

Appendix C Photographic Log

Preliminary Land Quality Desk Study

Manor Farm Cable – Laleham Substation Corridor

Juniper Energy Ltd

SLR Project No.: 402.065673.00004

8 September 2025



26 June 2025

Manor Farm to Laleham Substation SLR Project No.: 402.065673.00001

Photographic Log





26 June 2025

Manor Farm to Laleham Substation SLR Project No.: 402.065673.00001





Manor Farm to Laleham Substation

Photo 13: Substation, north of Horton Road.	Photo 14: River Colne crossing along Horton Road. View south.	Photo 15: River Colne crossing along Horton Road. View south.
		Cautor
Photo 16: Drainage ditch along south of Horton Road, between The Mill Business Centre the aforementioned substation.	Photo 17: Culverted unnamed watercourse, along Horton Road and adjacent to The Mill Business Centre.	Photo 18: River Colne. View southwest from Horton Road.
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Photo 20: View southeast along Horton Road, with Hithermoor Photo 19: Electrical Substation along Horton Road, at the Photo 21: Hithermoor Stream culverted under Horton Road, Flintlock Close junction. Stream behind white railings. flowing south adjacent to Hithermoor Road. View looking south. Photo 22: View west along Stanwell Moor Road. Taken from the Photo 23: View northeast looking along Stanwell Moor Road Photo 24: Looking south along Stanwell Moor Road at Park turning into Vermeulen Industrial Estate. Junction opposite to Oakleaf Farm Recycling Centre. from Horton Road Junction. Road Junction. Staines Reservoir beyond embankments.



26 June 2025

Manor Farm to Laleham Substation

Photo 25: Looking north along Stanwell Moor Road.	Photo 26: Thames Water Pumping Station to the west of Stanwell Moor Road.	Photo 27: Crooked Billet roundabout
Photo 28: Staines Bypass, A308, from the northbound carriageway looking southeast.	Photo 29: View north from Leacroft/Shortwood Common Leacroft showing the Staines Bypass, A308, elevated from ground level.	Photo 30: View of River Ash, looking southeast from Woodthorpe Road. River Ash flows to the southeast at this location.
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Photo 31: Entrance to Laleham Substation, via Brett's, from Ashford road. Photo 33: Staines Bypass, A308, from the southbound carriageway looking northwest. Photo 32: Staines Canal – looking west from Ashford Road. Photo 34: Thames Water asset compound Photo 35: Laleham Substation Photo 36: Access into Laleham Substation from Staines Bypass, A308





Appendix D Approach to PLQRA

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SLR APPROACH TO PLQRA

Regulatory Context

Background

The regime advocates a precautionary approach to dealing with contaminated land, there is clear direction to avoid the "excessive cost burdens" of "wastefully expensive remediation".

The normal procedure for assessing land dictates that potential contaminant Sources, Pathways and Receptors should be considered within the context of potential contaminant linkages (PCL's) and that an evaluation of the risks associated with each linkage should drive decisions regarding the status of the land as contaminated, unaffected by contamination or requiring further investigation.

Part 2A of the Environmental Protection Act 1990

Under Part 2A the starting point should be that land is not contaminated land unless there is reason to consider otherwise. Only land where unacceptable risks are clearly identified, after a risk assessment has been undertaken in accordance with the Statutory Guidance, should be considered as meeting the Part 2A definition of contaminated land.

Under Part 2A, risks should be considered only in relation to the current use of the land. "Current use" means:

- 1. The use which is being made of the land currently;
- 2. Reasonably likely future uses of the land that would not require a new or amended grant of planning permission;
- 3. Any temporary use to which the land is put, or is likely to be put, from time to time within the bounds of current planning permission; and
- 4. Likely informal use of the land, for example children playing on the land, whether authorised by the owners or occupiers, or not.

Sites subject to Detailed Inspection under Part 2A by Local Authorities should be classified as Categories 1 to 4. For clarity:

- Category 1: describes land which is clearly problematic;
- Categories 2 and 3: cover the less straightforward land where detailed consideration is needed before deciding whether it is Category 2 (contaminated land requiring remedial action) or Category 3 (not contaminated land) wider socio-economic factors come into play if health risks assessment fails to produce a decision; and
- Category 4: describes land that is clearly not contaminated land.

The Category 4 test is particularly important in defining when land is clearly not contaminated land in the legal sense; it introduces the idea that it would be exceptional for land: exhibiting normal background levels of contamination; or contaminant levels below published assessment criteria (which have been augmented by Category 4 screening concentrations for a limited



number of contaminants) to be considered as contaminated land.

Importantly, the 2012 guidance makes it clear that regulators can only require remediation to a point where land is no longer contaminated land in the legal sense (i.e. the boundary between Categories 2 and 3) and not require "unnecessary" clean up to attain Category 4 standards. This means some landowners / developers will choose a remedial end-point in Category 3 whilst others will still volunteer to clean-up to Category 4 (to deal with perception issues or to please funders, etc.).

Therefore exceedance of a generic risk based assessment criteria should simply trigger further risk assessment, rather than a requirement for remediation.

National Planning Policy Framework

This redevelopment project falls under the remit of the Planning Act and may be subject to both local and national planning policies.

The National Planning Policy Framework (NPPF) of February 2019 has a core aim to:

- Encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value.
- The NPPF states the planning system should contribute to and enhance the natural and local environment by:
 - Clause 118c giving substation weight to the value of using sustainable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land; and
 - Clause 170b preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and

Furthermore the NPPF says that planning policies and decisions should also ensure that:

- Clause 178a a site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation; and that
- Clause 178b after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990 (meaning Category 3 or 4).
- Clause 178c adequate site investigation information, prepared by a competent person, is able to inform these assessments.

