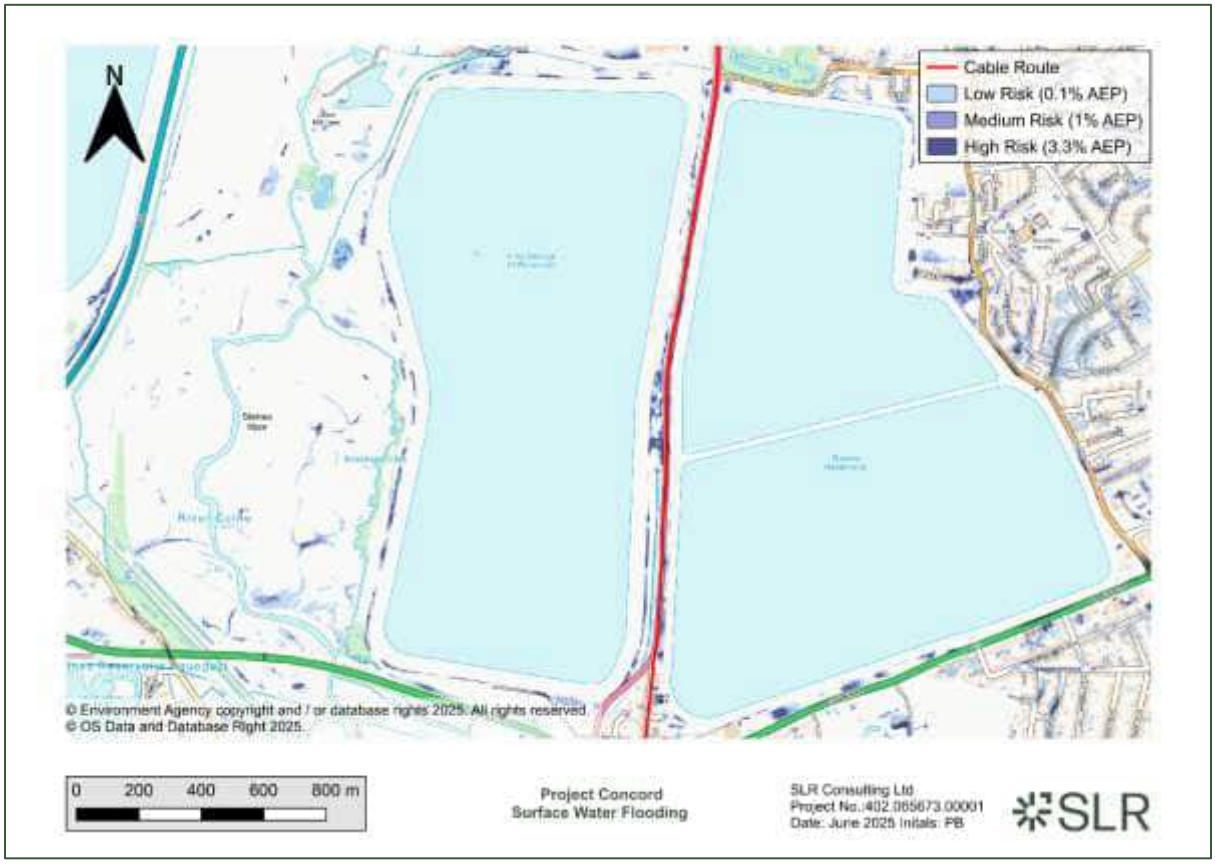
Given that all of the areas of elevated surface water flood risk relate to depressions adjacent to the highway and not the actual route of the proposed cable (which is mostly along the highway in this area), the surface water flood risk along this section is considered to be low and is not considered further.

Section 02

This section follows the A3044 southwards between the Staines Reservoirs and the King George VI Reservoirs. Conceptually, water from the raised flanks of the reservoirs would drain towards the base of the artificial valley created between the reservoirs; however this catchment is very small.

Mapping indicates that the majority of the section along the A3044 is indicated to be at very low risk of surface water flooding. However, there are pockets of low to high surface water flood risk indicated in several hotspots of high surface water flood risk. This is demonstrated in Figure 6.

Figure 6: Spelthorne Council, Section 02, Surface Water Flooding



An examination of flood depths indicates that no areas along the A3044 where depths could exceed 0.9m. However, there are isolated areas where flood depths could reach up to 0.6m (although mostly potential depths are lower) during a low probability (0.1% AEP) storm event.

An examination of the local topography indicates that these flood depths relate to ditches that run parallel to the road and are assumed to be designed to collect runoff from the flanks of the reservoirs. The presence of these ditches means that significant flooding on the road is highly unlikely.

Given that all of the areas of elevated surface water flood risk relate to depressions adjacent to the highway and not the actual route of the proposed cable (which is completely along the

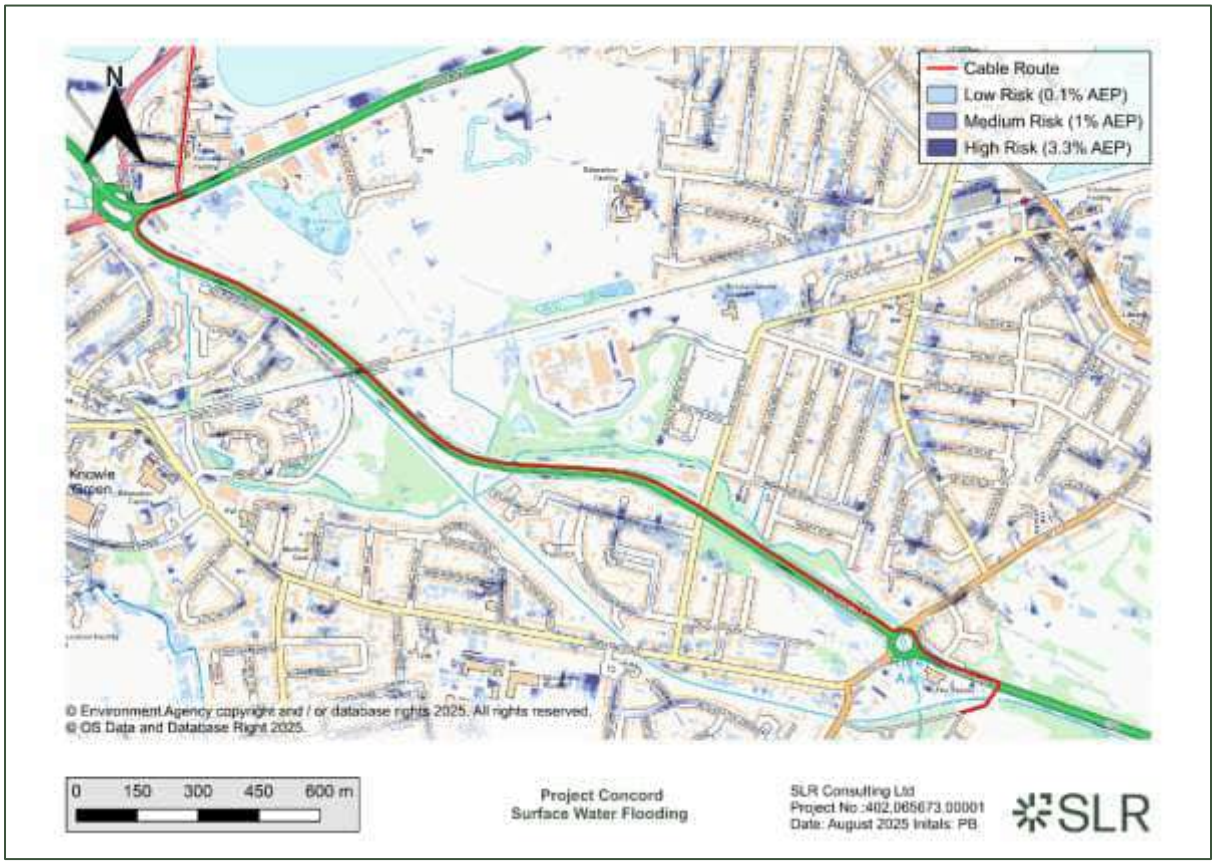
highway in this area), the surface water flood risk along this section is considered to be low and is not considered further.

Section 03

This section is from Stanwell New Road and the Crooked Billet Roundabout eastwards along the A308. As the A308 is raised above the local topography, it is expected that the surface water flood risk to the road would be very low.

Mapping indicates that the majority of the section along the A308 is indicated to be at very low risk of surface water flooding. However, there are pockets of low to high surface water flood risk indicated at each end of the bypass and towards the centre of the bypass itself. This is demonstrated in Figure 7 and in wider maps demonstrated within Appendix C.

Figure 7: Spelthorne Council, Section 02, Surface Water Flooding



An examination of flood depths indicates that expected flood depths along this section do not exceed 0.6m. There are pockets of surface water flood risk towards London Road (western extent of A308) and towards Kingston Road (eastern extent of A308) where depths could exceed 0.3m during the low probability (0.1% AEP) storm event and shallow flooding is predicted for more regular storm events (3.3% AEP).

If such flooding occurred during the period of construction, there is a potential for the construction process to be disturbed or for any temporary landforms associated with the construction process to alter the storage and conveyance of floodwater. The surface water flood risk across this section during this construction phase is therefore considered further within Section 5.0 alongside appropriate control measures.

4.3.4 Flooding from Groundwater

Groundwater flooding can be defined as the emergence of water from the ground due to the water table bisecting the land surface. Inherently, for a subterranean development, groundwater flooding would be defined as the water table reaching the level of the subterranean feature. For groundwater flooding to occur, the underlying geology must support groundwater storage and flow.

As described in Section 2.5, bedrock geology of this section of the cable route is indicated to be the London Clay (Unproductive Strata) overlain by varying superficial geologies. At the north of the Spelthorne part of the route, the superficial geology consists of deposits of Alluvium (Secondary A), Shepperton Gravel member (Principal) and Taplow Gravel member (Principal).

Towards the south (south of the reservoirs) there is a small area of Langley Silt Member (unproductive) before the route heads westward into further deposits of Alluvium and Kempton Park Gravel Member (Principal).

Clearly, within the area of the Langley Silt Member both the superficial and bedrock geologies would not support groundwater flows and, as such, the groundwater flood risk within this area would be low.

Conceptually, elsewhere shallow groundwater could be present within the permeable superficial deposits perched on top of the impermeable London Clay deposits. Mapping indicating areas susceptible to groundwater flooding is contained within the SFRA and the Surrey Local Flood Risk Management[22]. These sources confirm that where the route passes through areas with permeable superficial deposits there is a '*potential for groundwater flooding to occur at the surface'* (Class C). The area of highest risk is considered to relate to where the Kempton Park Gravel, Taplow Gravel Member, Shepperton Gravel Member and Alluvium are present.

