

Alternative Temporary Park and Ride and Heavy Goods Vehicle Marshalling Area EIA Scoping Report

United Utilities Water Limited

Haweswater Aqueduct Resilience Programme – Bowland and Marl Hill
Sections

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Alternative Temporary Park and Ride and Heavy Goods Vehicle Marshalling Area EIA Scoping Report

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Project no: B27070EP

Project manager: Simon Lewin

Prepared by: Jacobs U.K. Limited

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Jacobs U.K. Limited

5 First Street
Manchester M15 4GU
United Kingdom

T +44 (0)161 235 6000
F +44 (0)161 235 6001
[Website]

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Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty (now superseded by the designation <i>National Landscape</i>)
AQOs	Air Quality Objectives
BGS	British Geological Survey
BHS	Biological Heritage Site
BNG	Biodiversity Net Gain
BNL	Basic Noise Level
BS	British Standards
CCoP	Construction Code of Practice
CIEEM	Chartered Institute of Ecology and Environmental Management
CRoW	Countryside and Rights of Way
CTMP	Construction Traffic Management Plan
DMRB	Design Manual for Roads and Bridges
EC	European Commission
EclA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
FCDs	Field Capacity Days
FRA	Flood Risk Assessment
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GPA	Good Practice Advice
HARP	Haweswater Aqueduct Resilience Programme
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HPI	Habitats of Principal Importance
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management & Assessment
LAQM	Local Air Quality Management
LBAP	Lancashire Biodiversity Action Plan
LBAP	Local Biodiversity Action Plan
LCA	Landscape Character Area
LCT	Landscape Character Type
LHA	Local Highway Authority
LNR	Local Nature Reserve
LOAEL	Lowest Observed Adverse Effect Level
LRN	Local Road Network
LVIA	Landscape and Visual Impact Assessment
MAGIC	Multi Agency Geographic Information for the Countryside
N2K	Natura 2000
NCA	National Character Area
NERC	Natural Environment and Rural Communities
NHLE	National Heritage List for England
NMU	Non-Motorised User
NNR	National Nature Reserves
NPPF	National Planning Policy Framework

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NPSE	The Noise Policy Statement for England
P&R	Park and Ride
PPV	Peak Particle Velocity
PRoW	Public Rights of Way
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SOAEL	Significant Observed Adverse Effect Level
SPA	Special Protection Area
SRN	Strategic Road Network
SSSI	Sites of Special Scientific Interest
The Proposed Project	Alternative Temporary Park and Ride and Heavy Goods Vehicle Marshalling Area
WC	Wetness Class
WFD	Water Framework Directive

1 Introduction

1.1 Purpose of the Report

This document is an Environmental Impact Assessment (EIA) Scoping Report which has been prepared by Jacobs on behalf of United Utilities Water Limited (United Utilities) under the Town and Country Planning (Environmental Impact Assessment) Regulations.¹ The purpose of the Scoping Report is to support a formal request for an EIA scoping opinion from Ribble Valley Borough Council. The Scoping Report is intended to inform Ribble Valley Borough Council and other stakeholders of the proposed EIA scope and methodology for a proposed Alternative Temporary Park and Ride and Heavy Goods Vehicle Marshalling Area (the 'Proposed Project'). The Proposed Project is associated with the Bowland and Marl Hill Sections of the Haweswater Aqueduct Resilience Programme (HARP), which was granted planning consent in 2024 and is scheduled to start on site in late 2025. The Proposed Project is 4.1 hectares (ha) in area and is located on agricultural land approximately 1.6 kilometres (km) north-east of Clitheroe town centre (Figure 1).

1.2 Background

In 2021 United Utilities submitted two planning applications to Ribble Valley Borough Council in connection with the proposed HARP. These planning applications related to the proposed Marl Hill section of HARP (planning application reference 3/2021/0661, which is located entirely within Ribble Valley Borough Council's administrative area), and the proposed Bowland section (planning application reference 3/2021/0660, only part of which – the Newton-in-Bowland Compound and a section of the tunnel route – is in the authority's area). These two developments are referred to in this report as the 'consented schemes'.

A temporary Park and Ride (P&R) and heavy goods vehicle (HGV) marshalling area ('the consented P&R / HGV facility'), situated at Ribblesdale Cement Works near Clitheroe, forms a component of both consented schemes. The consented P&R / HGV facility is an integral part of the construction traffic management plan (CTMP) for the consented schemes and will be used during construction and commissioning of the consented schemes. The aim of the CTMP is to:

- Manage the timing and flows of HARP-related HGVs and private vehicles using the local road network
- Reduce the number of vehicle movements on the road network north of the consented P&R / HGV facility.

1.2.1 Consented Park & Ride Facility

To the west of West Bradford Road, there is an existing staff car park used by cement works employees; this is the location of the consented park and ride component of the facility. This was proposed to be a car park for private cars and light goods vehicles transporting construction personnel from a wide labour catchment area to Clitheroe. At the P&R component of the consented P&R / HGV facility, it was proposed that construction personnel would transfer to minibuses for the final leg of the journey to the Marl Hill and Newton-in-Bowland construction compounds, and in doing so would reduce the volume of traffic travelling towards and through Waddington.

It was anticipated in the planning applications for the consented schemes that the peak hours for minibus movements would generally be from 06:00 to 08:00 and 18:00 to 20:00, coinciding with a double shift pattern over a 24-hour period. This remains the case for the Proposed Project.

¹ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 UK Statutory Instruments 2017 No. 571

1.2.2 Consented HGV Marshalling Area and Planning Conditions

The HGV marshalling component of the consented P&R / HGV facility, to the east of West Bradford Road at Ribblesdale Cement Works, was intended to act as a marshalling area for HGVs. It was proposed that HGVs would arrive from the regional road network via the A59 and converge at the consented P&R / HGV facility. There, it was proposed that HGVs would be marshalled before being released onto the local road network in small convoys heading towards the construction compounds at prescribed times of the day, avoiding school run times, to reduce local traffic impacts and potential disturbance to local communities.

The planning applications for the consented schemes confirmed that HGV movements for the wider HARP programme of works will be limited to between the hours of 07:00 and 19:00 Monday to Friday only, and 07:00 to 13:00 Saturday only. Further, planning condition 41 for the consented schemes requires that, during school term times for the 'Main Project Stage'...

...no HGV movements, associated with the development hereby approved, will be permitted along Route 2b (as defined in Condition 34) during the following hours:

- 08:15 to 09:15 (Monday to Friday)
- 15:00 to 16:00 (Monday to Friday).

For the avoidance of doubt during school holidays the above restrictions will not be applicable.

As the development progresses any proposed changes to the above hours shall be submitted to and approved in writing by the Local Planning Authority supported by the necessary monitoring and evidence to support the proposed changes. Thereafter the HGV movements, associated with the development hereby permitted, shall adhere to the approved hours.

1.3 Current Status of the Consented P&R / HGV Facility

Heidelberg Materials, the owners of Ribblesdale Cement Works, has informed United Utilities that the land previously set aside for the consented P&R / HGV facility is no longer available for the duration of the HARP works. This means that United Utilities had to identify an alternative suitable location for the Proposed Project. In recent months, therefore, United Utilities has worked to identify alternative suitable locations for the Proposed Project.

1.4 Structure of the Scoping Report

This report is divided into the following:

- Chapter 1: Introduction outlines the background to the Proposed Project and structure of the Scoping Report
- Chapter 2: Background to the Proposed Project includes the need for the Proposed Project, the regulatory framework and a description of the alternative options considered
- Chapter 3: Description of the Proposed Project describes the general approach to the design, the main project features and provisional construction methodology and schedule
- Chapter 4: Approach to Scoping summarises the EIA scoping methodology and the aspects considered within the report
- Chapters 5-12 are technical chapters which present the proposed EIA methodology for each of the environmental topic areas which are prescribed under the EIA Regulations. In some cases, a decision has been made to discount certain environmental topics from the EIA and where this is the case, an explanation is provided to support this decision

- Appendix 1 contains the figures referred to in the document.

It should be noted that the EIA scoping reports produced in connection with the EIAs for the consented schemes contained several topic areas which are not considered to be relevant to the EIA for the Proposed Project. This is because it is unlikely these topics will give rise to likely significant effects:

- Access and recreation has been discounted as no recreational features or resources would be affected. There would be a requirement to divert two public rights of way (PRoW), and this requirement is addressed later in the scoping report (Chapter 10 Traffic and Movement)
- There are no foreseeable direct or indirect socio-economic effects on businesses or community infrastructure. A key feature of the Proposed Project is that many proposed vehicle movements along Pimlico Link Road and West Bradford Road, as far north as the consented P&R / HGV facility, would be taken off the local road network sooner than for the consented schemes. Social and economic assessment has therefore been discounted from the scope of the EIA
- Agriculture enterprises and agricultural land are not considered in a separate chapter, but are addressed in Chapter 9 Soils, Geology and Land Use
- No adverse human health effects are anticipated, and this has been discounted as a separate topic area. Health-related matters are however addressed in the land quality section of Chapter 9 Soils, Geology and Land Use, Chapter 11 Noise and Vibration, and Chapter 12 Air Quality
- While materials and waste is not considered as a separate topic in this scoping report, Chapter 3 Description of the Project makes reference to the nature and volume of anticipated wastes and residues which would be further considered in the Environmental Statement.

2 Background to the Proposed Project

2.1 Introduction

This chapter summarises the need for the Proposed Project and explains the regulatory framework within which it is being delivered. There is also a summary of the alternative options that have been considered within the options appraisal as part of identifying the preferred solution.

2.2 Need for the Proposed Project

As stated, the Proposed Project is required because the land on which the consented P&R / HGV facility is located is no longer available for its intended use for the duration of the construction and commissioning phases at the Marl Hill and Newton-in-Bowland construction compounds.

2.3 Regulatory and Policy Framework

Ribble Valley Borough Council is the local planning authority, with Lancashire County Council being the 'upper tier' authority for Ribble Valley and therefore a statutory consultee in the planning process.