The national planning policy directs those involved in development to ensure sites are suitable for use and not be capable of being determined as contaminated land under Part 2A – which means that the category of land, post remediation (if required) should be considered.



Approach to Qualitative Risk Assessment

The qualitative risk assessment is underpinned by the Preliminary conceptual site model (CSM) which identifies the hazards (source of contamination) and sets out the potential pollutant linkages with a view to identifying the nature and magnitude of the potential risks to receptors.

This requires consideration of the probability or likelihood of the linkage occurring and the severity/significance of the potential consequence taking into account the nature of the pollutant linkage and the potential severity of the hazard coupled with the sensitivity of the receptor within the context of the current and/or envisaged land use.

A classification of: consequence/severity, probability/likelihood and risk together with definitions are presented in the various tables within this appendix.

The tables provide a logical and consistent framework for assessing the potential risk by defining the categories of consequence severity, probability/likelihood of occurrence and levels of risk also referred to as 'risk terms' which follows current best practice.

The first step is to establish the consequence/severity (Table 1) and probability/likelihood (Table 2) before combining/comparing them to establish the risk category or term (Table 3). The resultant risk class is defined in Table 4.

It is worth noting that the classification of the consequence (severity) does not take account of the probability (likelihood) of that consequence being realised. Hence a 'sever' consequence refers to acute (short term) risk and a 'medium' consequence refers to a chronic (long term) risk as would be the case of carcinogens and asbestos etc.

Table 1 - Classification of Consequences

Table 1 - Glassification of Consequences					
Classification	Definition				
Severe	Acute Risks to human health.				
	 Short-term risk pollution of controlled waters or significant impact on controlled waters e.g. large scale pollution or very high levels of contamination equivalent to EA category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point; major impact on operational effectiveness and/or amenity value or major damage to agriculture or commerce. 				
	 Catastrophic damage to buildings or property (e.g. explosion causing build collapse). 				
	 Ecological system effects – immediate risks of major damage which is likely to result in: irreversible substantial adverse changes in the functioning of the ecosystem or harm to a species of special interest that endangers the long- term maintenance of the population. 				
Medium	Chronic risks to human health.				
	 Pollution of sensitive water resources (e.g. leaching of contaminants into controlled waters) that is the equivalent of the EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; 				



	 reduction in amenity value or significant damage to site operations, agriculture or commerce. Ecological system effects – Immediate risks of significant damage which may result in substantial adverse changes to the ecosystem's functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to buildings, structures and services (e.g. Damage rendering a building unsafe to occupy, such as foundation damage).
Mild	 Non-permanent health effects to human health (exposure unlikely to lead to 'significant' harm). Pollution of controlled waters or non-sensitive water resources (e.g. Pollution of non-classified groundwater) that is equivalent to an EA Category 3 pollution incident or short lived effect on water quality; marginal effect on operational capability, amenity value, agriculture or commerce. Minor damage to buildings, structures and services (e.g. Damage rendering a building upper feature of the polymerce).
	 building unsafe to occupy, such as foundation damage). Ecological systems effects – minor or short-term damage which is unlikely to result in substantial adverse changes to the ecosystem's functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Substantial damage to non-sensitive environments (unprotected ecosystems
Minor/Negligi ble	No measurable effects on human health including non-permanent health effects to human health that are easily prevented by appropriate use of PPE etc.
	 Minor pollution of controlled waters including non-sensitive water resources with no discernible effect on water quality or ecosystems. Minor damage to non-sensitive environments (unprotected ecosystems e.g. Crops)
	 Easily repairable effects of damage to buildings, structures, services or the environment (e.g. Discoloration of concrete, loss of plants in a landscaping scheme).

Table 2 - Classification of Probability
(Only applies is there is a possibility of a pollutant linkage being present)

Classification	Definition	Probability	
High Likelihood There is a pollutant linkage and an event is High Likelihood to occur in the short term, and is almost inevitable over the long term OR there is evidence of harm or pollution		>95% Likelihood of Consequence Occurring	
Likely	There is a pollutant linkage and it is probable than an event will occur. It is not inevitable, but possible in the short term and likely over the long	50-95% likelihood of Consequence Occurring.	



	term	
Low Likelihood	There is a pollutant linkage and circumstances are possible under which an event could occur. It is by no means certain that even over a longer period such an event would take place, and less likely in the short term	5 – 49% Likelihood of Consequence Occurring
Unlikely	There is a pollutant linkage and it is improbable that an event would occur even in the very long term 5% Likelihood of Cons Occurring	

Table 3 – Classification of Risk (Significance)