The presence of this permeable superficial geology, directly connected to the River Thames and other watercourses in the Borough, creates pathways for groundwater and potential for groundwater flooding within the Borough of Spelthorne. Groundwater flooding can worsen when water levels in local watercourses are raised, as seen in historic flooding in 2014 where groundwater flooding was widespread throughout the Borough.

Once completed, the cable will be sealed with the trench backfilled with a binding layer of Cement Bound Sand (CBS) and native soil. The CBS layer and the backfill will aim to replicate the natural conditions of the soil to ensure that the infilled trench does not form a preferential pathway for groundwater. If this is ensured, groundwater flooding would not pose a risk to the completed cable, and the completed and installed cable will not alter the potential for groundwater flooding.

During the construction phase, there is a risk of groundwater emergence within any excavations undertaken. Appropriate flood risk mitigation would be required either to work the excavations wet or to dewater. These measures are covered within 5.3.

If these measures are undertaken, then the groundwater can be managed and would be considered a low risk.

22 Surrey Local Flood Risk Management Strategy, 2017 -2032, Surrey County Council as Lead Local Flood Authority, the Surrey Flood Risk Partnership board, 2017

4.3.5 Flooding from Sewers and Water Mains

Flooding from sewers and water mains occurs due to an exceedance of sewer capacity, blockages in the sewer network or a failure of a pipe within the network. This can lead to flooding that follows the prevailing slope and hence can be similar to that of surface water flooding.

Once the cable route is complete, the cable will be buried to a minimum depth of 900mm and the ground will be reinstated above to the current levels. The completed cable will therefore not be at risk of flooding and the completed cable will also not affect the storage and or conveyance of runoff.

On this basis, the risk associated with sewers and water mains posed to and arising from the ongoing presence of the proposed cable route (once constructed) is considered negligible and is not considered further.

Section 01

This section follows Horton Road eastwards towards the A3044.

Affinity Water water mains plans (Appendix D) indicate a 4-inch water main along the length of Horton Road through Stanwell Moor. Several other water mains are present along the side streets in the vicinity of the cable route. As the cable route heads eastwards along Horton Road towards the A3044 the route is joined by a further 6-inch water main.

Thames Water plans (Appendix D) indicate that a foul rising main heading in an eastern direction along Horton Road from Junction 14. The foul rising main (pumped) becomes a foul sewer (flowing under gravity) at the junction of Horton Road and Flintlock Close where it continues along Horton Road. The foul water sewer continues in a southern direction along Horton Road through Stanwell Moor till it heads westwards along Leylands Lane. At its eastern extent flows along Horton Road heading westwards along Horton Road before it heads southwards along Hithermoor Street.

For the section of the route that runs along the Horton Road, a failure (such as a surcharge or burst) of the foul water sewers and the water mains present along the route could cause flooding similar to surface water flooding. Flood depths would likely be greater if larger water mains in the vicinity of the route fail. Since the completed cable will be buried at a minimum depth of 900mm, it will not be at risk of flooding itself. The flood risk posed by sewers and water mains therefore relates to the construction phase. Measures to mitigate surface water flood risk to the cable route are outlined within Section 5.0. A failure of the pumping station (within Slough Council land) on the western extent of the foul rising main is considered under Section 4.4.7.

If these measures are undertaken, then the flood risk from sewers and water mains would not be considered any further.

Section 02

This section follows the A3044 southwards between the Staines Reservoirs and the King George VI Reservoirs.

Affinity Water water main mapping (Appendix D) indicates a large (450mm) water main running in a north-to-south orientation along the A3044 between the two reservoirs. Thames Water plans indicate there are no Thames Water assets within this area.

For the section of the route that runs along the A3044, a failure (such as a surcharge or burst) of the water mains present along the route could cause flooding similar to surface water flooding. Flood depths would likely be greater if larger water mains in the vicinity of the route fail. Since the completed cable will be buried at a minimum depth of 900mm, it will not be at risk of flooding itself. The flood risk posed by sewers and water mains therefore relates to the construction phase. Measures to mitigate surface water flood risk to the cable route are outlined within Section 5.0.

If these measures are undertaken, then the flood risk from sewers and water mains would not be considered any further.

Section 03

This section is from Stanwell New Road and the Crooked Billet Roundabout eastwards along the A308.

Affinity Water water main mapping (appendix D) indicates a series of water mains along the route these include:

- A 10-inch pipe running along Kingston Road
- A 4-inch pipe running in a northeast to southwest orientation through the Fordbridge Roundabout
- A 12-inch pipe running along the A308 Staines by Pass. This pipe is indicated to run along the northern boundary of the A308 before it runs parallel to the A308 to the north within Shortwood Common for a section between the railway bridge and London Road.
- Through the London Road roundabout, there is a series of water mains (6, 10 and 15 inch) that run in a northeast to southwest orientation.

Thames Water plans (Appendix D) indicate foul water sewers running in an eastward then a northward direction through the southern portion of the London Road roundabout. The majority of the Staines by-pass (A308) is indicated to be free from surface and foul water sewers but there is a foul water sewer located towards the eastern extent of the bypass. The foul water sewer that runs along the bypass and across the Fordbridge Roundabout towards the Kingston Road is described as ‘Western Low Level Sewer (Upper Section)’. The foul water sewer is joined by further sewers at the Kingston Road Roundabout.

For the section of the route that runs along the A308 there are no indicated foul water sewers. There is a water main located to the north, however, the flood risk would be minimal as the A308 is raised above the surrounding topography. For the remainder of the route (east of the A308), a failure (surcharge or burst) of the foul water sewers or the water/foul mains present on site would cause flooding similar to that of the surface water flooding. Flood depths would likely be deeper from a failure of the larger water mains present in the vicinity of the route.

Inherently, as the completed cable will be buried to a minimum depth of 900mm it will not be at risk of flooding. The flood risk posed by sewers and water mains therefore relates to the construction phase, measures to mitigate the surface water flood risk to the cable route are outlined within Section 5.0.

If these measures are undertaken, then the flood risk from sewers and water mains would not be considered any further.

4.3.6 Flooding from Reservoirs, Canals and other Artificial Sources

The Spelthorne Council part of the proposed Laleham cable route is indicated to be at risk of flooding from the King George VI, Staines and Queen Mary Reservoirs. However, it is noted that the Environment Agency's advice with reference to the flood risk arising from reservoirs states:

'Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, we ensure that reservoirs are inspected regularly and essential safety work is carried out.'

Reservoir flood maps are typically used for strategic emergency planning purposes and provide a '*worst case'* scenario and they are not generally suitable to inform a site-specific FRA. The risk of flooding from reservoirs following stringent maintenance is near zero and will not be considered further.

The Staines Reservoir Aqueduct is used to transfer water to and from the reservoirs around Staines. As such, the water level within this asset is controlled by a series of pumping stations and sluice gates. Flooding from the reservoir is considered further in Section 4.3.7.

The risk of flooding from reservoirs, canals and other artificial sources is negligible and is not considered further.

4.3.7 Flooding from Infrastructure Failure

There are no significantly raised flood defences in the area of the proposed cable route. Only a small section of raised defence and a small flood storage area are present in proximity to the route. A failure of this local system is unlikely to significantly alter the risk posed along the cable route.

The River Ash and the Staines Aqueduct water levels are controlled by a series of sluice gates and pumping stations, this includes EA-operated sluice gate controls that flow from the River Colne to the River Ash which are designed to automatically adjust water levels to maintain base flow. There is a residual risk of failure along these systems which could exacerbate flood risk. This occurred in February 2014 where the opening of the River Ash sluice gate in combination with water from the various watercourses getting into the aqueduct would have also caused levels to rise and spill into the River Ash, causing flooding along the River Ash.[23]

Whilst infrastructure failure remains a risk as the infrastructure is EA-maintained and used to control flows from a residential area, the likelihood of failure is considered to be low. Through the construction phase the residual risk can be managed through the use of flood warning and evacuation procedures outlined in Section 5.0.

4.4 Slough Council

The section of the cable route that is within the jurisdiction of Slough Council relates to the most northwestern section of the cable towards the data centre.

23 S19 Flood Investigation Report River Ash and Knowle Green Area, SCC, April 2015. https://www.surreycc.gov.uk/__data/assets/pdf_file/0004/50827/S19-Report-River-Ash-Area.pdf

Heading from the data centre away to the south, the cable follows Poyle Road to the south and then along Horton Road to the east, where it enters Hillingdon Council at Junction 14 of the M25. This section covers an approximate distance of 916m and includes L-1, a crossing of the Wraysbury River.

4.4.1 Flooding from the Sea or Tidal Flooding

The Slough Council section of the southern cable route is located remote from the coast and is situated at an elevation of over 19m aOD.

On this basis, the risk associated with sea or tidal flooding to any proposed cable route is considered negligible and is not considered further.

4.4.2 Flooding from River or Fluvial Flooding

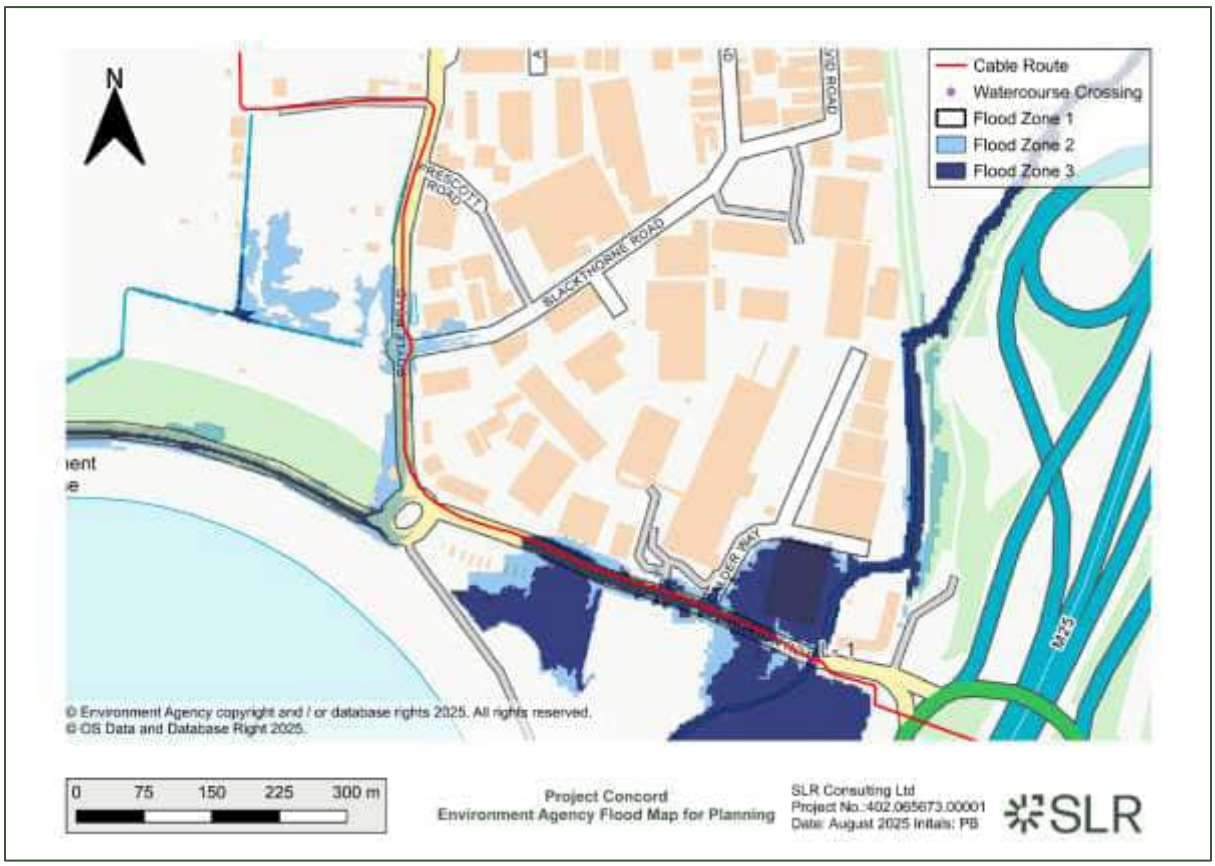
Fluvial flooding from rivers occurs when water levels rise higher than bank levels, causing floodwater to spill across adjacent land. Once the cable route is complete, the cable will be buried to a minimum depth of 900mm and the ground will be reinstated above to the current levels. The completed cable will therefore not be at risk of flooding and the completed cable will also not affect the storage and or conveyance of fluvial flood water.