Following legal advice and consultation with Ribble Valley Borough Council, it has been determined that the Proposed Project requires a separate planning application, as it lies outside the planning application boundary of the previously consented schemes. It has also been agreed that the existing Ribble Valley Borough Council permissions for the HARP Bowland and Marl Hill sections would each require the submission of non-material amendments (Section 96A of the Town and Country Planning Act 1990) to accommodate the Proposed Project.

Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that applications for planning permission are determined in accordance with the local development plan unless material considerations indicate otherwise. The Ribble Valley Core Strategy² forms the central document of the Local Development Framework³, establishing the vision, underlying objectives and key principles that guide the development of the area to 2028.

The National Planning Policy Framework (NPPF)⁴ provides the strategic guide for planning policies in England and how these are expected to be applied.

The Proposed Project would form part of HARP for the purposes of EIA. The HARP is EIA development, which could give rise to likely significant environmental effects. As such, the planning application for the Proposed Project will need to be accompanied by an Environmental Statement (ES), which describes the likely significant environmental effects of the Proposed Project and the proposed measures to avoid, reduce or offset adverse effects. The ES will also need to consider the cumulative environmental effects of the Proposed Project with other developments within its area of influence.

The ES for the Proposed Project will exclude any assessment of the consented P&R / HGV Facility, as it would not be implemented should the Proposed Project secure planning permission.

² Ribble Valley Borough Council (2014) Ribble Valley Core Strategy 2008 – 2028 A Local Plan for Ribble Valley

³ [https://www.ribblevalley.gov.uk/local-development-framework/local-development-framework-ldf#:~:text=The%20Local%20Development%20Framework%20\(LDF,investment%20over%20the%20coming%20years](https://www.ribblevalley.gov.uk/local-development-framework/local-development-framework-ldf#:~:text=The%20Local%20Development%20Framework%20(LDF,investment%20over%20the%20coming%20years) [accessed October 2024]

⁴ Department for Levelling Up, Housing and Communities (December 2023) National Planning Policy Framework

2.4 Consideration of Alternatives

The EIA Regulations 2017 require a description of the reasonable alternatives considered during the selection of the preferred location for the Proposed Project. This description will be presented in the ES, including an analysis of the relative technical and environmental merits and disbenefits of those options.

United Utilities evaluated a full range of options as part of identifying an alternative site for the Proposed Project. These options were appraised against cost, environmental and technical considerations, with a key consideration being the ease of access off the West Bradford / Pimlico Link Road corridor, where the consented P&R / HGV facility is located. In total, 18 alternative sites for the Proposed Project were identified and analysed (Figure 2).

Table 2-1 summarises the key reasoning for the selection of the preferred location (Site C) for the Proposed Project, and reasons for discounting the other sites. Table 2-1 categorises the potential locations as greenfield sites or developed / previously developed land.

Table 2-1: The Proposed Project Alternative Sites

Site	Description	Evaluation/Reasoning
Greenfield Sites		
Site A	Located on the west side of Pimlico Link Road, at the intersection between Pimlico Link Road and A59.	Access was considered to be poor as the location is situated close to a busy junction, where the sight lines for vehicles entering and leaving the site may not be sufficient. Highways safety issues. Discounted.
Site B	Located on the west side of Pimlico Link Road, approximately 2 km north-east of Clitheroe town centre.	This would require a new access being created off Pimlico Link Road, which would include removal of a tree group. Discounted.
Site C	Located south of Worston Brook on the west side of Pimlico Link Road, approximately 2 km north-east of Clitheroe.	This location offers sufficient land to accommodate the Proposed Project and is located a considerable distance (over 350 m) from the nearest residential property. There are no environmental designations which could constrain development. A new access off Pimlico Link Road would be required, improving an existing farm access. This would involve construction of a temporary new junction on Pimlico Link Road. However, it would be located sufficiently far from other junctions on Pimlico Link Road to allow sufficient sight lines and enable design to acceptable highways safety standards. Would require removal of some trees to achieve satisfactory sight lines. Preferred location.
Site D	Located on the east side of Pimlico Link Road, approximately 3 km north-east of Clitheroe.	This would require a new access being created off Pimlico Link Road, which would include substantial vegetation removal. Discounted.
Site I	Located on the east side the Pimlico Link Road, at the intersection between Pimlico Link Road and Chatburn Road.	No direct access off Pimlico Link Road - would be via existing gated access and track off Chatburn Road. Vegetation removal would be required. Site is close to Clitheroe Community Hospital and residential properties. Discounted.
Site H	Located on the east side of Pimlico Link Road, approximately 2 km north-east of Clitheroe.	No direct access off Pimlico Link Road - would be via existing gated access and track off Chatburn Road. Insufficient area of land. Discounted.
Site L	Located on the west side of Chatburn Road, approximately 0.1 km south-west	This site was not suitable as it lies adjacent to residential properties and Clitheroe Community

Site	Description	Evaluation/Reasoning
	from the intersection between Chatburn Road and Pimlico Link Road.	hospital. Also, there is no direct access off Pimlico Link Road. Discounted.
Site P	Located on the east side of Clitheroe Road, approximately 0.4 km south-west from the road.	This site was not suitable as it lies adjacent to residential properties and is not on the Pimlico Link Road / West Bradford corridor. Would potentially require access across fields from the Ribble Crossing haul road, or from Clitheroe Road to the west. Discounted.
Site Q	Located on the south bank of the River Ribble, off West Bradford Road, at the southern end of the consented Ribble Crossing.	This site was discounted due to the need for earthworks to make the site level; and the space would be constrained by areas at risk of flooding from the River Ribble. Discounted.
Site R	Located on the south side of West Bradford Road, approximately 0.1 km from the road and at the northern end of the consented Ribble Crossing.	This site was not suitable as it lies adjacent to residential properties and a primary school. Discounted.
Brownfield / Developed / Previously Developed Land		
Site E	Located on the west side of Pimlico Link Road, within an existing commercial area known as Bellmanpark accessed off Lincoln Way.	This site includes occupied commercial buildings and the space was not considered sufficient for the area required. It also forms part of Salthill and Bellmanpark Quarries Site of Special Scientific Interest (SSSI). Discounted.
Site F	Located on the southern side of Lincoln Way, within an existing commercial area known as Salthill Industrial Estate.	This area benefits from good road access and comprises occupied commercial premises. The unoccupied, available space within this area was not, however, considered sufficient for the Proposed Project. Discounted.
Site G	Located on the east side of Pimlico Link Road, approximately 3 km north-east of Clitheroe.	This location lies within Ribblesdale Cement Works' operational site boundary and is unavailable. Discounted.
Site J	Located on the west side of Pimlico Link Road, within Link 59 Business Park (an existing commercial area).	This site includes occupied commercial buildings and car parking, including Clitheroe Auction Mart, and the available space was insufficient for the Proposed Project. Discounted.
Site K	Located on the west side of Pimlico Link Road, at the intersection between Pimlico Link Road and Chatburn Road.	This site was not suitable as it is occupied by Clitheroe Community hospital. Discounted.
Site M	Located on the west side of Pimlico Link Road, within the Coplow Quarry SSSI.	This site was not suitable as it forms part of Coplow Quarry SSSI. Discounted.
Site N	Located on the west side of Pimlico Road, within the Johnson Matthey chemical site.	This location was not suitable as it falls within a Control of Major Accidents Hazards site ⁵ which would place potential risks and constraints on operation of the Proposed Project. Discounted.
Site O	Located on the east side of Pimlico Link Road, within the Tarmac Clitheroe Asphalt Plant.	Tarmac has confirmed that there is no available land. Discounted.

⁵ <https://notifications.hse.gov.uk/COMAH2015/PublicInformation.aspx?piid=3163> [accessed October 2024]

3 Description of the Proposed Project

3.1 Introduction

This chapter describes the Proposed Project including how it would be constructed and operated based on current designs. Consideration is also given to materials and waste and carbon emissions. An indicative construction and operation programme is provided. It should be noted that the Proposed Project is still evolving and therefore some details may change in response to ongoing design development, consultations with external stakeholders (including local people), and outcomes from the EIA process.

3.2 Location

The Proposed Project would be located to the west of Pimlico Link Road in Ribble Valley borough, approximately 1.6 km north-east of Clitheroe town centre. The site sits within a predominantly rural setting, albeit with urban and industrial land uses nearby. To the north-west of the site (beyond Worston Brook which flows in a broadly westerly direction towards the River Ribble east of Clitheroe) is Salthill Industrial Estate on Lincoln Way. To the east of the site is Pimlico Link Road, beyond which is open agricultural land interspersed with small pockets of woodland. To the south-east there is approximately 400 m of open farmland before reaching the A59, which is the main west-east road in the Ribble Valley area. The nearest residential property to the Proposed Project is some 380 m to the west-south-west at its nearest point. Clitheroe Community Hospital is located at the junction of Chatburn Road and Pimlico Link Road to the north west.

The area defined by the indicative planning application boundary has been sized to carry out the same function as the consented P&R / HGV facility on West Bradford Road, some 1.7 km to the north-west. Figure 3 shows the indicative areas of land within which construction and operation phase activities would take place. It should be noted that the extent of the indicated highways works on Pimlico Link Road could be refined and reduced in size as the design and EIA progresses, and following consultations with the highways authority.

3.3 Description of the Proposed Project

The proposal is to combine the HGV Marshalling Area and staff park and ride facility at the same location (noting that the consented P&R / HGV facility is sited either side of West Bradford Road). From the Proposed Project, marshalled HGVs and construction personnel in minibuses would proceed in a general northerly direction along local roads, via the consented Ribble Crossing and Waddington village, to the Newton-in-Bowland, Bonstone and Braddup compounds.

It is anticipated that the Alternative Temporary Park and Ride and HGV Marshalling Area would be constructed on open land that is currently under agricultural pasture and occupies approximately 4.1 ha in area. The Proposed Project would contain the following facilities:

- Security office and barrier
- Generator and kiosk for lighting and lighting columns
- Welfare area and meeting area
- Site fencing and sound hoarding
- Vehicle parking area (228 parking spaces)
- HGV marshalling area
- Surface water lagoons, drainage outfall and oil interceptor chamber

- Stockpiles of topsoil and subsoil arising from the site soil strip required at the start of construction of the Proposed Project. These would be reinstated on completion of the wider HARP construction and commissioning works.