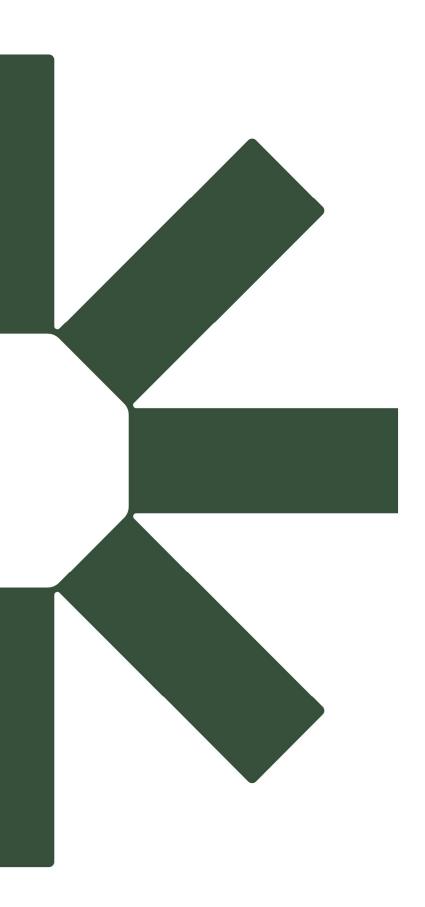
(po	Consequence					
olilo		Severe	Medium	Mild	Minor	
(Likelihood)	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate/Low	
	Likely	High Risk	Moderate Risk	Moderate/Low	Low Risk	
Probability	Low Likelihood	Moderate Risk	Moderate/Low	Low Risk	Negligible Risk	
Pro	Unlikely	Moderate/Low	Low Risk	Negligible Risk	Negligible Risk	

Table 4 – Definitions of Classified Risks/Risk Terms

Classification	Definition	
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not already undertaken) and remediation is likely to be required.	
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not already undertaken) is required and remedial works may be necessary in the short term and are likely over the long term.	
Moderate Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, if is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.	
Moderate/Low Risk	Possible that harm could arise to a receptor, but where a combination of likelihood and consequence results in a risk that is above low, but is not of sufficient concern to be classified as mild. It can be driven by cases where there is an acute risk which carries a severe consequence, but where the exposure is unlikely. Such harm would at worse normally be mild. Limited further investigation may be required to clarify the risk and liability. If necessary remediation works likely to be limited in extent.	
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.	



Negligible Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.
No Potential Risk	There is no potential risk where no pollutant linkage has been established. No liability.



Pell Frischmann

Manor Farm Cables – Laleham Substation Corridor

Construction Traffic Management Plan

September 2025

10110624

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Contents

1	In	troduction	. 1
2	G	rid Route	. 2
	2.1	Development Location & Description	. 2
	2.2	Road Network	
3	G	eneral Construction Process & Traffic Management	. 6
	3.1	Works Areas	
	3.2	General Road and Verge Works Methodology	
	3.3	Pedestrian Footways	
	3.4	HDD / Tunnelling Works	
	3.5	Open Cut Crossings.	
	3.6	Traffic Management	
4		able Route Constraint Review	
	4.1	Road Widths	
	4.2	Control of Traffic & Signage.	
	4.3	Cabling Works in the Verge	
	4.4	Cabling works at Structures	
	4.5	Cabling Works at Structures	
	4.6	Cabling Works and Emergency Services	
		onstruction Traffic	
5			
	5.1	Trip Generation	
	5.2	Construction Staff	
	5.3	Materials	
	5.4	Construction Programme.	
	5.5	Traffic Movements	
6		affic Management Plan	
	6.1	General 1	
	6.2	Road Condition Review	
	6.3	Road Signage	
	6.4	Contact	
	6.5	Active Travel and Core Path Interaction	
		Liaison Group	
7	Sı	ummary & Conclusions	17
Fi	gure	s	
	_	1: Indicative Trench Cross-section	3
		2: Proposed Grid Route	
	ables		
		Cable Trip Estimate	
		2 Cable Sand Trip Estimate	
		Booking Trip Estimate	
		Road Materials Trip Estimate	
16	able 5	5 Cable Works Vehicle Flows (Two Way Flows)	. 12

Appendices

Appendix A Detailed Cable Alignment Drawings

1 Introduction

Pell Frischmann Consultants Limited (PF) has been commissioned by Juniper Energy Limited (the Applicant) to undertake a combined Transport Statement / Construction Traffic Management Plan (CTMP) for the construction of a grid connection from Laleham Substation to a connection point at a proposed Data Centre and Battery Energy Storage System (BESS) development known as Manor Farm, off Poyle Road to the east of Slough.

This report has been prepared in accordance with instructions from the Applicant on the above project details. No liability is accepted for the use of all or part of this report by third parties.

The report identifies the key points, issues and management proposals associated with the route that may require remedial works to accommodate the predicted loads.

Where references are made to work by third parties, Pell Frischmann do not accept any liabilities for these items or issues based upon them.

This CTMP is a live document and if the development is approved, will be used in the development of the operational CTMP by the selected contractor(s). As such, it is important that continuity is provided in this approach to future proof road safety and to discharge Construction Design and Management (CDM) Regulation requirements to the client team and those authorities that influence the design of traffic management measures.

2 Grid Route

2.1 Development Location & Description

2.1.1 Proposed Data Centre and BESS

The Manor Farm data centre and BESS development covers a total area of 8.16 hectares (ha) and is centred at National Grid reference ('NGR') TQ 02857 76019. The data centre/BESS Site lies immediately west of Poyle Road and is approximately 6.3 kilometres (km) southeast of Slough Town Centre. The data centre/BESS Site is approximately 1.6km west of Heathrow Airport and 1.9km west of Heathrow Terminal 5 London Underground station. The data centre/BESS Site is entirely within the administrative area of Slough Borough Council (SBC).

The data centre/BESS Site is bounded by the Poyle Channel to the north, Poyle Road and agricultural land to the east, woodland (known as Poyle Poplars) to the south and agricultural land to the west.

Access is from Poyle Road. Poyle Road connects to Bath Road to the north, which provides access to the A3033 and A4, and Horton Road to the south, which links with Junction 14 of the M25.

2.1.2 Proposed Grid Connection

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
 - 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
 circa 500mm x 300mm.