On this basis, the risk associated with river or fluvial flooding posed to and arising from the ongoing presence of the proposed cable route (once constructed) is considered negligible and is not considered further.

If however, fluvial flooding occurred during the construction phase, it is feasible that the construction process could be disturbed and / or adverse impacts might arise from the temporary structure of landforms. The spatial distribution of fluvial flood risk is therefore considered further to confirm if control measures need to be put in place.

Most of the Slough Council section of the route lies within Flood Zone 1 which is defined as land with less than 0.1% (1 in 1,000) annual chance of flooding from fluvial sources apart from two sections. One section along Poyle Road and Horton Road relates to flooding from the Wraysbury River. This is demonstrated below in Figure 8 which demonstrates flooding from the Wraysbury River spreading westwards and flooding from the River Colen spreading eastwards.

Figure 8: Slough Council, Flood Zones



A section of Flood Zone 2 is indicated at the Blackthorne Road roundabout southwards to the Horton Road roundabout. Where Flood Zone 2 is defined as land which has between 0.1% and 1% (1 in 100 to 1 in 1000) annual probability of flooding from rivers. This flood zone 2 relates to flooding from the Colne Brook to the west. The section is not indicated to be located in the Environment Agency's (EA) recorded flood outline dataset.

A larger section of Flood Zone 2 and 3 is indicated along Horton Road, originating from the Wraysbury River. Based on the Slough SFRA[24] the Flood Zone 3 has been designated as 'Proxy' Flood Zone 3b. Within Slough the Flood Zone 3b is only defined for the Lower Colne and Colnebrook. Therefore, within Slough the EA Flood Zone 3a has been used as a proxy for Flood Zone 3b for the rest of Slough Borough.

The extent of Flood Zone 3 extends to the south along the floodplain of the Wraysbury River and westwards along Horton Road which is depressed below the surrounding area (by approximately 0.4m).

Detailed mapped outputs indicate that in some places along the route, close to L-1, the annual probability of fluvial flooding along the route is greater than 1 in 30. This is therefore considered to be a high-risk area.

24 Local Plan for Slough, Slough Borough Council, Strategic Flood Risk Assessment, Level 1, March 2021. Accessed at: https://www.slough.gov.uk/downloads/file/2664/strategic-flood-risk-assessment-sfra-march-2021-draft-revision-4

If such flooding occurred during the period of construction this could result in a risk to the construction staff and processes and also minor impacts to the severity of flooding on adjacent land. This flood risk posed to the construction phase will however be mitigated by appropriate control measures outlined in Section 5.0.

4.4.3 Flooding from Surface Water and Overland Flow

Surface water flooding occurs when heavy rainfall exceeds the capacity of the ground or localised drainage networks to receive flows and water propagates across the ground surface ponding in any low areas. The potential for such flooding is often exacerbated by wet antecedent conditions or poor maintenance of drainage systems.

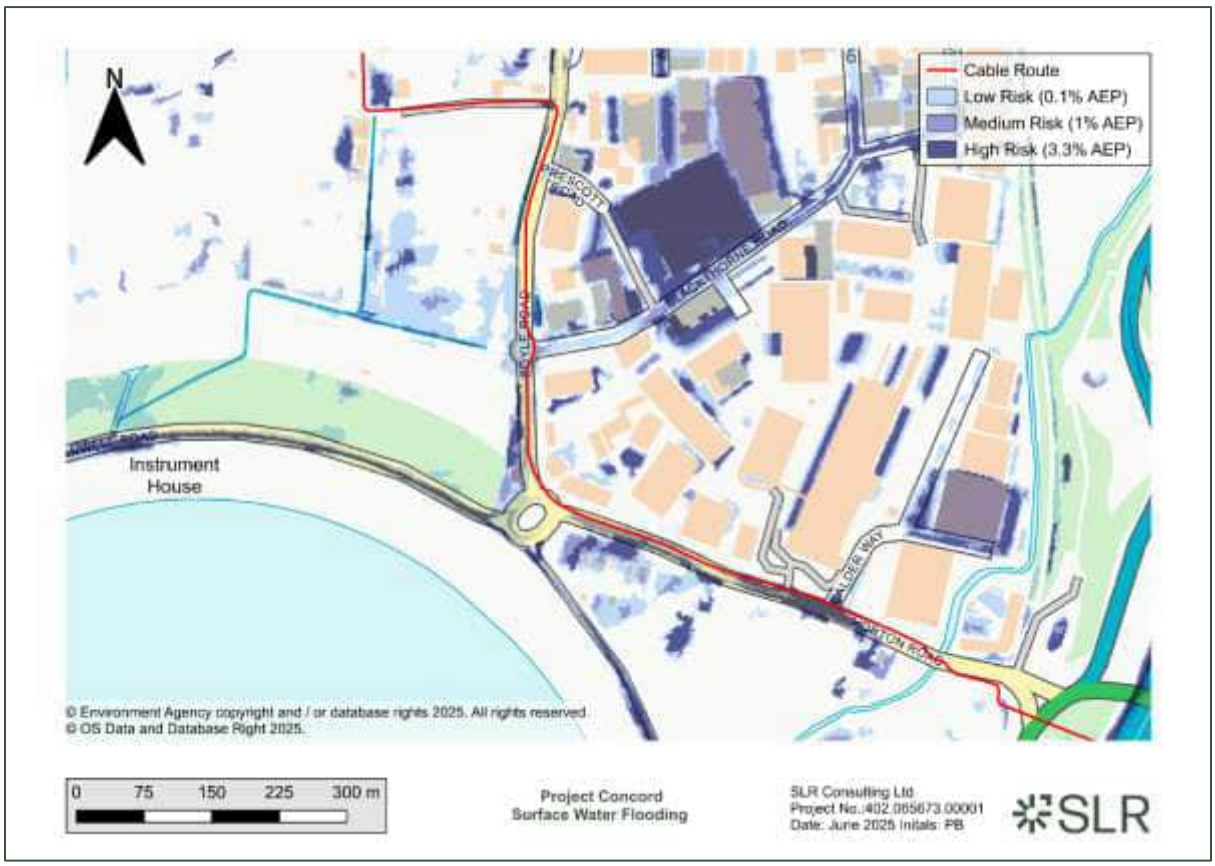
Once the cable route is complete, the cable will be buried to a minimum depth of 900mm and the ground will be reinstated above to the current levels. The completed cable will therefore not be at risk of flooding and the completed cable will also not affect the storage and or conveyance of surface water runoff.

On this basis, the risk associated with surface water flooding posed to and arising from the ongoing presence of the proposed cable route (once constructed) is considered negligible and is not considered further.

If however, surface water flooding occurred during the construction phase it is feasible that the construction process could be disturbed and / or adverse impacts might arise from the temporary structure of landforms. The spatial distribution of surface water flood risk is therefore considered further to confirm if control measures need to be put in place.

The Risk of Flooding Surface Water (RoFSW) map[20] provided by the EA includes mapping of surface water flood risk[21]. Surface water modelling has been undertaken in order to establish areas at risk of surface water flooding based on the latest hydrological techniques and surface terrain data. Extract from this mapping along the proposed Laleham cable route are presented in Appendix C and are displayed below in Figure 9.

Figure 9: Surface Water Flood Risk Slough



The Slough Council section of the Laleham cable route does not pass through a Critical Drainage Area (CDA).

Poyle Road

The northernmost section of the cable route is along a farm track eastwards and then southwards along Poyle Road. It then turns eastwards again along Horton Road. The local topography is relatively flat with both Poyle Road and Horton Road local low points. Consequently, surface water flooding would follow the prevailing topography and gather within local depressions. The majority of these depressions are a series of ditches that run parallel to Poyle Road on its western side. There is one small depression on the eastern side toward the Poyle Road and Blackthorne Road roundabout.

Near the farm track to the north of the cable route, there are isolated areas of surface water flooding both to the north and south. These areas have a high risk of flooding, with the areas expanding slightly during larger storms.

On Poyle Road, where the cable route approaches, surface water flooding is indicated to predominantly remain within the ditch system; however, there is a high surface water flooding are indicated at the entrance to the access track. Flood depths along the entrance of the access track do not exceed 0.3m and would remain passable. This flood estimate is conservative, as it is likely that the ditch passes beneath the access track and water would not become trapped in this location.

Heading southwards along Poyle Road, surface water flood risk is limited to the ditches on either side of the road. This is till the Blackthorne Road roundabout, where there is a low to

medium surface water flooding pathway at the roundabout. Flood depths at this location are indicated to not exceed 0.3m and not to exceed 0.2m in all but the low-risk (0.1% AEP storm) scenario.

South of the roundabout, there is a low flood risk along the road, which increases to a medium flood risk for any topographic lows. There is a high flood risk area indicated to the west, within a further ditch to the north of the Golden Cross Pub. Flood depths do not exceed 0.3m along the road and do not exceed 0.2m in all the low-risk scenarios. Flood depths within the ditch are indicated to be higher and could exceed 0.9m but would be contained within the ditch system.

Horton Road.

As described above Horton Road acts as a local low point, and as such surface water from higher ground within Poyle Industrial Estate to the north and south would gather along the road during a storm event. This is demonstrated by a flood risk area along Horton Road from the roundabout to L-1 ranging between low risk in the highest elevation areas and high risk in the area where Horton Road is lower than the surrounding land adjacent to Calder Way. Lastly, there is a small ditch along the southern side of the road for approximately half the length of the road. The ditch is indicated to have a depth of 0.5 to 0.6m.