In addition, there would be highway works to the existing site access and locally along Pimlico Link Road to ensure safe access and egress from the site, and a temporary closure and localised diversion of a PRow.

3.4 Construction

Access to the site would be at the location of an existing farm access on Pimlico Link Road. The existing access is insufficient to meet highway authority engineering and safety standards and so would be greatly improved and extended to serve the types and size of vehicles which are anticipated to use the Proposed Project. A CTMP was developed for the consented schemes and this would be extended to incorporate the Proposed Project. The CTMP aims to reduce the risks and conflicts with other road users and enable the safe and timely movement of HARP HGVs on the road network.

A security office would be installed with gates/barriers at the entrance of the site for safety and security reasons. There would also be perimeter fencing installed around the perimeter of the site to a height of about 2 m to prevent unauthorised access. It is anticipated that the footpath FP0301008 along the northern boundary of the site would be closed for a short duration of approximately one day during construction and decommissioning of the proposed outfall for safety reasons. A localised diversion would be put in place during the works. Footpath FP0348005 at the access to the Proposed Project would also require a temporary diversion.

The enabling works would involve site clearance including stripping of topsoil and storing this in stockpiles on site. The subsoil would then be excavated to a depth of up to 450 mm below ground level and stored separately to the topsoil. Some trees may need to be felled and / or pruned at the entrance to the site to enable an acceptable visibility splay for vehicles turning onto Pimlico Link Road. The extent of the felling and pruning would be defined by the highway design which is currently being progressed in consultation with the highways authority. Once the site is clear, the car park surface and internal circulation routes would be laid using Tarmac. Opportunities to incorporate sustainable drainage systems would be considered in the EIA. It is assumed that the road would be built up to be 350 mm, based on the soft clay ground conditions. There would also be Portakabin-type accommodation providing welfare facilities for the construction workers and site operatives.

Surface water would be collected via a new surface water drainage network and would drain to surface water retention and attenuation ponds. From the ponds, drainage water would pass through an oil interceptor chamber and then drain to Worston Brook by a new build drainage outfall. Pollution control valves would prevent the release of drainage water to Worston Brook in the unlikely event of a pollution incident on site.

A lighting system to enable safe working would be installed as per applicable standards. It is currently assumed that lighting columns would be placed around the site; directional lighting would be used to reduce glare. It is likely that the lighting would be powered by temporary generators. Highway lighting would be required to illuminate the proposed new junction on Pimlico Link Road.

Dedicated areas would be set up for the HGV marshalling area and for construction-worker parking spaces.

It is anticipated that the following type of equipment would be used to construct the Proposed Project:

- General bulk excavation equipment: e.g. dump truck, 360 excavator, mini excavator, bulldozer and four axle tipper wagon, etc.
- Equipment for paving with Tarmac: Asphalt paver and white lining vehicle, etc.
- General equipment: Low loader transport vehicle, crane wagon, etc.

3.5 Operation

The site is designed to be a vehicle hub for HGVs and commuting workers on the consented schemes as a way of reducing the number of HGVs on the local road network. The HGV marshalling area would allow control of traffic leaving the A59 prior to using the narrower local road network. This would entail the use of escorted convoys and directional control of vehicles greater than circa 2.55 m width. Construction workers would use the park and ride site, where they would leave their personal vehicles before travelling to HARP construction compounds on a fleet of minibuses. The estimated operational vehicle numbers and daily scheduling over the duration of the main HARP construction programme would be the same as for the original planning application.

Tankers would be used to bring clean water to the site for use in the welfare facilities and for wheel washing; wastewater would be removed off site in tankers for treatment at a licensed wastewater treatment facility. It is anticipated that the facilities would be maintained/serviced at least once a week.

The site would be decommissioned and reinstated once construction of the Marl Hill and Bowland Sections of HARP are complete and the temporary Park and Ride and HGV marshalling area is no longer required. This would involve removing the Portakabins and hardstanding areas, reinstating the subsoil then the topsoil and removing any site fencing or other temporary works. The site would be seeded to return the land back to pasture similar to that present prior to construction. The improved access would be removed too.

3.6 Materials and Waste

Materials used during construction would consist mainly of crushed stone (which would be used as a surface protective layer) and Tarmac and clay for constructing much of the Proposed Project's surface. It is not anticipated that clay or soils would need to be imported to site, as these would be excavated on site during construction of the Proposed Project.

Limited waste quantities would be produced at each stage of the Proposed Project. These would consist mainly of non-hazardous surplus material and packaging during construction, liquid and solid wastes during operation (derived, for example, from the welfare facilities and wheel washes), and recovered materials such as crushed stone during the decommissioning phase (which would be returned to market for recycling). Domestic waste would be produced from the welfare facilities during operation and would be taken off site by a licensed contractor for recycling or disposal at a suitably licensed facility. The site would comply with relevant waste management regulations and with good practice measures regarding the storage of fuel, oils and other materials.

On the basis of the limited amounts of materials used and waste generated, the availability of appropriate mitigation and good practice measures such as the waste management hierarchy, and the absence of likely significant environmental effects, it is proposed that materials and waste as a technical area is descoped from the EIA.

3.7 Carbon Emissions and Climate

United Utilities would implement corporate climate change objectives to reduce potential carbon emissions on the Proposed Project. It will embed its carbon and climate agenda-related requirements in the procurement process.

Individually, the Proposed Project would result in relatively low carbon emissions. The key carbon sources would be associated with:

- Carbon embodied in materials required to construct the site such as crushed stone, Tarmac, drainage pipes and outfalls

- Emissions from vehicles delivering materials to the site during the construction phase and removing materials off site in the decommissioning phase
- Energy use (e.g. consumption of diesel by construction plant and machinery) to undertake or support construction and decommissioning activities and also during operation to operate the welfare facilities, security and lighting.

During its operation, the Proposed Project would lead to a reduction in carbon emissions associated with HARP construction personnel private vehicles as these are taken off the local road network earlier than the consented schemes.

While carbon emissions associated with the Proposed Project would be very small when compared with those from the consented schemes, the ES will report on estimated carbon emissions associated with construction of the Proposed Project (materials, vehicle movements, fuel). The relative significance of these emissions will be evaluated against relevant guidelines and policy. The existing carbon reduction measures proposed for the consented schemes would apply, where relevant, to the Proposed Project. These aim to reduce carbon emissions to as low a level as reasonably practicable, in line with relevant national objectives and good practice guidance. Sustainable design measures to address climate objectives will also be considered in the Environmental Statement.

3.8 Construction and Operation Programme

Subject to planning consent being granted, construction of the Proposed Project is estimated to start in January 2026 and completed in October 2026, to allow the facility to enter operation towards the end of 2026. The Proposed Project would be operational for seven years between the end of 2026 and 2033 – this corresponds to the construction phase of the consented schemes. The site is anticipated to be decommissioned in late 2032 once the HARP project is complete and the Proposed Project is no longer required. Decommissioning of the site is anticipated to take approximately 12 months and would include reinstatement and landscaping (subject to seasonal timing) back to the pre-construction condition.

4 Approach to Scoping

4.1 Requirements of EIA Scoping

Scoping is an important initial stage of the EIA process. The EIA Regulations 2017 (Regulation 15 (2)) state that a Scoping Report should provide the following information:

- A plan sufficient to identify the land (Figure 1)
- A brief description of the nature and purpose of the development, including its location and technical capacity (Chapter 3)
- An explanation of the likely significant effects of the development on the environment (provided in each of the technical chapters of the Scoping Report (Chapters 5-12))
- Such other information or representations as the person making the request may wish to provide or make (provided at points through the Scoping Report).

4.2 Technical Scope

In addition, the EIA Regulations 2017 (Regulation 4(2)) state that an EIA should identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on various environmental assets and human resources. Table 4-1 identifies where these factors are covered within this scoping report or why they are not considered relevant to the Proposed Project.

Table 4-1: Where requirements of the EIA Regulations 2017 are addressed in this report

Ref	Factor	Where Considered With This Scoping Report
4 (2a)	Population and human health	Within the land quality section of Chapter 9 Soils, Geology and Land Use, Chapter 11 Noise and Vibration, and Chapter 12 Air Quality.
4 (2b)	Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC	Chapter 7 Ecology.
4 (2c)	Land, soil Air and climate	Chapter 9 Soils, Geology and Land Use. Chapter 12 Air Quality and Climate Change.
4 (2d)	Material assets Cultural heritage Landscape	Chapter 3 Description of the Proposed Project. Chapter 8 Cultural Heritage. Chapter 5 Landscape and Arboriculture.
4 (2e)	The interaction between the factors referred to in sub-paragraphs (a) to (d)	Section 4.5.
4 (3)	...must include the operational effects	Chapters 5-12 consider operational effects or explain why these are not applicable.
4 (4)	...expected significant effects arising from the vulnerability of the proposed development to major accidents or disasters.	It is not anticipated that the Proposed Project would be vulnerable to any likely external major accidents or disasters. The status of registered Control of Major Accident Hazards (COMAH) sites will be checked and evaluated in the Environmental Statement. The key environmental risk posed by the Proposed

Ref	Factor	Where Considered With This Scoping Report
		Project is the potential for accidental release of small volumes of fuel or oil from bowzers or storage tanks on site.

4.3 Scoping Report Approach

This Scoping Report identifies the baseline environment for each of the environmental topics, including any future changes to the baseline that could be anticipated in the absence of the Proposed Project. It then identifies the likely significant environmental effects that may arise from the Proposed Project. Where potential environmental effects are not considered to be significant, perhaps falling below an established threshold, they are generally discounted from the EIA process. This assists in promoting the principles of proportionate EIA, which aims to maintain a focus on likely significant effects only, with an emphasis on issues that are directly relevant to the decision-making process.

4.4 Consultations Undertaken to Date

United Utilities has undertaken preliminary consultation meetings with the local planning authority, parish councils and town council, as presented in Table 4-2.