At certain locations, Horizontal Directional Drilling (HDD) will be required to pass constrained sections. The trench will feature the cables, contained within ducts. The ducts would then be embedded in cabling sand. The trench would then be backfilled with excavated material. Surplus material would be taken to the nearest suitable commercial landfill facility.

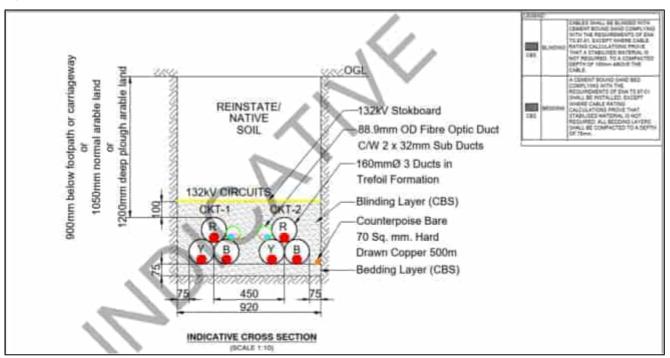
Where the trench is in the surfaced area of a public road, the trench edges would be cut with a circular saw and the material excavated. The running surface of the road would be reconstructed to the appropriate highway authority standards.

Where the trench is constructed in the verge or grassed areas, the trench area would be reseeded with grass where the covering with existing turves were not possible.

Joint pits will be provided every 500m to allow the cable runs to be safely jointed. A minimum of 17 joint pits will be provided.

An indicative cable trench cross-section is illustrated in Figure 1.

Figure 1: Indicative Trench Cross-section



The route of the cable route has been considered in detail. The cable route exits the proposed data centre at the east and travels south for circa 400m via Poyle Road.

The route then follows Horton Road until it reaches J14 of the M25. Just before the gyratory and after the Wraysbury River, the route diverts off the highway and joins a paved track before traversing beneath the motorway junction, avoiding the woodland areas planted in the centre of the roundabout. During this stretch of cable, the route crosses the boundaries of Slough, Hillingdon and Spelthorne.

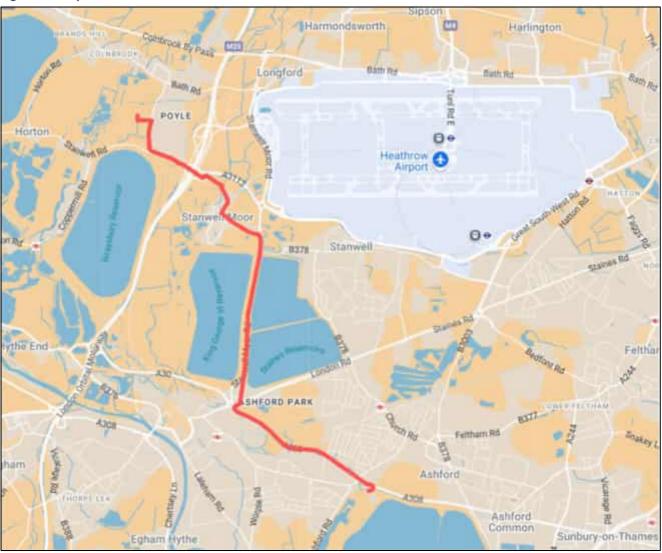
As the route exits from under the junction, there is a Public Right of Way (PRoW) which the cable route intersects, the cable then follows a series of paths before joining Horton Road. The route then crosses Hithermoor Stream and runs alongside a section of watercourse, parallel the Horton Road for circa 50m. The route transects over the River Colne via a bridge then follows Horton Road for circa 1.1km before reaching A3044 (Stanwell Moor Road).

The 1.1km section following the Horton Road crosses two Statutory Main Rivers (Flood Zone 3 in areas) and runs alongside areas of Historic Landfill (situated north of Horton Road). The route then travels in a southerly direction for circa 2.5km. During this section the route passes in between King George VI Reservoir and Staines Reservoir which are also part of the South West London SPA and RAMSAR designations, and Staines Moor Site of Special Scientific Interest (SSSI).

After bisecting the elevated reservoirs along Stanwell Moor Road, the route continues to follow the road until it reaches, and crosses, London Road. The route then travels along the A308 (Staines Bypass) for approximately 2.4km. The route enters private land and follows a private track for c.120m and traverses across the River Ash before entering into Laleham Substation.

The route of the proposed cable route is illustrated in **Figure 2**. Indicative plans of the cabling route are provided in **Appendix A**.

Figure 2: Proposed Cable Route



2.2 Road Network

Materials and staff required to construct the cable line are assumed to originate from the surrounding area, with local suppliers used wherever possible.

Bulk material suppliers are located to the west and south of the cable route and could use the local road network to access the works areas. The M25 will also be used for the delivery of staff and materials.

Poyle Road

Poyle Road is an industrial access road with two lanes, providing access to a variety of light industrial and distribution users. The road features a grass verge to the west and a segregated footway to the east. The road is subject to a 30 miles per hour (mph) speed limit.

Horton Road (West of the Poyle Interchange)

Horton Road is a distributor road providing access from the Poyle Interchange to the west. The road is a two lane road subject to a 30mph speed limit and connects to Poyle Road via a four-arm roundabout. The road features a pedestrian footway on its northern verge and has various access points for distribution warehouse users along its length.

M25

The M25 is the orbital motorway for London and provides connections around the capital as well as linking major arterial routes together. The road is an eight lane motorway (four northbound and four southbound) near

the proposed cable route and is subject to a 70mph speed limit. The M25 is operated by National Highways on behalf of the Department of Transport (DfT).