Flood depths along this section are indicated to exceed 0.3m for the majority of the road, apart from a small section at the junction of Calder Way. Flood depths do not exceed 0.6m along the road but could exceed within the ditch system. The areas indicated to exceed 0.6m are shown to be contained within the ditch and do not flow onto the road.

Review of the topographical variation between flooded extents with a depth greater than 0.3m and areas indicated with no flooding shows only a 0.1 to 0.2m difference. This suggests that flooding here cannot be more than 0.3m, as the floodwater would have spread further across the area.

Overall Flood Risk

The majority of the Slough Council section of the route is at low risk of surface water flooding. Flood depths are indicated not to exceed 0.3m along the majority of the route with surface water limited below 0.6m in localised depressions.

If flooding occurred along these channels / flow pathways during the period of construction, there is a potential for the construction process to be disturbed or for any temporary landforms associated with the construction process to alter the storage and conveyance of floodwater. The surface water flood risk across this section during this construction phase is therefore considered further within Section 5.0 alongside appropriate control measures.

Based on adequate construction methods being implemented the surface water flood risk to the cable route is considered to be low and is not considered further.

4.4.4 Flooding from Groundwater

Groundwater flooding can be defined as the emergence of water from the ground as a result of the water table bisecting the land surface. Inherently for a subterranean development, groundwater flooding would be defined as the water table reaching the level of the subterranean feature. For groundwater flooding to occur, the underlying geology must support groundwater storage and flow.

As described in Section 2.5, bedrock geology of this section of the cable route is indicated to be the London Clay(unproductive) overlain under the Poyle Road by superficial deposits of

Alluvium (Secondary A) and Horton Road underlain by the Shepperton Gravel member (Principal). Based on local boreholes (TQ07NW2 and TQ07NW3), the clay layers are approximately 3.5-4.5m below ground level.

Conceptually, shallow groundwater could be present within the permeable superficial deposits perched on top of the impermeable London clay deposits. BGS groundwater susceptibility mapping is found within the Slough SFRA[24] and indicates that the section of the route is located in an area that has '*potential for groundwater flooding to occur at the surface'* (Class C).

Borehole records (TQ07NW2) at the Horton Road roundabout indicate a water strike at 1.8m below ground level (within the superficial deposits) in October 1943, with a further borehole (TQ07NW3) located adjacent to the Wraysbury River indicating a water strike 0.9m below ground level. The water strike at the latter is roughly in continuity with the water level of the Wraysbury River.

Furthermore, historic landfills (land to the west of Poyle Road), the backfilling of waste from sites excavated for sand and gravel and reservoirs such as the Wraysbury reservoirs can alter the flow and level of groundwater locally.

The emergence of groundwater at the surface is likely to be in the low areas surrounding the Wraysbury River and within local depressions (surface water ditches and former extraction sites).

Once completed, the cable will be sealed with the trench backfilled with a binding layer of Cement Bound Sand (CBS) and native soil. The CBS layer and the backfill will aim to replicate the natural conditions of the soil to ensure that the infilled trench does not form a preferential pathway for groundwater. If this is ensured, groundwater flooding would not pose a risk to the completed cable, and the completed and installed cable will not alter the potential for groundwater flooding.

During the construction phase, there is a risk of groundwater emergence within any excavations undertaken. Appropriate flood risk mitigation would be required either to work the excavations wet or to dewater. These measures are covered within 5.3.

If these measures are undertaken then the groundwater can be managed and would be considered a low risk.

4.4.5 Flooding from Sewers and Water Mains

Utility plans contained within Appendix D indicate that the section within Slough Council is within the Thames Water supply area. Within the plans provided by Affinity Water (outside Affinity Water Supply Area) an 'Adit / Tunnel' is indicated running north to south through Poyle industrial estate. No further information on the size, depth or use of this adit /tunnel is given or could be found via online searches. It is possible this adit relates to groundwater supply; however, this has not been confirmed nor is this area within a Source Protection Zone.

Foul water flows are indicated to be routed under gravity westwards along Horton Road and then northwards along Poyle Road towards a pumping station located along the western edge of the Poyle Road / Blackthorne Road roundabout. Foul water flows are also routed under gravity along Poyle Road southwards north of the pumping station and westwards along Blackthorne Road. Two foul rising mains head southwards along Poyle Road from the pumping station, splitting westwards along Stanwell Road and eastwards along Horton

Road. The foul rising main is indicated to cross the Wraysbury River via a 'Conduit Bridge'. Flooding from the failure of the pumping station is considered in Section 4.4.7.

Whilst no surface water sewers are indicated to be operated by Thames Water within this area, it is assumed that highway drainage present on the roads would be drained via gravity towards ditches and local watercourses.

A network of both distribution mains (100mm) and trunk mains (200mm) is indicated to be located along Horton and Poyle Road. The water mains stop short of the Wraysbury River and are indicated not to cross the river.

In the event of failure (surcharge or burst) of the foul water sewers or the water/foul mains present on site would cause flooding similar to that of the surface water flooding. Flood depths would likely be deeper from a failure of the trunk mains and rising foul water mains.

Inherently, as the completed cable will be buried to a minimum depth of 900mm it will not be at risk of flooding. The flood risk posed by sewers and water mains therefore relates to the construction phase, measures to mitigate the surface water flood risk to the cable route are outlined within Section 5.0.

If these measures are undertaken, then the flood risk from sewers and water mains would not be considered any further.

4.4.6 Flooding from Reservoirs, Canals and other Artificial Sources

The section of the cable is indicated to be at risk of flooding from the Wraysbury Reservoir, which is located 120m to the southwest at its closest point. However, it is noted that the Environment Agency's advice with reference to the flood risk arising from reservoirs states:

'Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, we ensure that reservoirs are inspected regularly and essential safety work is carried out.'

Reservoir flood maps are typically used for strategic emergency planning purposes and provide a 'worst case' scenario and they are not generally suitable to inform a site-specific FRA. The risk of flooding from reservoirs following stringent maintenance is near zero and will not be considered further.

There are no canals or other artificial sources in the vicinity of the site which could potentially cause flooding at the site.

The risk of flooding from reservoirs, canals and other artificial sources is negligible.

4.4.7 Flooding from Infrastructure Failure

There is no mapped infrastructure along any waterways within this section of the cable route. The banks of both the Rivers Wraysbury and the Colne Brook are indicated to be 'natural high ground' with no flood defences noted.

The nearest asset along the River Wraysbury is a control gate (Asset ID: 194163) located approximately 1km upstream of the site at the point where the Wraysbury River splits from the Poyle Channel. While uncertain of the full impacts, it can be assumed that a failure of the control gate in an open position would increase the downstream water levels within the Wraysbury River. There is a residual risk that a failure of the sluice gate, an EA-maintained

asset, could occur at the same time as a large flood event. Given the maintenance schedule, the risk of this occurring is very low probability and with the flood warning and evacuation procedures locally, it would not pose a risk to construction workers. A failure of this nature would not impact the finished cable.

There is a series of ditches located to the west of Poyle Road and assumed to be connected by a series of culverts and outfalls. Within the SFRA[24] it is noted that flooding along Poyle Road was caused by '*Blocked outfalls due to an unmaintained slip road'* in May 2016. No further details of this event could be found.

Whilst the responsibility of maintaining existing drainage systems does not fall to the construction staff, regular inspection of the integratory of these structures and associated escalation procedures would form part of the Construction Environmental Management Plan (CEMP) when work is undertaken adjacent to these structures. Additionally, the construction methods outlined in Section 5.0 would ensure that there would be no increased risk of blockage associated with this project

A pumping station is noted on the western extent of the Poyle Road and Blackthorne Road roundabout. A failure of the pumping station would cause a surcharge of foul water flows in the vicinity of the roundabout. The majority of the flows would likely drain into the series of ditches in the vicinity of the roundabout; however, some shallow flooding would be expected locally around the pumping station. The risk of this would be considered by adequate measures within Section 5.0.

Overall, the risk of flooding from infrastructure failure is considered low and is not considered further.

4.5 Hillingdon Council

A small section, approximately 272m, is located within Hillingdon Council. This area covers Junction 14 of the M25 (Poyle Interchange) which will use a trenchless technique to direct the cable under the interchange and the M25.

4.5.1 Flooding from the Sea or Tidal Flooding

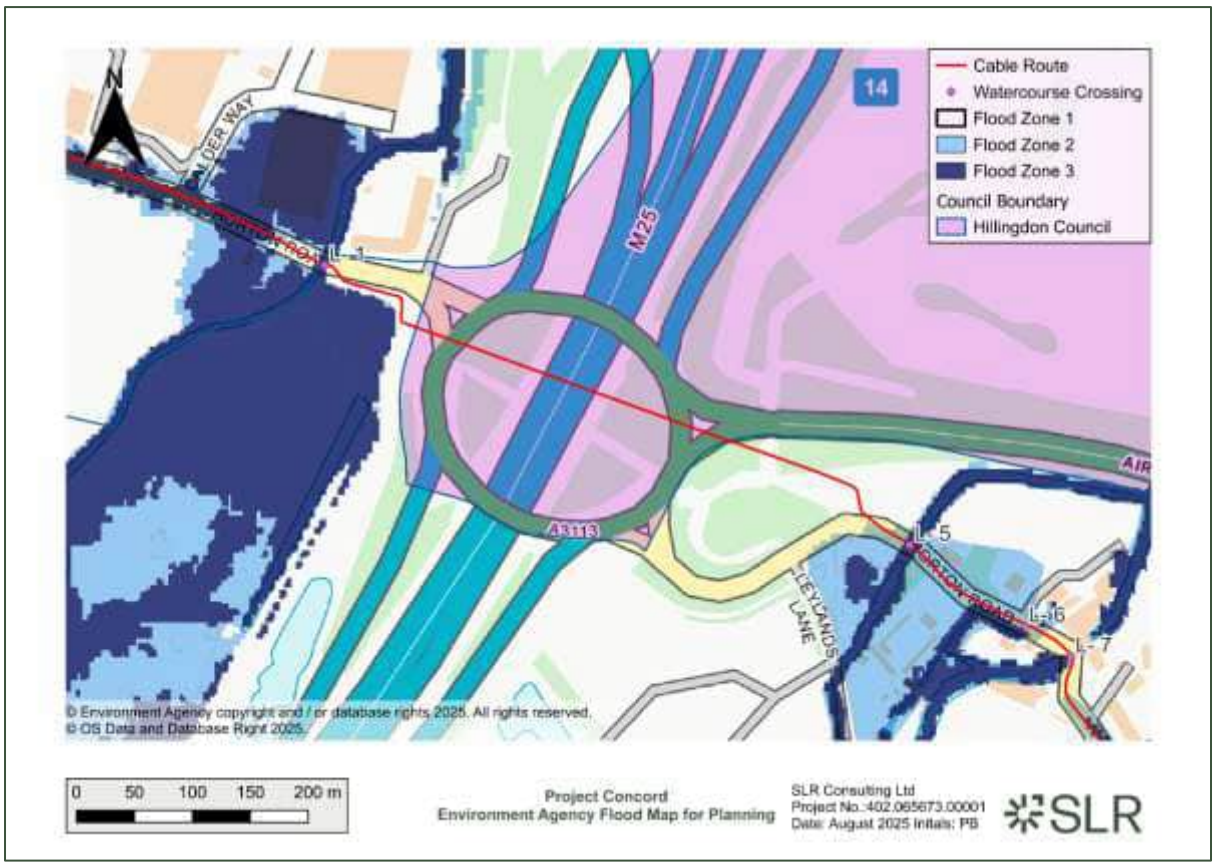
The Hillingdon Council section is located remote from the coast and is situated at an elevation of over 20m aOD. On this basis, the risk associated with sea or tidal flooding to any proposed cable route is considered negligible and is not considered further.