Table 4-2: Preliminary consultation meetings with the local planning authority, parish councils and town council

No.	Topic	Consulted parish/council	Consultation Meeting Date	Summary of the Meetings
1	Planning	Ribble Valley Borough Council	2/2/24, 13/6/24 and 12/9/24	- Introduced the requirement for an alternative temporary park and ride and HGV marshalling area - Discussed the planning approach and provided updates on Environmental Impact Assessment work.
2	General update	Clitheroe Town Council	23/09/24	- United Utilities provided background to the Haweswater Aqueduct Resilience Programme, outlined the consented park and ride and HGV marshalling area and introduced the need for an alternative temporary park and ride and HGV marshalling area - An indicative site layout and draft programme for the works were presented.
3	General update	Worston and Mearley Parish Council	30/09/24	- United Utilities provided background to the Haweswater Aqueduct Resilience Programme, outlined the consented park and ride and HGV marshalling area and introduced the need for an alternative temporary park and ride and HGV marshalling area - An indicative site layout and draft programme for the works were presented.
4	General update	Chatburn Parish Council	21/10/24	United Utilities provided background to the Haweswater Aqueduct Resilience Programme, outlined the consented park and ride and HGV marshalling area and

Alternative Temporary Park and Ride and Heavy Goods Vehicle Marshalling Area EIA Scoping Report

No.	Topic	Consulted parish/council	Consultation Meeting Date	Summary of the Meetings
				introduced the need for an alternative temporary park and ride and HGV marshalling area An indicative site layout and draft programme for the works were presented.

Table 4-3 summarises consultations which have been undertaken to date with statutory bodies prior to submission of the EIA scoping request to Ribble Valley Borough Council. It is anticipated that there will be further engagement with officers and selected non-statutory environmental bodies during the EIA stage, prior to submission of the planning application.

Table 4-3: Statutory Body consultation

EIA Topic	Statutory Body	Consultation Period	Summary of Consultations
Water environment	Lead Local Flood Authority (Lancashire County Council)	Meeting 24/10/2024	- United Utilities explained the surface drainage proposals for the Proposed Project - The LLFA confirmed its requirements for the flood risk assessment and drainage strategy to support the planning application - Ongoing contact with LLFA anticipated into EIA stage.
Cultural Heritage	Lancashire County Council Archaeological Advisor	Contacted 29/08/2024	- The County Archaeological Advisor advised that the line of the Roman road along the south boundary of the Proposed Project is certain - The Roman road may now fall within the indicative planning application boundary - Ongoing contact with the County Archaeological Advisor anticipated into EIA stage.
Landscape	Development Management and Building Control Economic Development and Planning, Ribble Valley Borough Council	Contacted 14/08/2024, 25/09/2024	- Agreement of proposed methodology and the selected viewpoints - Ongoing contact with Ribble Valley Borough Council anticipated into EIA stage.
Air quality	Environmental Health Department at Ribble Valley Borough Council	Contacted 04/09/2024	Remain in contact with the Environmental Health Officers into EIA stage.
Traffic and Movement	Lancashire County Council Highways	Meeting 30/08/2024	- UU introduced the requirement for an alternative park and ride and HGV marshalling area. Lancashire County Council Highways raised no notable concerns with the proposed traffic and movement methodology - Lancashire County Council Highways commented on the proposed site access which has been taken into account as part of the evolving design

EIA Topic	Statutory Body	Consultation Period	Summary of Consultations
			Ongoing contact with Lancashire County Council anticipated into EIA stage.
Noise and Vibration	Environmental Health Department at Ribble Valley Borough Council	Contacted 28/08/2024	Remain in contact with the Environmental Health Officers.
Arboriculture	Ribble Valley District Council Tree Officer	Contacted 01/07/2024	- Site not covered by Tree Preservation Order or Conservation Area designation - Ongoing contact with Ribble Valley Borough Council anticipated into EIA stage.

United Utilities plan to convene a public exhibition in November 2024 to consult on the Proposed Project. A website is also available to allow local residents and interest groups to provide online feedback on the proposals. Local people have been notified by letter of the public exhibition and how to access the website. Feedback from the public consultation will be taken into account when finalising the design of the Proposed Project for the purposes of the planning application.

4.5 Assessment Criteria

As stated previously, the EIA process is directed towards the assessment of *likely significant effects*. This enables both the scoping process and the subsequent EIA to focus on issues which will be relevant and material to the determination of the planning application and also supports a proportionate assessment.

When considering whether likely environmental effects may be significant or not, assessment criteria are employed to assist in determining whether effects could be above or below defined thresholds. In some cases, these thresholds are quantitative and are based on recognised numerical standards, for example, noise effects, while others are qualitative and subject to professional opinion, such as landscape effects.

Within this Scoping Report, each topic describes the assessment criteria that have been applied in determining whether the Proposed Project would have likely significant effects or not (can be adverse or beneficial). In support of this exercise, some topics have also considered the magnitude of an environmental effect against the value or sensitivity of each asset or resource that is being affected. The sensitivity of a receptor is determined by, among other things, its level of designation or protection and its susceptibility to or ability to accommodate change. This is then considered alongside the magnitude of impact of the Proposed Project on the receptor. Table 4-4 provides an illustration of how the significance of effects can be assessed by forecasting the magnitude of change and a receptor's sensitivity to that change.

The threshold between non-significant and significant environmental effects is normally taken to be a 'moderate' effect. The combination of magnitude of effect and value / sensitivity combinations resulting in a potential significant effect are shaded in Table 4-4.

Table 4-4: Forecasting the Significance of Effects

		Value / Sensitivity of Asset / Resource			
		Low	Medium	High	Very High
Magnitude of Impact	Negligible	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Minor	Moderate	Moderate
	Medium	Minor	Moderate	Major	Major
	High	Moderate	Major	Major	Major

Once likely significant adverse effects have been identified in the EIA process, mitigation proposals are developed to avoid, reduce or offset likely significant effects prior to presenting the residual effects, which are considered as part of determining the planning application.

4.6 Approach to Mitigation

The EIA Regulations allow for the consideration of available mitigation techniques during the scoping phase to discount likely significant effects which can be mitigated with proven techniques. These are typically good practice measures that are used on many construction projects, such as avoiding the dispersal of dust, controlling noise emissions from plant and machinery, and avoiding sensitive environmental features such as tree groups and biodiversity resources. In addition, steps taken to avoid or reduce significant adverse effects through design revisions are known as embedded mitigation and can also be considered prior to assessment. The role of good practice measures and embedded mitigation in the design process will be recorded in the ES.

A Construction Code of Practice (CCoP) will be submitted as part of the planning application. This will include good practice measures, embedded mitigation and any additional mitigation to avoid or reduce likely significant effects. It will also capture mitigation and monitoring commitments which have been presented in the ES. The application will also include an Environmental Masterplan to indicate where and when mitigation and monitoring proposals would be implemented.

A schedule of environmental monitoring would also be developed to support the mitigation programme. These monitoring requirements could be short-term (for example, water quality monitoring during construction adjacent to a watercourse), or extend beyond the operation and reinstatement phase, for example in relation to the establishment of landscape planting schemes.

4.7 Cumulative Effects and Interaction of Effects

The EIA Regulations 2017 require an applicant to consider the cumulative effects of a proposed project with other, reasonably foreseeable, proposals whose environmental effects could act in combination with those described in the ES. For example, two separate developments could both give rise to increased flood risk in a river catchment which, when considered in combination, are more significant than when assessed as individual projects.

The interaction of effects considers different environmental effects associated with a proposed project (e.g. traffic, noise, air quality and community severance) acting at the same location or upon the same environmental resource. For example, a local community may experience increased noise levels, severance and traffic congestion during the construction phase of a project.

In consultation with stakeholders, therefore, the cumulative effects and the interaction of effects of the Proposed Project in conjunction with other committed developments will be addressed in the ES. The cumulative effects assessment will also consider the likely significant effects of the Proposed Project with the wider HARP programme of works.

5 Landscape and Arboriculture

5.1 Overview

This chapter presents the outcome of the scoping exercise in relation to the likely significant landscape and visual effects of the Proposed Project. A Landscape and Visual Impact Assessment (LVIA) will identify and assess the potential effects of the Proposed Project during the construction and operational stages on the landscape and visual resource within a defined study area.

Landscapes vary considerably in character and quality and constitute a key component of the distinctiveness of any local area. The assessment of landscape effects will address the effects of change and development on the landscape as a resource (i.e. landscape receptors such as landscape character units and designated landscapes). The assessment will be primarily concerned with the extent to which the Proposed Project would affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. Landscapes vary considerably in character and quality and constitute a key component of the distinctiveness of any local area.

The assessment of visual effects will address the effects of change and development on the views available to people and their visual amenity (i.e. visual receptors). It will be primarily concerned with how visual receptors would be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements in the landscape and / or the introduction of new elements.

This chapter also outlines the scope of the arboricultural survey that will be undertaken as part of the Proposed Project.

5.2 Key Legislation, Policy and Guidance

Table 5-1 sets out key legislation and guidance of relevance to both landscape and visual, and arboriculture.

Table 5-1: Landscape and Visual Key Legislation and Guidance

Applicable Legislation, Policy and Guidance	Description
International Treaty	
The European Landscape Convention ⁶	Promotes the protection, management and planning of the landscapes, and organises international co-operation on landscape issues.
Legislation	
National Parks and Access to the Countryside Act 1949 ⁷	National Landscapes are designated Areas of Outstanding Natural Beauty (AONB) that are protected under this Act. Their protection is further enhanced by the Countryside and Rights of Way Act 2000.
Countryside and Rights of Way (CRoW) Act 2000 ⁸	The Act makes provision for designating a National Landscape (formerly an AONB) for the purpose of conserving and enhancing the natural beauty of an area. The CRoW Act also aims to make new provision for public access to the countryside; conserve an area's natural beauty; amend the laws relating to PROWs, nature conservation and the protection of wildlife; and make provision for purposes connected to the above such as Access Land.