The M25 has two lane segregated slip roads that provide connections to the Poyle Interchange at Junction 14. The interchange provides strategic connections to the west to Horton Road and to the A3113 and Horton Road to the east.

The Poyle Interchange consists of a grade separated roundabout, with the M25 running lanes and slip roads running underneath it. The junction features traffic signal control on the running lanes to improve operational capacity.

Horton Road (East of the Poyle Interchange)

To the east of the Poyle Interchange, Horton Road provides connections from the roundabout to the settlement of Stanwell Moor. The road passes through residential areas and is subject to a 30mph speed limit. A 7.5tonne vehicle weight limit is in place to prevent rat running through the residential areas. Pedestrian footways are provided on both sides of the road in the residential areas.

A3044 Stanwell Moor Road

Horton Road joins the A3044 Stanwell Moor Road at a Left In / Left Out priority junction to the east of Stanwell Moor. The A3044 is a 50mph road connecting the southern boundary of Heathrow Airport to Staines-upon-Thames to the south. The section between the B378 (to the south of the Horton Road junction) to the A3113 is dual carriageway. This then narrows to two lanes proceeding south to Staines-upon-Thames.

Stanwell New Road

To bypass Staines-upon-Thames, the proposed cable route will depart the A3044 and use Stanwell New Road, a two lane residential street. The road has pedestrian footway on both sides of the road and connects to the A30 London Road to the south via a Left In / Left Out junction. The road is subject to reasonably heavy parking and has a school located on it.

The cable route crosses the A30 London Road, a district distributor road, heading towards the A308 Staines Bypass.

A308 Staines Bypass

The A308 connects the A30 to Sunbury on Thames and provides a relief bypass to Staines-upon-Thames. The road is a district distributor dual carriageway and is subject to a 50mph speed limit. The road crosses the Staines – Ashford railway line via an overbridge, before intersecting the B377 at the Fordbridge Roundabout.

The road continues to the east, passing Spelthorne Fire Station. The cable route would depart the A308 to the east of the fire station, passing over the Staines Rivers Aquaduct, before entering into the existing Laleham Substation site.

3 General Construction Process & Traffic Management

3.1 Works Areas

Works for the cabling will primarily be located in a road running lanes, rather than within the verge or footway. There are however certain sensitive areas where this will not be possible and HDD or tunnelling will be required.

The HDD / tunnelling works are proposed to cross the Poyle Interchange to minimise traffic disruption as far as possible and technical agreement with National Highways will be obtained. Engagement with National Highways has commenced on the technical arrangement for the proposed works.

3.2 General Road and Verge Works Methodology

Whilst the road network along the proposed route varies in width, it is possible that works within the verge and carriageway can be undertaken using temporary traffic signal control.

The traffic management for the proposed works area would be undertaken by a suitably qualified traffic management contractor who will prepare signage schedules and appropriate coning plans for the approval of the relevant local highway authority network manager.

The longest section under control would be no longer than the 300m maximum distances as recommended in "Safety at Street Works and Road Works Code of Practice¹" issued by the DfT.

To facilitate the works and to allow sections to fit within the 495m spacing for jointing bays, two lengths of works would ideally be established, with a 300m being established and then followed by a new 200m section.

In this area, the works area (either 300m or 200m in length) would be coned off and traffic signals erected to control passing traffic. Given the light traffic flows noted on the route, excessive queuing is not anticipated and the contractor would place the operation of the signals on Vehicle Actuation (VA).

Quiet generator sets would be used to power the lights and these would be inspected daily by the traffic management contractor. The lights would be supported by Chapter 8² compliant road signage deployed in advance of the area under control.

Where 200m length are not appropriate, given the residential nature of the street, shorter distances of trenching activities will be used, but still maintaining the 495m spacing for the joint pits.

The works would involve the cutting of the trench lines with the road saw (within the section where the road surface is proposed) or excavation by backhoe, the excavation of material, placing of the ducting and fibre line, backfill with cabling sand, refill of excavated material and surface treatments. At 495m spacings, a joint pit will be provided for a cable pulling review to be undertaken once all of the ducting is in place.

Once the route is complete, a cable pull will be undertaken and jointing made. This exercise would be undertaken under a separate traffic signal control exercise at the end of the project, with traffic signals or stop / go boards located at 500m spacings (the length of the cable pull traffic management areas being restricted to approximately 20m in length).

https://assets.publishing.service.gov.uk/media/5a7d8038e5274a676d532707/safety-at-streetworks.pdf

² https://assets.publishing.service.gov.uk/media/5a74adeaed915d7ab83b5ab2/traffic-signs-manual-chapter-08-part-01.pdf

3.3 Pedestrian Footways

There are no areas where the proposed works would use pedestrian footways for the cable alignment on the route for the alignment of the cable. Temporary crossing points of footways will be required, however facilities to safely divert pedestrians around the works will be put in place.

3.4 HDD / Tunnelling Works

Prior to any HDD works, the Applicant will share the proposed boreplan with the affected highway authorities, including National Highways, and will provide details of the timescales and operations associated with the works. The boreplan will outline measures to protect drainage and other adopted features and any underground services.

To launch the HDD, a secure area of approximately 20m x 20m will be established at either end of the bore. These are located outwith the road surface and would occur in the verge or adjacent land options.

An HDD / trenchless solution is proposed to cross the M25 at Poyle Interchange. A geotechnical review to CD622 is being undertaken and the required permits will be made to National Highways prior to works commencing.