4.5.2 Flooding from River or Fluvial Flooding

The Hillingdon Council section lies entirely within Flood Zone 1 which is defined as land with less than 0.1% (1 in 1,000) annual chance of flooding from fluvial sources. The nearest areas of Flood Zone 2 or 3 are located over 30m to the west and relate to flooding along the Wraysbury River.

This is demonstrated within Figure 10.

Figure 10: Flood Zones- Hillingdon Council



Long Term Flood Risk Information (LTFRI)[25] provided by the EA includes fluvial mapping which also shows that the entirety of the site is located within an area of Very Low Risk (chance of flooding of less than 0.1% AEP).

The site is not indicated to be located in the Environment Agency's (EA) recorded flood outline dataset. The nearest flood outline is over 70m to the southwest of the site and relates to flooding from the Wraysbury River overtopping its banks during December 2002 and January 2003.

Given the above fluvial flood risk is assessed to be negligible and is not considered further.

4.5.3 Flooding from Surface Water and Overland Flow

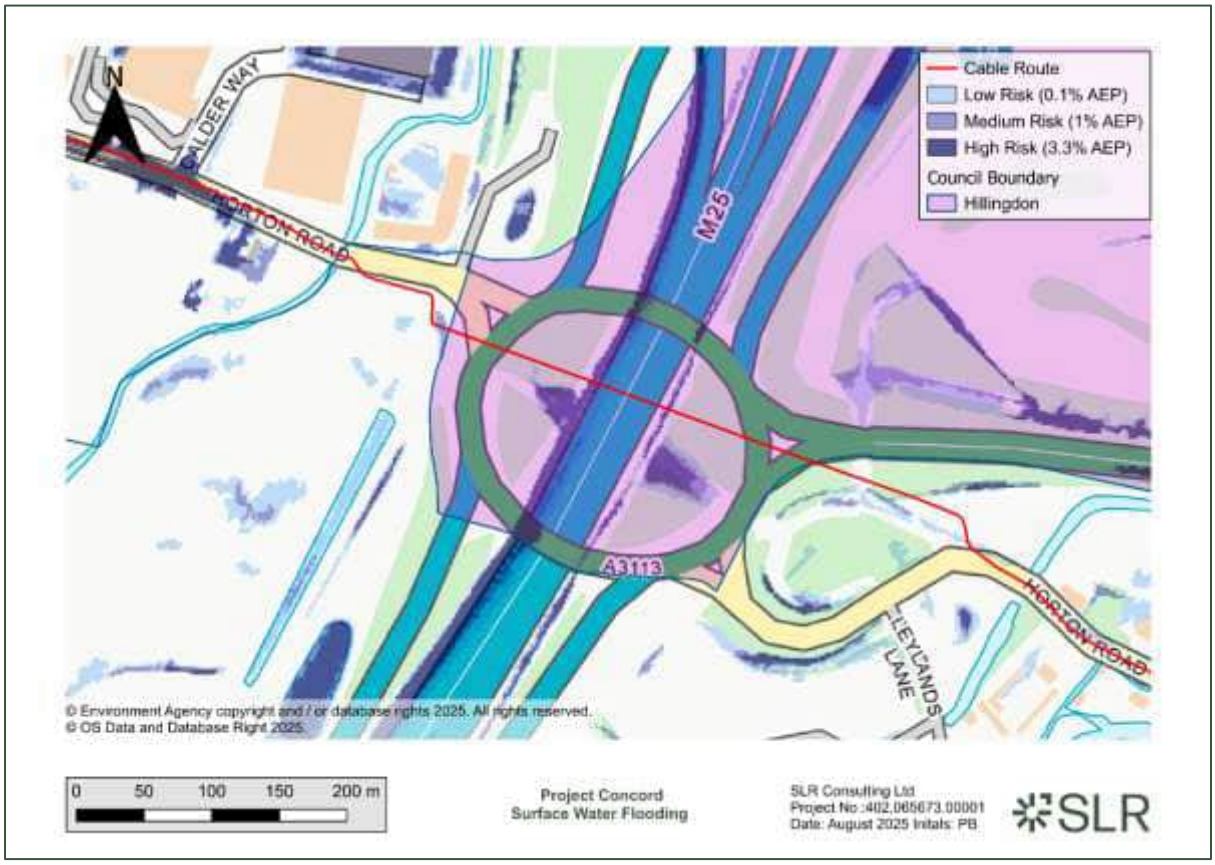
The M25 is incised into the local topography and is 7-8m below the raised roundabout of the junction. Several ditches and channel drains collect highway drainage in the surrounding area. Surface runoff along these channels and along the M25 as well as potentially the land immediately adjacent to these channels, is considered to be possible.

The Risk of Flooding Surface Water (RoFSW) map[20] provided by the EA includes mapping of surface water flood risk. Surface water modelling has been undertaken in order to establish areas at risk of surface water flooding based on the latest hydrological techniques

25 Long Term Flood Risk Information Service, available at https://check-long-term-flood-risk.service.gov.uk/risk (Accessed June 2025)

and surface terrain data. An extract from this mapping along the proposed Laleham cable route are presented in Appendix C and is displayed below in Figure 11.

Figure 11: Hillingdon Council- Surface Water Flooding



This section of the route will be constructed using a trenchless solution and as such the cable will be laid at a depth of at or greater than 900mm below M25 and will be installed using Horizontal Directional Drilling (HDD).

Based on this, it is concluded that the proposed cable, when complete, will not be at risk of flooding and that the development, once finished, will have no impact on flooding along this channel or flow pathway.

Any excavation will be located on the western or eastern extents of the trenchless section, which is towards the western edge of Hillingdon council and within Spelthorne to the east. At the western edge of the trenchless section, a high-to-low flood risk area is located. This relates to a shallow (~0.6m deep) drain that drains in a northern and then western direction. Flood depths of 0.6m are not indicated to be reached or exceeded with depths of 0.3m more widely demonstrated within the drain. Surface water is not indicated to exceed the drain.

At the eastern extent of the trenchless section, the surface water flood risk is considered very low. There are several ditches within this area, however, surface water flooding is not indicated to exceed the ditches.

The surface water flood risk to this section is considered low and is not assessed further.

4.5.4 Flooding from Groundwater

Groundwater flooding can be defined as the emergence of water from the ground as a result of the water table bisecting the land surface. Inherently for a subterranean development, groundwater flooding would be defined as the water table reaching the level of the subterranean feature. For groundwater flooding to occur, the underlying geology must support groundwater storage and flow.

As described in Section 2.5, bedrock geology of this section of the cable route is indicated to be the London Clay (unproductive) overlain in elevated areas by superficial deposits of Alluvium (Secondary A) with the Shepperton Gravel member (Principal) found locally. Local borehole (TQ07NW858) indicates that the superficial deposits are to a depth of 4.2m bgl (15.64m aOD) with London Clay located beneath.

The West London Strategic Flood Risk Assessment[26] web mapping indicated that the area is within the highest area for the susceptibility to groundwater flooding (EA 2017) and is within an area of increased potential for elevated groundwater due to permeable superficial deposits. Conceptually, groundwater could be found within the Alluvium and Shepperton Gravel members perched on top of the London Clay. Local borehole records support this with water perched on top of the London Clay 3-4 below ground levels.

It is assumed that the deepest sections underneath the M25 would be within the London Clay and as such, would not be at risk of surface water.

Once completed, the cable will be sealed with the trench backfilled with a binding layer of Cement Bound Sand (CBS) and native soil. The CBS layer and the backfill will aim to replicate the natural conditions of the soil to ensure that the infilled trench does not form a preferential pathway for groundwater. If this is ensured, groundwater flooding would not pose a risk to the remainder of the completed cable within the permeable superficial geology and ensure that the completed and installed cable will not alter the potential for groundwater flooding.

During the construction phase, there is a risk of groundwater emergence within any excavations undertaken. Appropriate flood risk mitigation would be required either to work the excavations wet or to dewater. These measures are covered within 5.3.

If these measures are undertaken, then the groundwater flood risk can be managed and will be considered a low risk.

4.5.5 Flooding from Sewers and Water Mains

Utility plans contained within Appendix D indicate an 180mm Affinity Water distribution water main running under Junction 14 of the M25. Thames Water plans indicate a further foul rising main running approximately parallel to the Affinity Water distribution water main in an eastern direction. The foul rising main splits into two pipes as it flows under the M25 carriageway before rejoining as one pipe on the far side. Both the foul and distribution mains run to the south and parallel to the proposed cable route across the centre of Junction 14.

In the event of failure of a water main (surcharge or burst) from either the foul or distribution main the risk of flooding would be similar to that of surface water flooding. Inherently, as the

26 West London Strategic Flood Risk Assessment, London Borough of Barnet, Brent, Ealing, Harrow, Hillingdon and Hounslow, April 2018

completed cable will be buried to a minimum depth of 900mm it will not be at risk of flooding. The flood risk posed by sewers and water mains therefore relates to the construction phase, measures to mitigate the surface water flood risk to the cable route are outlined within Section 5.0.

If these measures are undertaken, then the flood risk from sewers and water mains would not be considered any further.

4.5.6 Flooding from Reservoirs, Canals and other Artificial Sources

The section of the cable is indicated to be at risk of flooding from the Wraysbury Reservoir which is located 500m to the west of this section. However, it is noted that the Environment Agency's advice with reference to the flood risk arising from reservoirs states:

'Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, we ensure that reservoirs are inspected regularly and essential safety work is carried out.'

Reservoir flood maps are typically used for strategic emergency planning purposes and provide a 'worst case' scenario, and they are not generally suitable to inform a site-specific FRA. The risk of flooding from reservoirs following stringent maintenance is near zero and will not be considered further.