⁶ Council of Europe (2000) The European Landscape Convention [Online] Available from: <https://www.coe.int/en/web/landscape> [Accessed: October 2024]

⁷ National Parks and Access to the Countryside Act 1949 Legislation.gov.uk [Online] Available from: <http://www.legislation.gov.uk/ukpga/Geo6/12-13-14/97> [Accessed: October 2024]

⁸ Countryside and Rights of Way Act 2000 Legislation.gov.uk [Online] Available from: <https://www.legislation.gov.uk/ukpga/2000/37/contents> [Accessed: October 2024]

Applicable Legislation, Policy and Guidance	Description
Tree Preservation Orders: The Town and Country Planning (Tree Preservation) (England) Regulations 2012 ⁹	The Town and Country Planning (Tree Preservation) (England) Regulations 2012 outline the procedures to be followed for the granting of a tree preservation order and protection measures for protected trees.
Policy	
National Planning Policy Framework (NPPF)	The revised NPPF sets out the UK government's planning policies for England and provides guidance on how these policies are expected to be applied.
Ribble Valley Borough Council Core Strategy ¹⁰	The Council's adopted development plan for the borough. The Core Strategy outlines strategic vision, objectives and local policy for the environment and infrastructure.
Keepers of time: ancient and native woodland and trees policy in England ¹¹	The Government's statement on England's ancient and native woodland and ancient and veteran trees.
Guidance	
Arboricultural guidance British Standard (BS) 5837:2012 Trees in relation to design, demolition and construction. Recommendations ¹²	BS 5837:2012 provides recommendations relating to tree care, with a view to achieving a harmonious and sustainable relationship between new construction / existing structures and their surrounding trees.
Arboricultural guidance BS 3998:2010 Tree work - Recommendations ¹³	BS 3998:2010 sets out industry best practice for the pruning of trees, including recommendations on maximum levels of pruning acceptable to maintain a healthy tree. This information is used to inform decision made in relation to BS 5837:2012.
Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3) ¹⁴	Provides overarching guidance on the assessment of landscape and visual effects.

The LVIA will be guided by relevant National Planning Policy Framework (NPPF) policy and local planning policy. Planning policies and designations of relevance to the Proposed Project will be taken into consideration, for example in terms of assessing the value of receptors and identifying mitigation measures.

⁹ The Town and Country Planning (Tree Preservation) (England) Regulations 2012 *Legislation.gov.uk* [Online] Available from: <https://www.legislation.gov.uk/uksi/2012/605/contents/made> [Accessed: October 2024]

¹⁰ Ribble Valley Borough Council (2014) Core Strategy 2008 – 2028 A Local Plan for Ribble Valley

¹¹ Department for Environment Food & Rural Affairs (2022) Keepers of time: ancient and native woodland and trees policy in England

¹² British Standards Institution (2012) BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations

¹³ British Standards Institution (2010) BS 5837:2010 Tree Work - Recommendations

¹⁴ Landscape Institute and the Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment 3rd edition

Chapters from the revised NPPF of relevance to the topics of landscape and visual amenity, including arboriculture, include:

- Chapter 2: Achieving sustainable development
- Chapter 8: Promoting healthy and safe communities
- Chapter 12: Achieving well-designed and beautiful places
- Chapter 15: Conserving and enhancing the natural environment.

Local planning policies from the adopted Ribble Valley Borough Council Core Strategy¹⁵ relevant to landscape and visual amenity, including arboriculture, include:

- Key Statement EN2: Landscape
- Key Statement EN3: Sustainable Development and Climate Change
- Policy DME1: Protecting Trees and Woodland
- Policy DME2: Landscape and Townscape Protection.

5.3 Proposed LVIA Methodology

The assessment will be undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3). GLVIA3 promote LVIA that is proportional to the scale and nature of the proposals with emphasis placed on the potential for significant effects. The assessment will also draw on previous experience of similar projects, professional judgement and knowledge of the local landscape within which the Proposed Project would be delivered.

5.3.1 Study Area

The likelihood of significant landscape and visual effects diminishes with increasing distance from a proposed development. Guidance is provided by GLVIA3 on the area of extents that should be covered in assessing landscape and visual effects (i.e. the 'study area'). Paragraph 5.2 of GLVIA3 states that '*the study area should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner*'. GLVIA3 advocate a proportionate approach to the LVIA process, with emphasis placed on the potential for significant effects. The likelihood of significant landscape and visual effects diminishes with increasing distance from a proposed development. This will be taken into consideration when determining the extent of the proposed study area below.

Based on an initial desk-based study and site walkover, a 2 km study area has been proposed for the LVIA. This is the area within which significant landscape and visual effects are considered likely. The potential for landscape and visual effects beyond 2 km will be reassessed in the field during the landscape and visual surveys for the ES, including highly sensitive receptors where there may be views from elevated locations, such as within the Forest of Bowland National Landscape.

5.3.2 Baseline Conditions

In establishing the existing baseline conditions, the assessment will include a description and analysis of the existing landscape character and visual quality of the study area. This will draw on available information

¹⁵ Ribble Valley Borough Council (2014) Core Strategy 2008 – 2028 A Local Plan for Ribble Valley

considered during scoping and supplemented with field study to account for any environmental trends or new features.

Landscape character assessments will be based on published information from local landscape character assessments (*A Landscape Strategy for Lancashire*, 2000¹⁶ and *Forest of Bowland AONB Landscape Character Assessment*, 2009)¹⁷ and Natural England's National Character Assessments (NCA)¹⁸.

A baseline survey will be undertaken to verify landscape character areas and important viewpoints. Field notes and photographs will record the existing landscape and visual environment. Views of the Proposed Project from properties and communities within the study area will form the focus of the visual impact assessment. Visual receptors will also include locations associated with outdoor pursuits and activities, where a viewer's attention or interest is related to views and the landscape, and views which are incidental to a visitor's or user's day-to-day routine. These may include residential properties; guests at hotels, hostels, camp sites; visitors to heritage or tourist attractions; and travellers through the landscape (e.g. motorists, cyclists, tourists, ramblers and outdoor workers).

The identification of impacts and effects will draw on survey information taken from a series of representative viewpoints, which will be developed to assist in understanding how the Proposed Project interacts with the receiving landscape and affects visual amenity. The location of the viewpoints will be developed with local authority officers at Ribbles Valley Borough Council. All photography will be prepared in accordance with the Landscape Institute's *Visual Representation of Development Proposals Technical Guidance Note 06/19* (September 2019)¹⁹. Due to the temporary nature of the Proposed Project, representative photomontages and visualisations will not be presented as part of the LVIA.

5.4 Proposed LVIA Criteria

In accordance with GLVIA3 the assessment of sensitivity for both landscape and visual assessments will combine judgements on the value attributed to that receptor and the susceptibility of the receptor to the specific type of development proposed.

5.4.1 Landscape Sensitivity Evaluation

Susceptibility is defined as the ability of the landscape to accommodate the proposed development without undue negative consequences. Susceptibility of landscape receptors to change will be assessed using the criteria detailed in Table 5-2.

Table 5-2: Landscape Susceptibility Criteria

Susceptibility	Criteria
High	Little ability to accommodate the proposed development without undue harm.
Medium	Some ability to accommodate the proposed development without undue harm.
Low	Substantial ability to accommodate the proposed development without undue harm.

GLVIA3 defines landscape value as '*the relative value that is attached to different landscapes by society*'. A review of existing designations (e.g. National Park, National Landscapes, etc.) is usually the starting point in understanding value. Table 5-3 sets out the relative importance of generic landscape designations and

¹⁶ Lancashire County Council (2000) *A Landscape Strategy for Lancashire*

¹⁷ Lancashire County Council (2009) *Forest of Bowland AONB Landscape Character Assessment*

¹⁸ Natural England (2024) *National Character Area profiles: information for local decision making* [Online] Available from: <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles> [Accessed: September 2024]

¹⁹ Landscape Institute (2019) *Technical Guidance Note 06/19 Visual Representation of Development Proposals*

descriptions. The criteria in Table 5-4 will be used along with professional judgement, to evaluate the overall landscape sensitivity.

Table 5-3: Criteria for Assessing Value of Landscape Designations

Examples of Designation	Description	Importance (Value)
World Heritage Site	Unique sites, features or areas of international importance with settings of very high quality.	International (High)
National Parks, National Landscapes, Registered Parks and Gardens of Special Historic Interest, Ancient Woodland, Scheduled Monuments, curtilage of Grade I, II and II* Listed Buildings	Sites, features or areas of national importance with settings of high quality.	National (High)
Conservation Areas	Sites, features or areas of regional importance with intact character.	Regional/County (High/ Medium)
Local Landscape Designations e.g. Green Belt, protecting setting of higher value landscape designations, Tree Preservation Orders	Sites, features or areas of district importance.	District (Medium/Low)
Probably no designation, e.g. public space or local footpath	General countryside area valued at the local level.	Local (Medium/ Low)

Table 5-4: Landscape Sensitivity Criteria

Sensitivity	Criteria
High	Landscape elements of particularly distinctive character, which are highly valued and considered susceptible to relatively small changes.
Medium	Landscape of moderately valued characteristics considered reasonably tolerant of change. Some ability to accommodate the Proposed Project without undue harm.
Low	Landscape of generally low valued characteristics considered potentially tolerant of substantial change.

5.4.2 Visual Sensitivity Evaluation

The susceptibility of different visual receptors to changes in views and visual amenity is mainly a function of:

- The occupation or activity of people experiencing the view at particular locations
- The extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations.

Table 5-5 (based on generic guidance in GLVIA3) will be used to help evaluate the susceptibility of different types of receptors.

Table 5-5: Visual Receptor Susceptibility to Change

Susceptibility	Receptor Type
High	- Residents - People engaged in outdoor recreation, including users of PRowS, whose attention is likely to be focused on the landscape and on particular views - Visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience - Communities where views contribute to the landscape setting and are enjoyed by residents - Transient users of scenic routes where awareness of views is likely to be particularly high.
Medium	- Transient users of road, rail or other transport routes where the appreciation of visual amenity is not the primary concern - Outdoor workers.
Low	- People engaged in outdoor sport or recreation, which does not involve appreciation of views - People at their place of work, education and worship whose attention may be focused on their activities and where the setting is not important.

The criteria in Table 5-6 will be used, along with professional judgement, to help determine the value of the views in relation to designations and helps to equate sensitivity to other factors e.g. important views.