The trenchless solution to cross the M25 will not have a detrimental impact on road users of this key junction.

Where trenchless solutions are required at other locations on the network, similar reviews and permissions will be obtained.

3.5 Open Cut Crossings

Where open cut trench crossing of watercourses is proposed, this will be undertaken within a temporary dammed section, of a bespoke design dependant on factors such as flow and depth. This will be heavily influenced by each stakeholder associated with the crossing.

This would provide a dry working section across the watercourse. Such trench crossings would be preferentially programmed for a period of low rainfall to carry out the works when watercourses are lower, or potentially dry. If it is not possible to undertake the works when the watercourse is dry, a suitably sized pump will be set up to over pump the watercourse which will be as per the bespoke design. Should heavy rain be forecast or if the flow in the watercourse is high these works will be postponed until conditions are suitable.

The excavation and installation of the cable trench for open cut watercourse crossings shall be undertaken using an appropriate method for each location, to be determined following appropriate environmental and ecological surveys.

3.6 Traffic Management

All of the traffic management required to construct the cable infrastructure will be undertaken by a specialist contractor working on behalf of the main works contractor. The traffic management contractor will be selected from approved firms that are either sector approved, or who are approved by the relevant highway authorities.

The traffic management will be fully complaint with the Traffic Signs Manual and will be carefully designed to avoid impacts from traffic lights backing back from temporary works areas into sensitive junctions. The timing of temporary traffic signals will be agreed with local highway officers at key locations and will be monitored to ensure the safety of traffic.

To ensure pedestrian safety, barriers separating the open works areas from footways will be provided. These will be inspected regularly to ensure the safety of pedestrians.

Where the trench crosses private accesses, engagement with the occupiers will be undertaken to reduce any inconvenience during these works. Temporary crossing plates will be provided where semi-open trenches are located at access points.

Access crossings on Horton Road (west of Poyle Interchange) could be timed to occur at the weekend to help reduce the impact of trenching works on distribution centre users. Engagement with these businesses will be undertaken prior to works commencing to help reduce the potential impacts of the works.

Similar engagement will occur with residents in Stanwell Moor and Stanwell New Road will be undertaken. Works in these areas would be accelerated wherever possible to reduce the potential impacts on these streets and resident parking provision.

4 Cable Route Constraint Review

The proposed cabling works will need to be constructed in a safe and appropriate manner that minimises the impact of works to the public, but that also reduces the potential for damage to the public road network.

There are a number of constraints that need to be considered in the planning of the route and these are detailed below.

4.1 Road Widths

The proposed trench areas will need to be accommodated within one lane of various public roads to ensure that the movement of traffic along the network can be maintained for all road users. Traffic signal control will be necessary and the location of works areas needs to be carefully considered to reduce confusion and delays.

Given the number of distribution users in the northwestern section of the cable route, the traffic management must be sufficient to ensure that safe and easy access for Heavy Goods Vehicles (HGV) will be available.

All works will need to comply with Chapter 8 of the Traffic Signs Manual and will need to be placed by a highway authority approved traffic management contractor.

4.2 Control of Traffic & Signage

All works in the road surface, footway or verge will need to be undertaken under traffic signal control, with one lane working. All works areas will need to have advance warning signs, located in accordance with the Traffic Signs Manual.

Where works are located near bends or junctions, advance warning and speed reduction signs will be required, with all works sections being undertaken in 20mph speed limits. Temporary Traffic Regulation orders (TTRO) will be necessary and should be discussed with the road authorities at least six months prior to works commencing.

The spacing of works areas will need to comply with "Safety at Street Works and Road Works Code of Practice". This may result in single remote sections to comply with ecological constraints and works spacings.

4.3 Cabling Works in the Verge

Works in the public verge will be undertaken where there is no potential for impacts on existing underground services or road drainage features. The backfill of trench materials must be compacted to the standards required by the highway authorities to avoid repair slumping or other road defects.

The verge cabling works must not have a detrimental impact on verge integrity and all works should be open to regular inspection by highway officers.

4.4 Cabling works at Structures

The cable route crosses several watercourses and it may not be possible to accommodate the cable works within the verge of road surface at these locations.

At these locations, it is proposed to use open trenching to cross the watercourse and remove the potential damage to the structure. A visual inspection of the structures prior to works commencing and post restoration works will be undertaken to protect the interests of all parties.

4.5 Cabling Works and Active Travellers

The works will need to accommodate active travellers (pedestrians, equestrians and cyclists) passing beside or through the works areas. The traffic management measures will need to be developed to consider these users.

A review of the Sustrans National Cycle Network Route map³ indicates that the cabling route does not intersect with any national cycle routes.

In Stanwell New Road, the pedestrian footway will either need to remain open, requiring a lane closure to accommodate the works and a temporary footway, protected by barriers and a lower speed limit. This will be important given the proximity of the school in this area.

4.6 Cabling Works and Emergency Services

The proximity of the cable route to Spelthorne Fire Station will require a protocol to be established between the Fire Service and the contractor to ensure that access to and from the Fire Station is not impacted at any time.

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 $^{^{3} \ \}underline{\text{https://explore.osmaps.com/?lat=51.45571\&lon=-0.48569\&zoom=12.5091\&overlays=os-ncn-layer\&style=Standard\&type=2d}\\$

5 Construction Traffic

5.1 Trip Generation

During the construction and dismantling period, the following traffic would require access to the Proposed Development and associated development sites:

- Staff transport, in either cars or staff minibuses;
- Construction equipment and materials, deliveries of machinery and supplies such as cable bedding sand and road construction materials; and
- Removal of surplus spoil material from excavations to a licenced landfill facility.