There are no canals or other artificial sources in the vicinity of the site which could potentially cause flooding at the site.

The risk of flooding from reservoirs, canals and other artificial sources is negligible.

4.5.7 Flooding from Infrastructure Failure

The site is not afforded protection from flood defences and therefore there is no risk from their failure. No known pumping stations are located within the site's area.

Flooding from infrastructure failure is therefore not considered further.

4.6 Summary of Flood Screening

Table 6 summarises the flood screening assessment.

Table 6: Potential Risk Posed by Flooding Sources

Potential Source	Potential Significant Flood Risk at Site?				
	Spelthorne Council			Slough Council	Hillingdon Council
	Section 01	Section 02	Section 03		
Sea or Tidal Flooding	No			No	No
Rivers or Fluvial Flooding	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	No	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	No
Surface Water and Overland Flow	No	No	Yes During the Construction Phase, Mitigated with Control Measures Outlined	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	No

Potential Source	Potential Significant Flood Risk at Site?				
	Spelthorne Council			Slough Council	Hillingdon Council
	Section 01	Section 02	Section 03		
			within Section 5.0		
Groundwater	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0			Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0
Sewers and Water Mains	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0	Yes During the Construction Phase, Mitigated with Control Measures Outlined within Section 5.0
Reservoirs, Canals and other Artificial Sources	No			No	No
Infrastructure Failure	Residual Risk Managed through the Construction Phase			Residual Risk Managed through the Construction Phase	No

5.0 Flood Risk during the Construction Phase

5.1 Watercourse Crossings

Watercourses crossed by the cable route will be crossed via a variety of methods, including (but not limited to) open-cut channel work, on-bridge and trenchless solutions such as HDD. The determination of the appropriate method in each case will be subject to further determination at a later stage.

Any HDD will be undertaken to pass at least 1m below the bed of the channel, with the insertion and receptor sites set back from the channel by at least 8m and or outside of the Flood Map for Planning mapped extents.

Using an on-bridge or trenchless solution for the watercourses will ensure that no works are required within the floodplain of the channels. This will remove any impact on flood storage and conveyance of flows and stop the scheme from impacting the flood risk during the construction phase of the development. Once complete, the watercourses will be reinstated to their natural/existing profile and bathymetry.

It is assumed that the construction methodology for the open-cut watercourse crossings (L-1) will be influenced by factors such as water depth, duration of work, riverbed condition, and the potential for water ingress.

The basic open-cut method will include the following. The area would be surveyed prior to commencement of works to establish the environmental constraints, which will ensure that time is allocated to implement appropriate control measures. The survey will include a full understanding of whether there are any protected habitats and species neighbouring or within the vicinity. In this case, a full assessment would be conducted for viability.

A week before, final surveys and weather forecasts would be carried out to also understand the water levels and if the conditions are suitable, the operation would then be started by the access and egress points on both sides of the crossings. A Construction Design and Management (CDM) site would be established with plant and machinery brought in. Depending on the conditions of the watercourse, the temporary dam would be set up by competent operatives entering the water.

Once the dam is installed, one side will be drained with pumps running constantly during the entire lifecycle of the crossing works for contingency. The trench would be excavated once dry conditions are achieved. This process would then be repeated for the other side. The onsite conditions and methodology will be subject to wider stakeholder approval and the environmental constraints specific to each site.

The indicative timescale for the open-cut watercourse crossing work would take place over a 3-week construction program (subject to area and project) and would ensure that the minimum amount of construction time within the Flood Map for Planning mapped extents was undertaken. The allocated timescale includes

- 1 week for mobilisation and set-up of temporary works
- 1 week for excavation and reinstatement
- 1 week for demobilisation and removal of temporary works

The necessary mitigation measures to be implemented will be determined through future consultation with the Environment Agency.

The open-cut water crossing construction would only be carried out in drier weather and when water flows are low, with no indicated flood risk upstream. In line with a Flood Plan (see section 5.3), the EA flood alert notification service would be signed up for, with a depth marker installed to notify onsite staff if the river has risen above a pre-determined level.

Once trenching has been completed, the riverbed and banks would be reinstated to their natural levels to ensure that the finished cable does not impact conveyance and/or result in a loss of available storage.

Any Ordinary Watercourses (L-13) will be subject to an Ordinary Watercourse Consent from the relevant council in their role as the LLFA. For any 'Main Rivers' a Flood Risk Activity Permit from the Environmental Agency will be required.

5.2 Standoff and Exclusion Areas

No sensitive or vulnerable construction-related facility or activity would be permitted on land that is within 10m of a ordinary watercourse or within an area of elevated surface water flood risk or within areas of Flood Zone 3, as illustrated within Appendix C.

Sensitive or vulnerable construction-related facilities and activities include;

- Construction compounds
- Oil / fuel storage
- Refuelling facilities / areas
- Storage of other hazardous materials such a cement
- Parking area for plant or other vehicles
- Wheel wash facilities
- Welfare facilities
- Soil storage
- Other spoil heaps or material storage

No development shall take place unless a construction environmental management plan (CEMP) has been agreed upon. Within the CEMP measures, such as silt traps, cut of drains and earthwork management will be outlined where appropriate to ensure that sediment discharge downstream of the site will be controlled. This will ensure that downstream culverts and infrastructure do not have an increased likelihood of blockages.

5.3 Flood Response Evacuation Plan

In advance of onsite construction, a Flood Response Evacuation Plan for the project construction phase will be developed. This plan will then be implemented by the principal contractor/s delivering the work.

5.3.1 Pre-Occupation Actions

Prior to the commencement of the construction works at the site, it will be the responsibility of the Principal Contractor to ensure that all actions outlined in Table 5-1 (below) are completed.

No.	Action	Further Information	Completion Date and Signature
1	Undertake a review of the Flood Management Plan and make updates to take into account new or additional information.	Flood Management Plan to be incorporated into contractor's Emergency Response Plan.	
2	Register with the EA Floodline Warnings Direct service.	Floodline Warnings Direct can be signed up to using the following link https://www.gov.uk/sign-up-for-flood-warnings or by calling either the Floodline on 0345 988 1188 or the National Customer Contact Centre (03708 506 506) to receive flood warnings for more than one site.	
3	Register with the Met Office Weather Warnings	Met Office Weather Warnings can be signed up to using the following link https://www.metoffice.gov.uk/about-us/guide-to-emails	
4	Ensure all construction personnel are aware of the Flood Warning and Evacuation Procedure and are trained sufficiently to implement the procedures set out in the Plan.	Include as part of the Site Induction training.	
5	Principal Contractor to implement the appropriate designated evacuation route.	The evacuation points and emergency evacuation routes would be determined within the Flood Plan.	

In summary, the Flood Plan for all sections of the cable route will include commitments to manage risks effectively.

The plan will detail;

- Who is responsible for owning, updating and implementing the plan,
- The flood risk context in the area of works (as detailed in this report),
- The relevant available flood warning services and who will subscribe to these,
- Trigger relating to weather forecasts, flood warning services and on-site observations that would necessitate action under the plan,
- Specific measures that will be implemented in advance of severe weather or flooding to limit risk to staff, risks of environmental harm (i.e. from sediment-laden runoff) and potential for adverse impacts on runoff rates discharging away from the site, and
- If appropriate routes for evacuating the site and muster points for meeting and checking personnel following evacuation.

During construction, all construction workers, as part of their Site Induction, will be made aware of the sections of the site considered at risk of flooding.

The principal contractor will be required to sign up to the EA's flood warning service and Met Office Weather Alerts so that when either body issues a warning, the service will send an automated warning message to the nominated person/persons. If a Severe Weather Alert for rainfall is issued by the Met Office, specific actions will be taken to manage the flood risk.

In areas with an increased risk of surface water flooding, any construction work involving excavations would be paused in the event of intense or long-duration rainfall to avoid unsafe inundation of the trenches. Furthermore, construction within any excavation should be paused if groundwater levels rise, causing groundwater flooding. Further management options for controlling groundwater are indicated below in Section 5.4.

5.4 Groundwater Management

In areas where groundwater ingress into the cable trench is expected, or in any other location where groundwater ingress is observed, measures will be put in place to either limit ground water ingress or to manage groundwater ingress to facilitate construction.

The primary measure that would be considered for reducing groundwater ingress would be the coffer dam / sheet piling at the edge of the excavation.

If dewatering is required the preference would be to discharge the water abstracted from the excavation to adjacent vegetated areas to allow it to infiltrate back to the ground.

If for any reason, this approach is not possible (i.e. ground is saturated or excessive recirculation is occurring); then permission would be sought to discharge water to the Thames Water foul sewer network. Or towards a local watercourse with dewatering and associated discharge undertaken in line with Environment Agency guidance (RPS261[27]).

Once completed, the cable will be sealed with the trench backfilled with a binding layer of Cement Bound Sand (CBS) and native soil. The CBS layer and the backfill will aim to replicate the natural conditions of the soil to ensure that the infilled trench does not form a preferential pathway for groundwater.

27 Temporary dewatering from excavations to surface water: RPS 261 - GOV.UK, https://www.gov.uk/government/publications/temporary-dewatering-from-excavations-to-surface-water/temporary-dewatering-from-excavations-to-surface-water

6.0 Conclusions

SLR Consulting Limited (SLR) has been appointed by Juniper Energy Ltd to carry out a Flood risk Assessment in relation to an underground electrical cabling project between Manor Farm, Slough and National Grid (NG) Land at Laleham, Surrey ("the Project").

6.1 Flood Risk

Flood risk has been assessed in line with BS8533[3], taking account of national and local planning policy and guidance, and all potential sources of flooding to the site have been considered.

A screening assessment considered the potential risk of flooding from fluvial, tidal, surface water, groundwater, sewer and water mains, reservoirs, canals and infrastructure failure. This concluded that there was no significant risk of flooding at the site once the cable route had been constructed.

With regards to the following elements of the Exception Test this FRA demonstrates that the proposed development is classified as 'Essential Infrastructure' and is required to facilitate the proposed data centre and BESS. These aspects of the wider development are aligned with strategic government targets for economic growth and zero carbon which, at a strategic level, are critical in the delivery of sustainability benefits.

This report concludes that the flood risk posed to the cable once installed will be very low. Furthermore, Section 5.0, highlights the measures that would be undertaken during the construction phase to ensure that the flood risk to the construction would be mitigated. As such the Exception Test is deemed to be met.