Table 5-6: Value of Views

Value	Views from:
High	Viewpoints of national importance, or highly popular visitor attractions where the view forms an important part of the experience, or with important cultural associations. A view that may be identified in character area appraisals.
Medium	Viewpoints of regional / district importance or moderately popular visitor attractions where the view forms part of the experience, or with local cultural associations. A typical and / or representative view.
Low	Viewpoints with no designations, not particularly popular/ important as a viewpoint and with minimal or no cultural associations.

The sensitivity of visual receptors to changes in their views will be evaluated in accordance with the criteria provided in Table 5-7 based on the receptor susceptibility to change and the value of views.

Table 5-7: Visual Sensitivity Criteria

Sensitivity	Criteria
High	Receptors where the changed view is of high value and importance and / or where the receptor will notice any change to visual amenity by reason of the nature of use and their expectations. Receptors where the view is important to users will be of high sensitivity such as residential properties or PRowS.
Medium	Receptors where the changed view is incidental, but not critical to amenity and / or the nature of the view, is not a primary consideration of the users (receptors where users are likely to spend time outside or participation in an activity looking at the view and industrial receptors that have offices with windows that take advantage of views).

Sensitivity	Criteria
Low	Receptors where the changed view is unimportant and / or users are not sensitive to change (outdoor receptors where users are unlikely to consider the views an important element of their usage of the site will generally be assessed to be of low sensitivity).

5.4.3 Evaluation of Magnitude of Effects

5.4.3.1 Magnitude of Landscape Effects

The magnitude of landscape effect will be assessed in terms of its size or scale, the geographical extent of the area that would be influenced, its duration and reversibility.

This judgement on magnitude of change in the landscape takes into consideration the following factors:

- The extent / proportion of landscape elements lost or added
- The contribution of that element to landscape character and the degree to which aesthetic / perceptual aspects are altered
- Whether the change is likely to alter the key characteristics of the landscape, which are critical to its distinctive character.

The criteria used to assess the size, scale and geographic extents of landscape effects will be based upon the amount of change that would occur as a result of the Proposed Project, as described in Table 5-8 below.

Table 5-8: Magnitude of Landscape Effects

Magnitude	Criteria
Major	Substantial adverse or beneficial impact where the Proposed Project would cause a significant change in the landscape character e.g. notable change in landscape characteristics over an extensive area or very intensive change over a more limited area.
Moderate	Moderate adverse or beneficial impact where the Proposed Project would cause a noticeable change in the landscape character e.g. minor changes in landscape characteristics over a wide area or notable changes in a more limited area.
Minor	Minor adverse or beneficial impact in landscape characteristics over a wide area ranging to notable changes in a more limited area.
Negligible	Barely discernible change in the existing landscape character e.g. minor imperceptible change in area or landscape components.
No Change	No noticeable change or alteration of character or features or elements.

In accordance with GLVIA3, consideration will also be given to the duration and reversibility of landscape effects in the evaluation of magnitude.

5.4.3.2 Magnitude of Visual Effects

Evaluation of the magnitude of visual change affecting receptors will be carried out by considering the following:

- The scale of the change in the view with respect to the loss or addition of features and changes in its composition, including the proportion of the receptor's available view affected by the Proposed Project

- The degree of contrast or integration of any new features or changes in the landscape with the existing landscape elements and characteristics
- The nature of the view of the Proposed Project, in terms of the relative amount of time over which it would be experienced and whether views would be full, partial or glimpsed
- The angle of view relative to the main activity of the receptor
- The distance of the viewpoint from the Proposed Project
- The extent of the area over which changes would be visible
- The duration and reversibility of changes.

The criteria used to help determine the magnitude of visual effects are shown in Table 5-9.

Table 5-9: Magnitude of Visual Effects

Magnitude	Criteria
Major	Substantial adverse or beneficial impact where the Proposed Project would cause a significant change in the view e.g. the proposals dominate the view and fundamentally change its character and components.
Moderate	Moderate adverse or beneficial impact where the Proposed Project would cause a noticeable change in the view e.g. the proposals are noticeable in the view, affecting its character and altering some of its components and features.
Minor	Minor adverse or beneficial impact where the Proposed Project would be perceptible but not alter the overall balance of features and elements that comprise the existing view e.g. the proposals are noticeable in the view, but not affecting its character or altering its components and features.
Negligible	Adverse or beneficial impact where the Proposed Project would cause a small or virtually imperceptible change in the view e.g. the changes are only a minor element of the overall view that are likely to be missed by the casual observer.
No Change	Barely or no discernible change in the existing view e.g. the changes are scarcely appreciated.

Mitigation measures and standard construction and operational management practices will be incorporated into the design and will be considered in the determination of the magnitude of change.

5.4.3.3 Significance of Effects

The resulting determinations of sensitivity and magnitude will be applied together to assess the significance of effect through use of the matrix set out in Table 5-10. Effects will be qualified as 'adverse' or 'beneficial'. The significance of landscape and visual effects will be assessed on a five-point scale of very large, large, moderate, slight and neutral as set out below in Table 5-10, based on professional judgement and informed by GLVIA.

Table 5-10: Criteria to Assess the Significance of Effect for Landscape and Visual Resources

Category	Landscape	Visual
Very Large Beneficial Effect - Significant	The Proposed Project would greatly enhance the character (including quality and value) of the landscape; create a high-quality feature and / or series of elements; enable a sense of place to be created or greatly enhanced.	The Proposed Project would create a new feature that would greatly enhance the view. For example, new feature or landmark of local importance.
Large Beneficial Effect - Significant	The Proposed Project would enhance the character (including quality and value) of the landscape; enable the restoration of characteristic features and elements lost as a result of changes from inappropriate management or development; enable a sense of place to be enhanced.	The Proposed Project would lead to a major improvement in a view from a highly sensitive receptor.
Moderate Beneficial Effect - Significant	The Proposed Project would improve the character (including quality and value) of the landscape; enable the restoration of characteristic features and elements partially lost or diminished as a result of changes from inappropriate management or development; enable a sense of place to be restored.	The Proposed Project would cause obvious improvement to a view from a receptor of medium sensitivity or a perceptible improvement to a view from a more sensitive receptor.
Slight Beneficial Effect	The Proposed Project would complement the character (including quality and value) of the landscape; maintain or enhance characteristic features and elements; enable some sense of place to be restored.	The Proposed Project would cause limited improvement to a view from a receptor of medium sensitivity or would cause greater improvement to a view from a receptor of low sensitivity.
Neutral Effect	The Proposed Project would maintain the character (including quality and value) of the landscape; blend in with characteristic features and elements; enable a sense of place to be retained.	The Proposed Project would not affect the view or would maintain the characteristics of the view.
Slight Adverse Effect	The Proposed Project would not quite fit the character (including quality and value) of the landscape; be at variance with characteristic features and elements; detract from a sense of place.	The Proposed Project would cause limited deterioration to a view from a receptor of medium sensitivity or cause greater deterioration to a view from a receptor of low sensitivity.
Moderate Adverse Effect - Significant	The Proposed Project would conflict with the character (including quality and value) of the landscape; have an adverse impact on characteristic features or elements; diminish a sense of place.	The Proposed Project would cause obvious deterioration to a view from a receptor of medium sensitivity or perceptible damage to a view from a more sensitive receptor.
Large Adverse Effect - Significant	The Proposed Project would be at considerable variance with the character (including quality and value) of the landscape; degrade or diminish the integrity of a range of characteristic features and elements; damage a sense of place.	The Proposed Project would cause major deterioration to a view from a highly sensitive receptor and would constitute a major discordant element in the view.

Category	Landscape	Visual
Very Large Adverse Effect - Significant	The Proposed Project would be at complete variance with the character (including quality and value) of the landscape; cause the integrity of characteristic features, elements and sense of place to be lost.	The Proposed Project would cause the loss of view from a highly sensitive receptor and would constitute a dominant discordant feature in the view.

5.5 Existing Conditions

The LVIA chapter will summarise the landscape and visual amenity baseline for the study area and identify receptors where there is potential for significant effects to arise. A brief description of the existing conditions is also included below for this scoping stage.

Where reference is made to a 'study area', below, it is with reference to an area 2 km offset from the Proposed Project boundary. Published Landscape Character Areas are shown on Figure 4. Landscape and environmental designations are shown on Figure 5.

5.5.1 Landscape Designations

There are no statutory or non-statutory landscape designations (e.g. National Parks, National Landscape, Heritage Coasts etc.) within the Proposed Project boundary; however, the Forest of Bowland National Landscape is located approximately 1.2 km away from the Proposed Project boundary. Given the distance from the designation and its proximity to neighbouring industrial and commercial development, it is not considered that the temporary presence of the Proposed Project would give rise to notable impacts on the National landscape.

5.5.2 Other Environmental Designations

Within the 2 km study area, there are several areas of Open Access Land and Registered Common Land, designated under the CRoW Act, and a network of PRoWs providing access within the surrounding countryside. There are no national trails within the study area, although there are several long distance paths (Blackpool to Bridlington (Aerospace Way), Clitheroe 60K, Forest of Bowland Walk, Historical Walks through Lancashire and Yorkshire, Lancashire Monastic Way Upholland to Sawley Abbey, Lancashire Witches Way, North West Way, Palatine Plod, Pendle and Ribble Round, Pendle Witches Way, Red Rose Trail, Ribble Way, Trevine Trail, Villages of the Ribble Valley, and Whalley / Waddington / Wiswell Wander). There are no Country Parks or National Cycle Network routes within the study area, although there is one regional cycle network route (Regional Route 91 Lancashire Cycleway (Northern Loop)).

Chapter 8 Cultural Heritage contains information relating to the relevant heritage designations. The Arboricultural Assessment section below sets out the designations related to trees and hedgerows.

5.5.3 Landscape Context

5.5.3.1 Site Boundary Area

The Proposed Project is located on land that sits within the upper valley of the River Ribble that forms part of Lower Ribblesdale. The site currently consists of farmland to the east of Clitheroe, comprising pastoral fields bounded by a mixture of remnant and gappy hedgerows to the south and west and mature tree belts to the north and east.

Directly to the east of the site boundary, is Pimlico Link Road, a busy road that brings disturbance from passing vehicles. A PRoW (FP0301008) runs parallel to the northern boundary of the site (beyond the mature

tree belt to the north) along Worston Brook, which is culverted under Pimlico Link Road (A671). A second PROW (FP0348005) crosses the proposed access to the site.