The traffic generation has been estimated using a worst case six month works programme to cater for all cable excavation, laying and jointing works. Using first principles, material estimates have been converted to two-way traffic flows for each stage of the construction process.

5.2 Construction Staff

Staff would arrive in cars / Light Goods Vehicles (LGV) and where possible will be encouraged to car share. The workforce onsite will depend on the activities undertaken, but, based on previous construction sites it is predicted that on average three teams of eight staff members will be employed along the route at any one time during the cable trenching process.

It is assumed that four staff members per team will travel to and from the site by single occupancy car or LGV. The remainder will travel by van, with an average occupancy of three staff.

5.3 Materials

An estimate of the materials required has been undertaken to establish the associated vehicle movements. Trip estimates for the cable materials are provided below in **Tables 1** and **2**.

Table 1 Cable Trip Estimate

Element	Total Cable Length (m)	Length per Drum (m)	Number of Drums	Inbound Trips	Total Journeys
Cables	49,800	500	100	12	24

Table 2 Cable Sand Trip Estimate

Element	Volume (m3)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Cable Sand	4,582	20	367	734

Ducting would be used to contain all six power and four data cables in the trench. The associated trips are estimated below in **Table 3**.

Table 3 Ducting Trip Estimate

Element	Length required (m)	Number of Lengths	Lengths per Delivery	Total Journeys
Ducting	830,000	16,600	100	332

To provide a robust estimate of traffic movements, it has been assumed that all cabling works will require a new metalled finish along the length of the route located within the road carriageway. **Table 4** illustrates the estimated material movements for these loads.

Table 4 Road Materials Trip Estimate

Element	Volume (m3)	Lorry Capacity (t)	Inbound Trips	Total Journeys
Road Surfacing	2,520	20	126	252

A fibre optic line is laid in the trench with the power cable ducts and would be supplied on 2km drum rolls. 34 drums would be required, carried in eight journeys will be associated with these deliveries.

To protect the cable, electrical tiles would be required. These are delivered on pallets and 32 trips are associated with these deliveries.

Equipment and plant required at the site would generally be delivered by HGV and left until the end of the project. The following plant would be required:

- Backhoe excavators;
- Road saw;
- HDD equipment;
- Open trenching pumps and materials;
- Dumper truck;
- Whacker plates / compactors; and
- Road roller.

Deliveries of fuel and other consumables would also be made during the construction period, with an estimate of four deliveries a week being estimated.

Offsite export of surplus material would be undertaken by the vehicles bringing in the new road surfacing materials and would not result in further traffic movements. These materials would be disposed at a licenced waste facility located close to the trenching works to minimise travel, carbon and costs.

Once the duct work has been completed, the cabling would take place. Traffic management at the joint pits would be established and the cables pulled and connected.

5.4 Construction Programme

Exact durations of the Construction Works may be affected by factors such as weather and ground conditions.

A finalised construction programme will be agreed with the various stakeholders and local highway managers prior to works commencing.

An indicative construction programme has been developed for the purposes of identifying the peak of construction traffic and this is illustrated in **Table 5**.

Table 5 Cable Works Vehicle Flows (Two Way Flows)

Element	Month					
	1	2	3	4	5	6
Establishment	44					44
General Deliveries	88	88	88	88	88	88
Excavation	220	220	220	220	220	
Ducting Deliveries	66	66	66	66	66	
Sand Deliveries	147	147	147	147	147	
Fibre Deliveries				17	17	
Γile Deliveries	9	9	9	9		
Filling & Road Surfacing	50	50	50	50	50	
Cable Deliveries				12	12	
HDD / Open Cut Works		20	20	20		
Traffic Management	132	132	132	132	132	132
Jointing				176	176	
Staff	484	506	506	506	484	308
Total Daily LGV	28	29	29	38	36	20
Total Daily HGV	28	27	27	28	28	6
Total Daily Traffic	56	56	56	66	64	26

5.5 Traffic Movements

Using the material estimates, it is anticipated that assuming a 5 day working week, that an average of 28 HGV journeys (14 Inbound and 14 Outbound) would occur on an average day during the construction period. In addition to these, 38 cars and LGV movements would occur per day (19 Inbound and 19 Outbound).

The peak construction traffic would be spread over at least three work areas. The likely traffic generation at each of the work areas is therefore likely to be up to 9 HGV movements and 12 Car / LGV movements at each works location per day.

The level of traffic generation is considered to be low and not significant at each of three concurrent works areas per day. The total traffic generation over a typical day is below the general threshold of 100 vehicle movements that is accepted as a threshold for capacity assessment and will be below the 30 vehicle movements per hour that National Highways require trunk road junction assessments at.

The Applicant has yet to determine the material suppliers for the project as this would be a commercial process undertaken post planning determination. The distribution of construction traffic will further dilute the construction traffic associated with the proposed cabling works. As such, a traffic impact review and or junction capacity assessment are not required.

Whilst no capacity issues are predicted, there are mitigation measures that can be used to reduce the impact of the construction traffic on other road users and nearby residents. These are outlined in the following chapter of this report.

6 Traffic Management Plan

6.1 General

Traffic associated with the construction phase will generally be comprised of standard HGV, LGV, vans and private cars used by staff working at the site. No Abnormal Indivisible Loads (AIL) will be required for the proposed cabling project.

Wherever reasonably possible, local suppliers such as quarries and concrete works are proposed to help minimise traffic levels of the network.