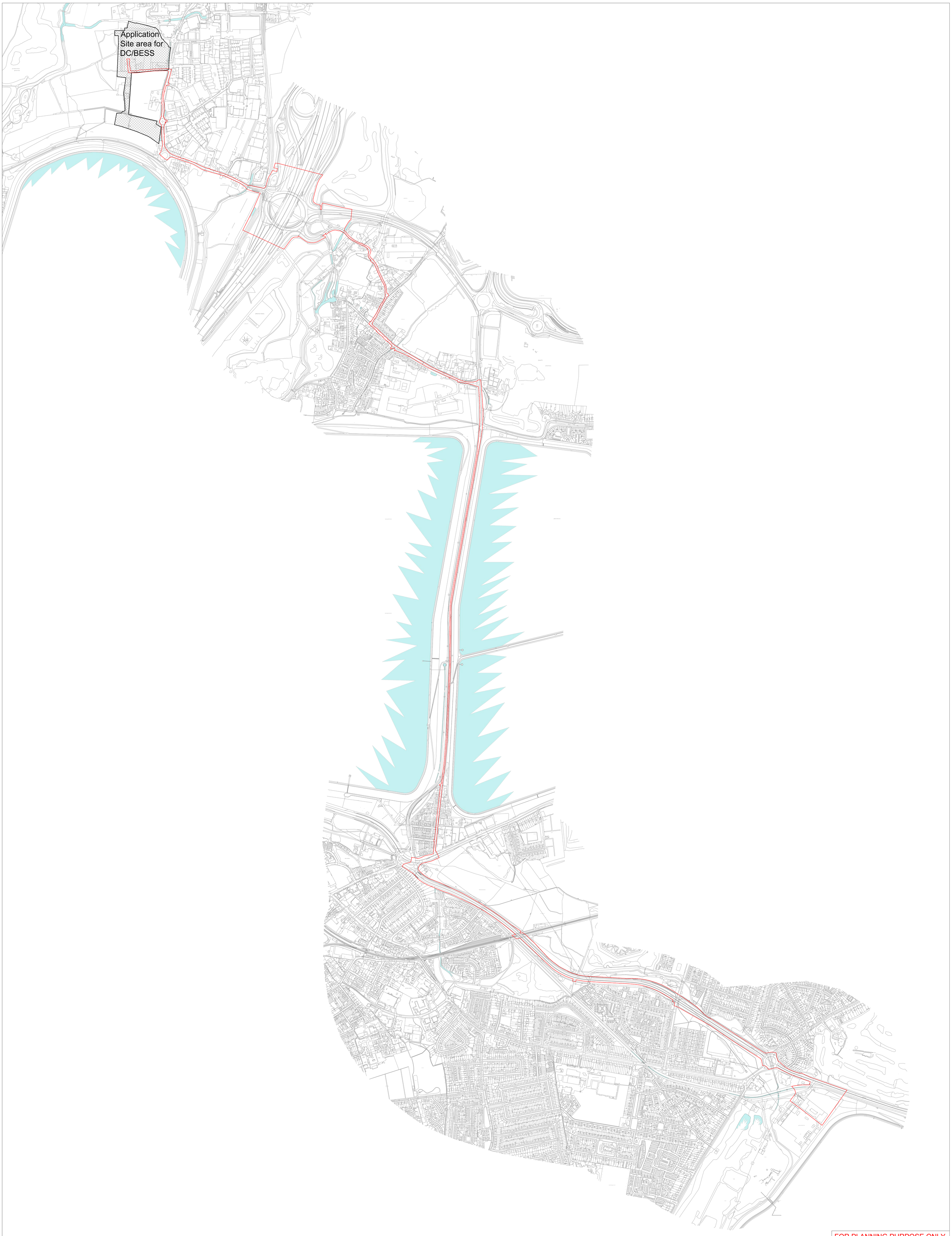
Appendix A Location Plan, and Proposed Layout

Flood Risk Report

Manor Farm Cable – Laleham Substation Corridor

SLR Project No.: 402.065673.00001

11 September 2025



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P04	03.09.25	COMMENTS AMEDNED	SR	SH
P03	28.08.25	RLB TEMPLATE AMENDMENT	SR	SH
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P01	30.07.25	FOR INFORMATION	SR	CB

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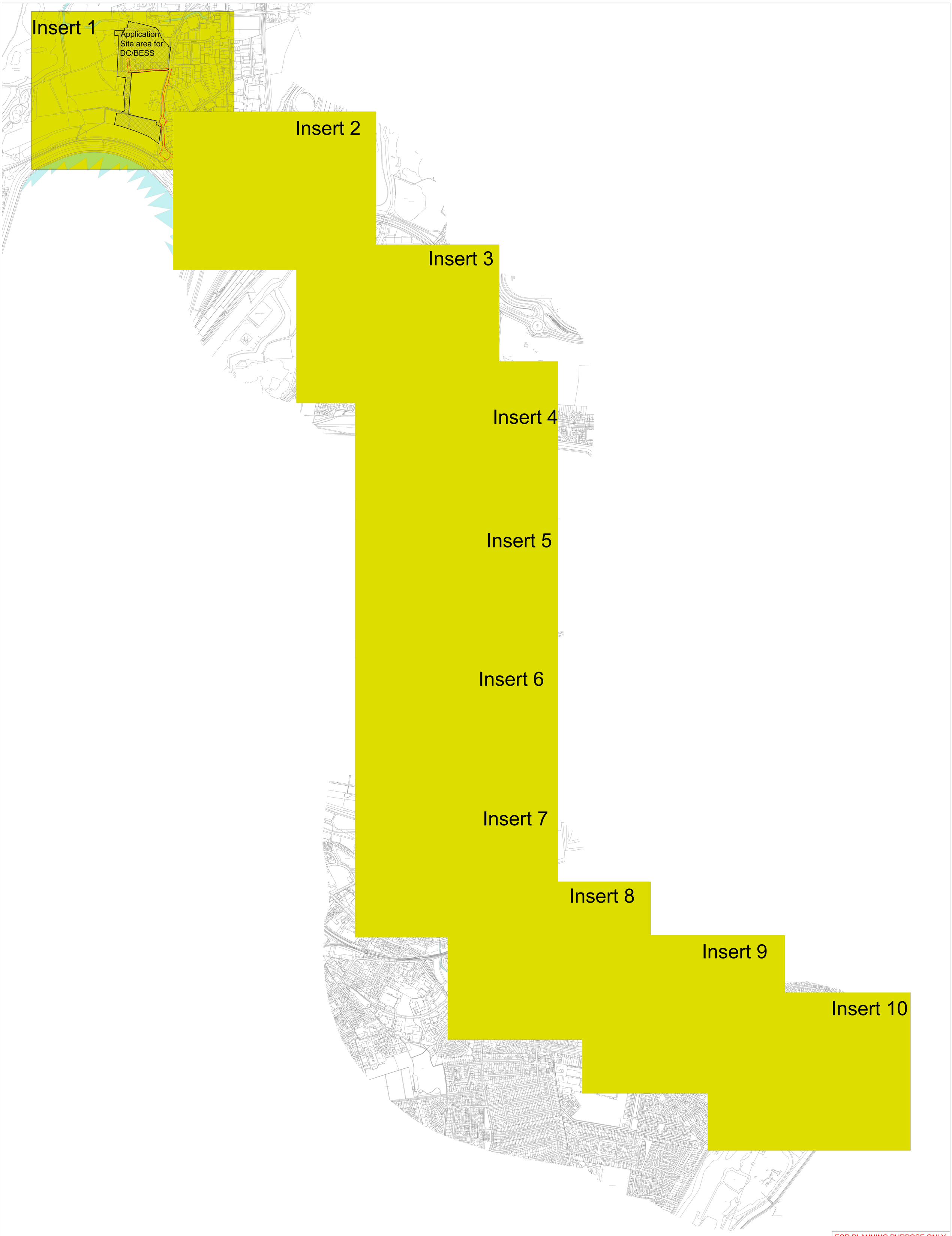

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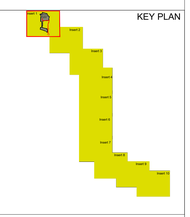
INFRASTRUCTURE FEATURE

Application Site area for DC/BESS

KEY PLAN



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Issue: P06

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INFRASTRUCTURE FEATURE

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L-8

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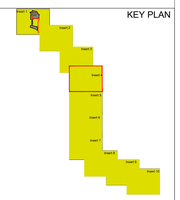

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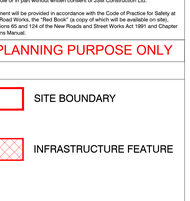

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0 75 150m

NORTH

Job Ref:	Scale:
P1308	1:1 @ A0

Drawing Number:	Page Number:	Issue
JSM-RL-EDF-24-0731	7 OF 12	P06

All traffic management will be provided in accordance with the Code of Practice for Safety at Street Works and Road Works, the "Red Book" (a copy of which will be available on site), issued under Sections 65 and 124 of the New Roads and Street Works Act 1991 and Chapter 8 of the Traffic Signs Manual.

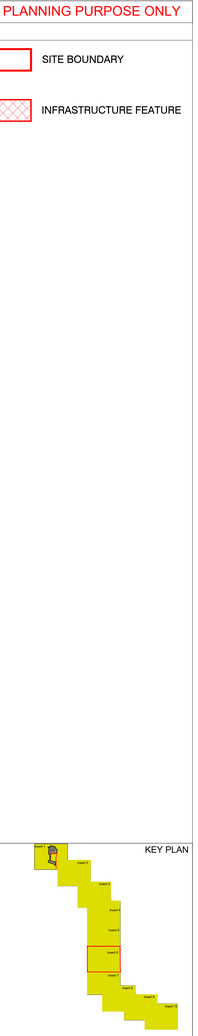
FOR PLANNING PURPOSE ONLY

KEY

SITE BOUNDARY

INFRASTRUCTURE FEATURE

KEY PLAN



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P03	28.08.25	RLB TEMPLATE AMENDMENT	SR	SH
P02	14.08.25	RLB AMENDED NEAR HITHERMOOR STREAM ROUNDABOUT	SR	CB
P01	30.07.25	FOR INFORMATION	SR	CB

JSM Group
Sterling House,
Mutton Lane, Potters Bar,
Hertfordshire, EN6 3AR
T: 01992 788 019

Client:
JUNIPER ENERGY LIMITED

Drawing Title:
PLANNING DRAWING
RED LINE BOUNDARY
SITE LOCATION PLAN INSERT 6

Drawn:	Date:	Checked:	Date:
SR	30.07.2025	CB	30.07.2025

Service Order Number:
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0 75 150m

NORTH

Job Ref:	Scale:
P1308	1:1 @ A0

Drawing Number: JSM-RL-EDF-24-0731
Page Number: 8 OF 12
Issue: P06

All traffic management will be provided in accordance with the Code of Practice for Safety at Street Works and Road Works, the "Red Book" (a copy of which will be available on site), issued under Sections 65 and 124 of the New Roads and Street Works Act 1991 and Chapter 8 of the Traffic Signs Manual.