The topography is relatively flat (approximately 100 m Above Ordnance Datum (AOD)) due to its location within the wider River Ribble valley, although the land rises slightly to the south-east. Given the surrounding fells and limestone knolls within the wider landscape, there are outward views to the rising moorland hills between Pendleton and Pendle Hill, to the south-east, and the tower of Clitheroe Castle, to the south-west. A designated SSSI and Local Nature Reserve (LNR) is located at the former Salthill Quarry, to the north of the site boundary, which is protected for its geological and ecological value.

5.5.3.2 Wider Study Area

The landscape of the 2 km study area is characterised by the settlement of Clitheroe town, undulating lowland farmland, moorland fringe and the moorland hills between Pendleton and Pendle Hill. Topography ranges from approximately 260 m AOD, at the elevated moorland hills to the east, to approximately 60 m AOD within the River Ribble valley. The undulating lowland comprises a network of grazing fields and woodlands, copses and hedgerow trees. These contrast with the rising moorland hills and moorland fringe landscapes of the Forest of Bowland National Landscape, which are less enclosed, and characterised by drystone walls and scattered farmsteads with stone outbuildings. Moorland hills often provide elevated views with dramatic open, panoramic views across the lowland landscape towards Clitheroe.

The study area is notably influenced by Clitheroe, and there are often views towards its settlement edge from several areas of elevated land. The tower of Clitheroe Castle is a notable landmark within the settlement and visible within views across the townscape and surrounding landscape. Smaller, outlying village settlements to the north and east include Chatburn and Worston. Farmsteads and scattered rural development are also present, often within the undulating lowland farmlands and moorland fringe landscapes.

Tranquillity is mixed across the study area, ranging from the more urbanised areas and less tranquil areas of Clitheroe and near the A59 to the elevated moorland near Pendle Hill, which is characterised by a strong sense of remoteness, openness and tranquillity. Within the unenclosed areas around Pendle Hill there is little sign of human activity and night skies are almost completely dark. However, there are no designated International Dark Sky Reserves or Dark Sky Discovery Sites within the study area (refer to Night-time Context below).

5.5.4 Landscape Character

At the national level, the site and the 2 km study area are located within National Character Area (NCA) 33: Bowland Fringe and Pendle Hill. This area is described as:

'a transitional landscape that wraps around the dramatic upland core of the Bowland Fells, underpinned by Carboniferous geology. Over half of this NCA, along with the Bowland Fells, makes up the Forest of Bowland Area of Outstanding Natural Beauty. This is a diverse landscape of herb-rich hay meadows – several of which are nationally and internationally designated – lush pastures, broadleaved woodland, parkland and waterbodies (including rivers and streams supporting nationally and internationally protected species). The numerous river valleys and associated woodlands are a major component of the area. To the west, this NCA includes part of the Bowland Fells Special Protection Area (SPA), designated for its important populations of hen harrier, merlin and lesser black-backed gull. The influence of human habitation and activity, and the area's long farming history, contribute significantly to its character. In contrast to the predominantly rural feel of the area, this NCA includes several relatively urban areas including Clitheroe, Benthams and Longridge.'

At the county and district level, the site forms part of the published landscape character assessments A *Landscape Strategy for Lancashire* (2000) and *Forest of Bowland AONB Landscape Character Assessment* (2009). These assessments divide the county or district-level landscape into a series of smaller and recognisable units of character described as Landscape Character Types (LCTs) and / or Landscape Character Areas (LCAs).

A list of all the relevant LCTs and LCAs (published units of character with the potential to experience a landscape impact) within the 2 km study area is provided in Table 5-11. This table includes LCTs / LCAs that may experience indirect impacts arising from the Proposed Project due to a change within the character unit's setting.

Table 5-11: County and District-Level Landscape Character

Published Landscape Character Assessment	Landscape Character Type (LCT)	Landscape Character Area (LCA)
A Landscape Strategy for Lancashire (2000)	04. Moorland Fringe 05. Undulating Lowland Farmland 11. Valley Floodplains.	4i. North Pendle Fringe 5b. Lower Hodder and Loud Valley 5e. Lower Ribblesdale (Clitheroe to Gisburn) 11a. Lower Ribble Valley.
Forest of Bowland AONB Landscape Character Assessment (2009)	B. Unenclosed Moorland Hill D. Moorland Fringe E. Undulating Lowland Farmland G. Undulating Lowland Farmland with Parkland H. Undulating Lowland Farmland Settlement Industry J. Valley Floodplain.	B4. Pendle Hill D8. Pendleton E7. Worston E8. Dudland and Gisburn G5. Downham H1. Clitheroe and Chatburn H2. Higher and Lower Standen J2. Ribble

The site itself is located within the following LCTs / LCAs from the two published character assessments:

- 05. Undulating Lowland Farmland LCT; and 5e. Lower Ribblesdale (Clitheroe to Gisburn) LCA
- H. Undulating Lowland Farmland Settlement Industry LTC; and H1. Clitheroe and Chatburn LCA.

5.5.5 Views and Visual Amenity

The site's visual extent is largely confined to the site and its nearby agricultural surroundings within the Ribble valley. However, given the rising fells to the south and the occasional reef knolls at Clitheroe, there are some long-distance views from the elevated moorlands of Pendleton and Pendle Hill to the south-east and east, and the rocky limestone outcrop of Clitheroe Castle to the south-west. Views towards the site from the southern settlement edge of Clitheroe are curtailed by intervening vegetation. Those from the surrounding agricultural lowlands are limited in scale and partially filtered by intervening field boundary vegetation.

Key visual receptors likely to experience views of the Proposed Project are:

- The recreational users of nearby footpaths (FP0301008 and FP0301005) and permissive paths located to the north of the Proposed Project – likely mixture of heavily filtered and open short-distance views south and south-west (<250 m) depending on the section of the route
- The recreational users of a footpath (FP0348005) crossing the site access near Pimlico Link Road (A671) – likely open short-distance views to the south and south-west (<250 m) from the footpath
- The recreational users of a footpaths west of Pimlico Link Road (A671) (FP0301005 and FP0348005) – likely short-distance heavily filtered views east (<250 m) from the footpath
- The users of neighbouring lowland agricultural land – likely short-distance partially filtered views (<250 m) from nearby fields surrounding the site

- The recreational users of the elevated moorland fringe and elevated fells of Pendleton and Pendle Hill to the south-east and east – likely long-distance, partially filtered views to the west and north-west (>1 km) from the elevated moorland and moorland fringe
- The residents of scattered rural properties and farmsteads (e.g. Little Mearley Hall) located on the rising slopes of Pendleton and Pendle Hill to the south-east – likely long-distance views to the north-west (>1 km) from elevated residences
- The users of Clitheroe Castle – likely long-distance views to the north-east (>1 km) from the castle and castle grounds on top of the elevated knoll to the south of Clitheroe town centre
- The transient users of Pimlico Link Road (A671) – likely short-distance views to the west (<250 m) experienced at speed and as part of a wider journey through the wider landscape.

5.5.6 Night-time Context

The Campaign to Protect Rural England has mapped dark skies and light pollution in England. Light pollution reduces the visibility of starry skies, as well as interrupting the natural pattern of wildlife. Generally, urban areas are most affected by light pollution, with darker skies present in rural areas. The Proposed Project would be located within one of the brighter night sky categories with a high level of radiance. It is not located within a designated Dark Sky Discovery Site or International Dark Sky Place.

It is assumed that 24/7 lighting would be required as part of the proposals for the Proposed Project. There is therefore potential for landscape character, and some visual receptors, to experience a temporary change to the baseline night-time character. Although the change is unlikely to result in a significant effect, the potential for night-time effects on landscape character and visual receptors will continue to be reviewed as detail of the Proposed Project evolves. Where these are likely to result in significant effects, they will be described within the assessment of landscape and visual effects for each receptor.

Day and night-time changes for landscape and visual receptors will be considered against the future baseline situation. It is not considered that an assessment of night skies is required due to the surrounding night-time landscape context. This is because there are no dark skies within the study area, and there are no International Dark Sky Reserves, Dark Sky Discovery Sites, or protected landscapes (National Parks or National Landscape) within, or near to, the site.

5.6 Potential Impacts

Effects on landscape character are likely to derive from modifications to the physical landscape and how this is experienced, whereas effects on visual amenity are likely to arise from modification to the composition of existing views and how people perceive and respond to this. Potential landscape and visual impacts to be considered in the assessment are as follows:

- Impacts on landscape components and character associated with:
 - Construction activities
 - HGV movements
 - Vegetation clearance
 - Topsoil stripping and the temporary stockpiling of materials (including soils)
 - Provision of temporary drainage outfalls
 - Modifications to the existing highways network

- Impacts on visual amenity – associated with
 - Construction activities
 - HGV movements
 - Visual awareness of compounds and parking facilities
 - Vegetation clearance
 - Visual awareness of temporary stockpiling of materials
 - Modifications to the existing highways network
- Impacts on landscape components and character – associated with the modifications to the existing highways network and loss of vegetation resulting from clearance works during construction
- Impacts on visual amenity – associated with the modifications to the existing highways network and loss of vegetation resulting from clearance works during construction.

Impacts on heritage assets and the historic landscape are described in Chapter 8 Cultural Heritage.

5.7 Design and Mitigation Measures

Landscape mitigation for the Proposed Project will be embedded into the proposals, avoiding the need for additional mitigation and seeking enhancement opportunities where possible. These will consider the assessment of landscape and visual effects and are likely to include those measures listed below:

- Reinstatement of the site to its pre-construction condition following decommissioning of the Proposed Project, including reinstatement of fences and other boundary features, and the replanting trees, shrubs and hedgerows where their removal is unavoidable to accommodate the Proposed Project
- Return of agricultural land to the owner or tenant for their productive use as soon as practicable after reinstatement of the work.

5.8 Summary Scope for the EIA

A summary of the likely significant effects that will be considered in the EIA is detailed in Table 5-12.