It should be noted that the Contractor has yet to be selected and as such there may be some minor changes in traffic volumes and composition. To address this, the Applicant considers that this document is a live document and that it will be subject to updates. Where these updates are considered significant, the revised report will be shared with the relevant highway authorities for their information.

The following measures would be implemented through this CTMP during the construction phase:

- All site vehicles will feature "white noise" reversing warning devices to reduce noise disruption when on site:
- All materials delivery lorries (dry materials) will be sheeted to reduce dust and stop spillage on public roads:
- Specific training and disciplinary measures will be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Normal site working hours will be between 0700 and 1900 (Monday to Friday);
- Adoption of a voluntary speed limit of 15mph for all construction vehicles travelling through Stanwell Moor and Stanwell New Road:
- Provide construction updates on the project website and an update letter to be distributed to residents on the proposed route; and
- All drivers supplying the site will be required to attend an induction.

There would be a regular road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the excavation and backfilling operations.

6.2 Road Condition Review

Prior to the commencement and immediately upon completion of the construction works, pre and postcondition surveys shall be agreed with and undertaken in conjunction with the relevant highways management officers.

The two surveys shall form the basis of any remediation works that may be required upon completion of the construction works, to rectify specific extra-ordinary damage (beyond normal wear and tear) to the local road network that can be identified as a direct result of these Construction Works. These pre and post construction surveys shall include video and/or photographic records of street furniture and road conditions.

The pre-construction survey shall be used to identify the existing road surface condition and state of any associated street furniture and state of the verges.

The post-construction surveys will identify any remediation works required to restore the road to condition noted in the pre-construction survey.

6.3 Road Signage

Temporary road signage in accordance with the Chapter 8 of the Traffic Signs Manual will be provided by an approved traffic management contractor for each of the works areas. The location and detail will be set out at the road opening permit phase of the works associated with the Cable Route Corridor.

All signage would be located in areas where they have good forward visibility and will be subject to regular review to ensure that they are visible, relevant and have not been removed.

A full signage strategy for the diversion routes will be developed and agreed with the Council.

6.4 Contact

Information on the proposed works will be provided to local media outlets such as the Your Local Guardian website, Staines Informer newspaper and local radio to help assist the public.

Pages with information about the construction of the cable route will be available on a project website. These will be updated throughout the construction period. If visitors to the site are unable to find the answer to their question in the webpages, an email address will be provided to contact the Applicant and their contractor.

The developer will also create prior to works commencing:

- A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic;
- A protocol for liaising with nearby developers to agree times and working arrangements, so not to impede or delay deliveries associated with neighbouring schemes or projects located along the proposed grid route, wherever possible; and
- Nomination of a liaison officer to ensure the smooth management of the project / public interface with the applicant, the construction contractors and local community.

6.5 Active Travel and Core Path Interaction

The contractor will ensure that speed limits are always adhered to by their drivers and associated subcontractors. Signage will be installed along the route that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This will also be emphasised in the weekly tool box talks.

It is proposed that where the cable route interacts with footways and paths, cyclists and walkers would be allowed access through the area and that appropriate signage be provided advising them of this access and the need to observe caution past the active works areas. Open trenches would be coned off to keep the public clear of the open works and they would be guided past to ensure their safety. Minor temporary diversions of the footways and paths, to allow path users to move around the works, will be provided and would be temporary in nature. Cross boards over trenches would be provided where required to ensure safety and the minimum of diversion.

6.6 Liaison Group

To help provide a conduit between the Applicant and the contractor, a liaison officer will be appointed, so that stakeholders, Council officers, other developers in the area and members of the public have a single point of contact and information. Details of the person appointed and their contact details will be provided prior to works commencing.

The liaison officer will set up regular meetings with all affected bodies prior to works commencing. This will include the following as a minimum and can be established as one large meeting or separate meetings for each affected Council area:

- Relevant highway network officers;
- Elected Members for the area;
- Parish Council members:
- Representative from the Police; and
- Representative from National Highways and or their management agent.

The liaison group will help co-ordinate works and will, wherever possible, help reduce disruption on the network. Prior to works commencing, the liaison officer will meet with business owners and developers of other neighbouring schemes to run through the detailed works programme and identify way to minimise disruption for construction traffic. This will help inform and develop the final cabling works programme.

7 Summary & Conclusions

Pell Frischmann Consultants Limited has been commissioned by Juniper Energy Limited (the Applicant), to prepare a combined Transport Statement and Construction Traffic Management Plan (CTMP) report for the Proposed Development, which comprises a new approximately 8.4km underground electrical grid connection line running between a proposed data centre and BESS site known as Manor Farm, through to Laleham Substation.

A review of peak daily construction trips has been undertaken. The construction traffic is minor in scale and would not have an adverse impact on the operation of the road network. A series of mitigation measures and management plans have been proposed to help mitigate and offset the impacts of the construction phase traffic flows.

Measures to enable the construction of the proposed cable route have been noted. Temporary lane closures, traffic management and footway diversions will be required during the construction phase. Where the cable excavation needs to cross sensitive areas such as Poyle Interchange, HDD or tunnelling works are proposed to reduce the impact on key nodes in the transport network.

The effects of construction traffic and the traffic management required to allow the construction of the cable are temporary in nature and are transitory.

The Proposed Development will lead to a temporary increase in traffic volumes within the Study Area during the construction phase only, however this can be appropriately and effectively managed. It is therefore concluded that there are no transport related matters which would preclude the construction of the Proposed Development.

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	Appendix A	Indicative Cable Alignment Drawings