FOR PLANNING PURPOSE ONLY

KEY

SITE BOUNDARY

INFRASTRUCTURE FEATURE

L-10

L-11

L-12

KEY PLAN

Issue	Date	Purpose of Issue	Drawn	Checked
P06	08.09.25	RLB ADJUSTMENT	SR	SH
P05	04.09.25	COMMENTS AMEDNED	SR	SH
P04	03.09.25	COMMENTS AMEDNED	SR	SH
P03	28.08.25	RLB TEMPLATE AMENDMENT	SR	SH
P02	14.08.25	RLB AMENDED NEAR HITHERMOOR STREAM ROUNDABOUT	SR	CB
P01	30.07.25	FOR INFORMATION	SR	CB

JSM Group
Sterling House,
Mutton Lane, Potters Bar,
Hertfordshire, EN6 3AR
T: 01992 788 019

Client:
JUNIPER ENERGY LIMITED

Drawing Title:
132kV Cable Route Scheme
Feasibility Study
Red Line Drawing

Drawn:	Date:	Checked:	Date:
SR	30.07.2025	CB	30.07.2025

Service Order Number:
-

Job Ref:	Scale:
P1308	1:1 @ A0

Drawing Number: JSM-RL-EDF-24-0731
Page Number: 9 OF 12
Issue: P06

0 75 150m

NORTH

All traffic management will be provided in accordance with the Code of Practice for Safety at Street Works and Road Works, the "Red Book" (a copy of which will be available on site), issued under Sections 65 and 124 of the New Roads and Street Works Act 1991 and Chapter 8 of the Traffic Signs Manual.

FOR PLANNING PURPOSE ONLY

KEY

SITE BOUNDARY

INFRASTRUCTURE FEATURE

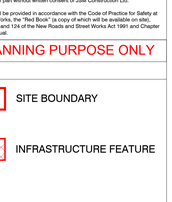
L-11

L-12

L-13

L-14

KEY PLAN



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P02	14.08.25	RLB AMENDED NEAR HITHERMOOR STREAM ROUNDABOUT	SR	CB
P01	30.07.25	FOR INFORMATION	SR	CB

JSM Group
Sterling House,
Mutton Lane, Potters Bar,
Hertfordshire, EN6 3AR
T: 01992 788 019

Client:
JUNIPER ENERGY LIMITED

Drawing Title:
132kV Cable Route Scheme
Feasibility Study
Red Line Drawing

Drawn:	Date:	Checked:	Date:
SR	30.07.2025	CB	30.07.2025

Service Order Number:
-

Job Ref: P1308
Scale: 1:1 @ A0
Drawing Number: JSM-RL-EDF-24-0731
Page Number: 10 OF 12
Issue: P06

0 75 150m

NORTH

All traffic management will be provided in accordance with the Code of Practice for Safety at Street Works and Road Works, the "Red Book" (a copy of which will be available on site), issued under Sections 65 and 124 of the New Roads and Street Works Act 1991 and Chapter 8 of the Traffic Signs Manual.

FOR PLANNING PURPOSE ONLY

KEY

SITE BOUNDARY

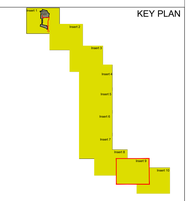
INFRASTRUCTURE FEATURE

L-14

L-15

L-16

KEY PLAN



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P04	03.09.25	COMMENTS AMEDNED	SR	SH
P03	28.08.25	RLB TEMPLATE AMENDMENT	SR	SH
P02	14.08.25	RLB AMENDED NEAR HITHERMOOR STREAM ROUNDABOUT	SR	CB
P01	30.07.25	FOR INFORMATION	SR	CB

JSM Group
Sterling House,
Mutton Lane, Potters Bar,
Hertfordshire, EN6 3AR
T: 01992 788 019

Client:
JUNIPER ENERGY LIMITED

Drawing Title:
PLANNING DRAWING
RED LINE BOUNDARY
SITE LOCATION PLAN INSERT 9

Drawn:	Date:	Checked:	Date:
SR	30.07.2025	CB	30.07.2025

Service Order Number:
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Job Ref: P1308
Scale: 1:1 @ A0
Drawing Number: JSM-RL-EDF-24-0731
Page Number: 11 OF 12
Issue: P06

0 75 150m

NORTH

All traffic management will be provided in accordance with the Code of Practice for Safety at Street Works and Road Works, the "Red Book" (a copy of which will be available on site), issued under Sections 65 and 124 of the New Roads and Street Works Act 1991 and Chapter 8 of the Traffic Signs Manual.

FOR PLANNING PURPOSE ONLY

KEY

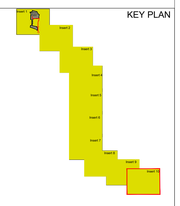
SITE BOUNDARY

INFRASTRUCTURE FEATURE

L-16

L-17

KEY PLAN



Issue	Date	Purpose of Issue	Drawn	Checked
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P05	04.09.25	COMMENTS AMEDNED	SR	SH
P04	03.09.25	COMMENTS AMEDNED	SR	SH
P03	28.08.25	RLB TEMPLATE AMENDMENT	SR	SH
P02	14.08.25	RLB AMENDED NEAR HITHERMOOR STREAM ROUNDABOUT	SR	CB
P01	30.07.25	FOR INFORMATION	SR	CB

JSM Group
Sterling House,
Mutton Lane, Potters Bar,
Hertfordshire, EN6 3AR
T: 01992 788 019

Client:
JUNIPER ENERGY LIMITED

Drawing Title:
PLANNING DRAWING
RED LINE BOUNDARY
SITE LOCATION PLAN INSERT 10

Drawn:	Date:	Checked:	Date:
SR	30.07.2025	CB	30.07.2025

Service Order Number:
-

Job Ref: P1308
Scale: 1:1 @ A0

Drawing Number: JSM-RL-EDF-24-0731
Page Number: 12 OF 12
Issue: P06

0 75 150m

NORTH

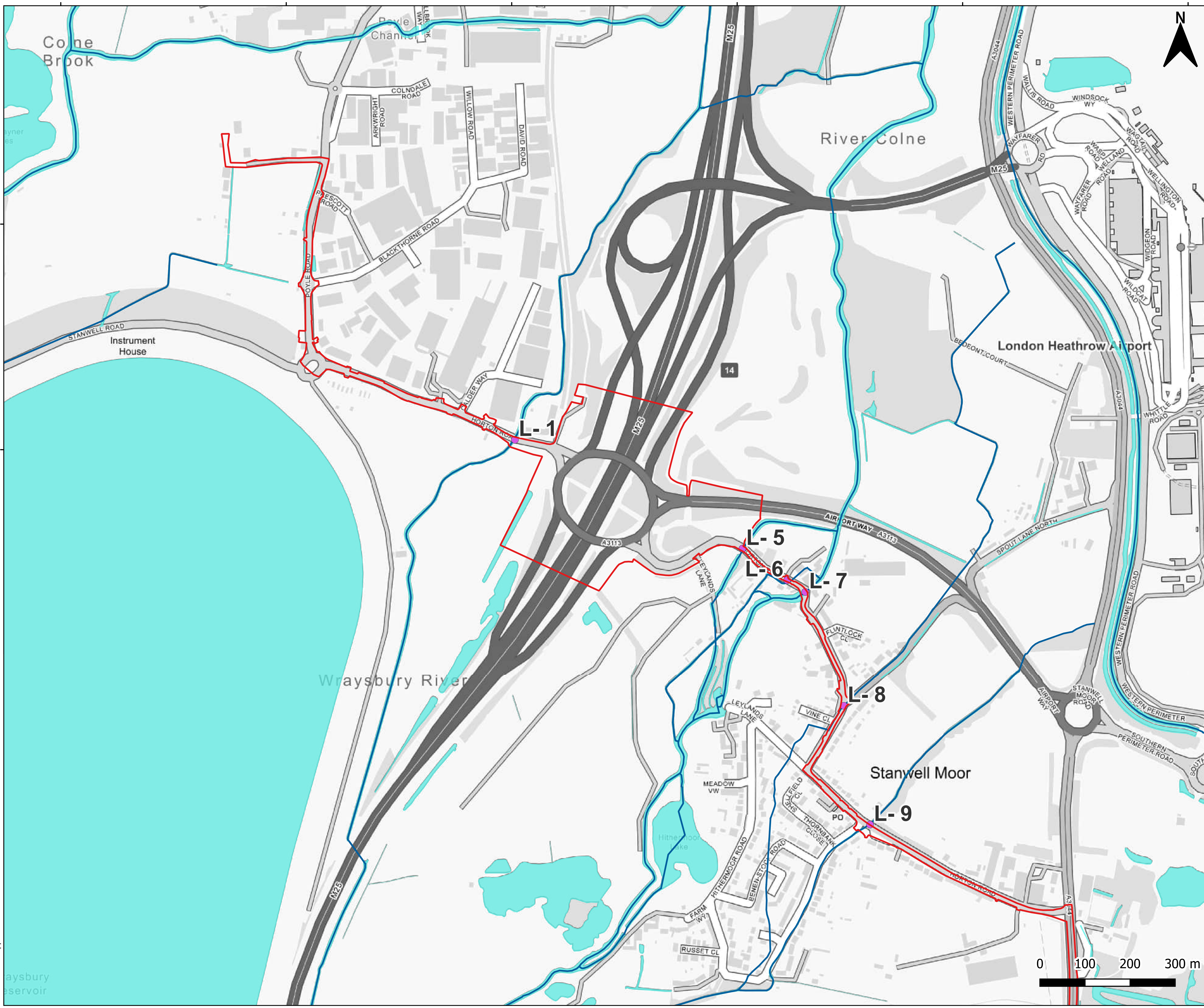
Appendix B Local Watercourse

Flood Risk Report

Manor Farm Cable – Laleham Substation Corridor

SLR Project No.: 402.065673.00001

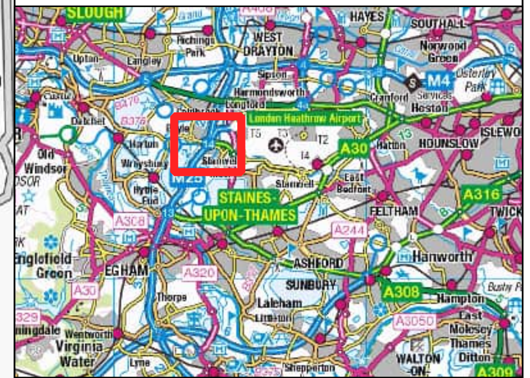
11 September 2025



LEGEND

- Statutory Main River
- OS Mapped Surface Water Feature (Line)
- OS Mapped Surface Water Feature (Area)
- 132kV Site Boundary
- Watercourse Crossing

Notes
[% "Notes" %]



Juniper Energy Ltd

SLR

MANOR FARM CABLES:
LALEHAM SUBSTATION CORRIDOR

FLOOD RISK ASSESSMENT

APPENDIX B

Figure 3.1

Scale	Date
1:8,000 @ A3	SEPTEMBER 2025

402.065673.0001 Appendix B