Table 5-12: Likely Significant Effects for Landscape and Visual Effects

Receptor / Receptor Group	Matter / Likely Significant Effects	Comments
Construction and Operation		
Lancashire Landscape effects	Landscape Character Areas: • 4i. North Pendle Fringe • 5b. Lower Hodder & Loud Valley • 5e. Lower Ribblesdale (Clitheroe to Gisburn) • 11a. Lower Ribble Valley.	<u>Scoped in</u> The assessment will be proportional to the scale and nature of the Proposed Project and the likely significant effects, which would largely be of a temporary nature and would include night-time effects, where these are considered significant. <u>Scoped out</u> Landscape Character Types would not be assessed as part of the EIA (scoped out).

Receptor / Receptor Group	Matter / Likely Significant Effects	Comments
Construction and Operation		
Forest of Bowland Landscape effects	Landscape Character Areas: • B4. Pendle Hill • D8. Pendleton • E7. Worston • E8. Dudland and Gisburn • G5. Downham • H1. Clitheroe & Chatburn • H2. Higher & Lower Standen • J2. Ribble	<u>Scoped in</u> The assessment will be proportional to the scale and nature of the Proposed Project and the likely significant effects, which would largely be of a temporary nature and would include night-time effects, where these are considered significant. <u>Scoped out</u> Landscape Character Types would not be assessed as part of the EIA (scoped out).
Visual effects	Very high to moderate sensitivity visual receptors within the study area: • Residents • Users of PROWs and other outdoor recreational routes and spaces • Transient receptors	<u>Scoped in</u> Construction activities have the potential to be visually intrusive and cause temporary changes to visual amenity. Permanent features and removed features, such as vegetation, have the potential to permanently alter the landscape, affecting views and visual amenity. The assessment will include night-time effects, where these are considered significant. <u>Scoped out</u> Low sensitivity visual receptors such as users of places of worship, educational and community facilities, and places of work would be scoped out of the assessment.

The LVIA will focus on the local landscape character and therefore an assessment on National Character Areas is scoped out of the assessment. There would also be no separate assessment on the Forest of Bowland National Landscape, townscape character or specific landscape features and elements. Where relevant, these would be considered as part of the local landscape character assessment.

An assessment on dark skies is scoped out of the assessment on the basis that there are no International Dark Sky Reserves or Dark Sky Discovery Sites within, or near to, the Proposed Project.

5.9 Arboricultural Assessment

5.9.1 Overview

This section describes the proposed approach to surveying and assessing arboricultural interests potentially affected by the Proposed Project.

5.9.2 Existing Conditions

There are no trees protected by Tree Preservation Orders within the site boundary and the site is not located within a Conservation Area. There are also no trees within the site boundary appearing on the Ancient Tree Inventory (Woodland Trust, 2021) as of 1 July 2024, and none were identified in the walkover survey.

The site boundary is bordered by a number of trees and tree groups. Ash trees were a common species identified during the walkover, and the vast majority were observed suffering from advanced ash dieback which is significantly limiting the trees' remaining useful contribution. Even large mature ash trees were observed to be in the latter stages of infection with significant canopy decline and remaining lifespans of less than 10 years.

The most significant trees are located along the northern boundary of the site, forming a corridor between the site and Worston Brook. A few of the trees within this corridor are of significant size and the larger, notable trees had stem diameters in the region of 1 m+ (estimated root protection zones, as calculated by BS 5837:2012 of 12 m). It was also noted that a large beech, and many of the ash, had canopies that contained significant amounts of deadwood, which could pose a potential risk to anything parked below them in extreme weather events. The larger trees within this corridor would be worthy of an A category in BS 5837:2012, whilst as a collective, the whole group would be an A category feature.

The remaining field boundaries generally consisted of smaller trees, mostly hawthorn, presumably arising from lapsed hedgerows. The southern boundary was noted as containing a number of larger, more mature ash, all suffering from ash dieback.

Pimlico Link Road is bordered on both sides by woodland planting. Most of the trees between the site access on the west of the road are set back from the highway's edge and comprise mature trees. Immediately south of the site entrance on the west of the road, and along the eastern side of Pimlico Link Road is younger dense planting which is typical of highways screening. Ash is a dominant species in these groups and is suffering significant ash dieback. Other trees within the groups are of limited individual arboricultural quality and are in places beginning to infringe on the highway.

Tree groups on both sides of the road would benefit from management including removal (and replacing) of diseased ash trees and cutting back of canopies and trees from the highways to maintain suitable clearances.

5.10 Summary of Scope for the EIA

A tree assessment will be undertaken in accordance with BS 5837:2012²⁰ and in line with nationally accepted guidelines for the visual assessment of trees from ground level. A tree survey will be undertaken to inform detailed design, as well as support a planning application, and form the basis of an arboricultural method statement and tree protection plan which would set out suitable protection methodology to protect retained trees. Where appropriate, the survey area may extend a short distance beyond the site boundary to account for indirect effects, for example, compaction of root zones. Potential wind-throw resulting from the removal of existing trees will also be considered where appropriate.

The survey will generally encompass trees with a stem diameter of 75 mm or greater, measured at a height of 1.5 m). Individual trees, groups of trees and woodlands will be assessed for their quality and benefits, with each tree or tree group recorded by allocating it to one of four categories:

- A - Trees of high quality with an estimated remaining life expectancy of at least 40 years
- B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- C - Trees of low quality with an estimated remaining life expectancy of at least ten years, or young trees with a stem diameter below 150 mm

²⁰ British Standards Institution (2012) Trees in relation to design, demolition and construction BS 5837:2012

- U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than ten years.

Trees growing as groups or woodland will be identified and assessed as such, where appropriate. An assessment of individuals within any group will still be undertaken in order to highlight significant variation in attributes (including physiological or structural condition).

The NPPF refers to veteran trees as '*irreplaceable habitat*' which due to their '*age, size and condition, is of exceptional biodiversity, cultural or heritage value*'.

The assessment of potential veteran (ancient and notable) trees is based on the guidance provided by the Ancient Tree Forum and the Woodland Trust, specifically:

- Practical Guidance, Ancient Tree Guide 4: What are ancient, veteran, and other trees of special interest?²¹
- Ancient and other veteran trees: further guidance on management²²
- Species-specific guidance on the Ancient Tree Inventory website.²³

Of particular importance is the guidance given in *Ancient and other veteran trees: further guidance on management* by David Lonsdale.

Should any veteran trees be identified during the detailed site survey work, they would be clearly identified in the subsequent report and method statements. Veteran trees would have a root protection area of x15 the stem diameter at 1.5 m from ground level applied, as per Government advice.

The tree survey and tree constraints plan would identify all trees within the study area. These would be used to inform early iterations of project design to seek to avoid or reduce impacts on high value trees where possible. Where a Proposed Project design would have an impact on trees, this would seek to minimise any tree losses, or negative impact on retained trees, for example, through using specialist construction methodologies such as 'no-dig' surfacing and specialist excavation techniques. Any tree loss would be suitably mitigated through replacement planting. Some tree populations can lack species diversity, including a reliance on ash trees. Therefore, any new planting would aim to be species-diverse and climate-resilient and where possible, would be provided close to the lost trees it is replacing.

²¹ Ancient tree guide 4: What are ancient, veteran and other trees of special interest? Woodland Trust November 2008

²² Ancient and other veteran trees: further guidance on management Arboricultural Journal: The International Journal of Urban Forestry, 35(2), pp. 110–111

²³ <https://ati.woodlandtrust.org.uk> [accessed October 2024]

6 Water Environment

6.1 Overview

The construction and operation of the Proposed Project has the potential to result in effects on the water environment, water resources, flood risk and drainage. This chapter presents an initial assessment of the baseline water environment conditions, as well as identifying the likely significant effects of the Proposed Project on these factors, including the Water Environment (England and Wales) Regulations 2017, which interpret the Water Framework Directive (WFD).²⁴

Aquatic ecology is addressed separately in Chapter 7 Ecology.

6.2 Key Legislation, Policy and Guidance

Table 6-1 sets out the relevant water environment legislation and guidance. This chapter also considered the relevant Planning Practice Guidance²⁵ and local policy and guidance including Ribble Valley Borough Council Level 1 Strategic Flood Risk Assessment²⁶ and North West River Basin District Flood Risk Management Plan.²⁷

Table 6-1: Water Environment Key Legislation and Guidance

Applicable Legislation and Guidance	Description
Water Environment (England and Wales) Regulations 2017	Transposes the EU WFD (2000/60/EC), into English and Welsh law. It establishes a legislative framework for the protection of surface waters (including rivers, lakes, transitional waters and coastal waters) and groundwaters.
Water Supply (Water Quality) Regulations 2016	Consolidates legislation concerning the quality of water supplies for human consumption in England. A further analytical parameter (radon) is added for the monitoring of water supplies intended for human consumption.
Water Resources Act 1991	The Act legislates for the regulation of water resources, water quality, pollution and flood defence.
Water Act 2003	The Act makes provision in connection with land drainage and flood defence and contaminated land so far as it relates to the pollution of controlled waters.
Environmental Protection Act 1990	The Act makes provisions for the improved control of pollution arising from certain industrial and other processes; to re-enact the provisions of the Control of Pollution Act 1974 relating to waste on land, with modifications in regard to the functions of the regulatory and other authorities concerned in the collection and disposal of waste and to make further provision in relation to such waste.
Flood and Water Management Act 2010	This Act defined the responsibilities for Risk Management Authorities and places a duty on them to contribute towards the achievement of sustainable development when exercising flood and coastal erosion risk management functions.
Land Drainage Act 1991	This Act empowers drainage authorities to regulate works to Ordinary Watercourses (non-Main Rivers).
The Flood Risk Regulations 2009	These Regulations provide a framework for managing flood risk over a six-year cycle, and require the production of Preliminary Flood Risk Assessments, identify areas of potential significant risk and undertake flood hazard mapping and Flood Risk Management Plans.

²⁴ The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 UK Statutory Instruments 2017 No. 407

²⁵ <https://www.gov.uk/guidance/flood-risk-and-coastal-change>

²⁶ Ribble Valley Borough Council (2017) Strategic Flood Risk Assessment – Level 1

²⁷ North West River Basin District Flood Risk Management Plan (2022) Environment Agency

Applicable Legislation and Guidance	Description
National Planning Policy Framework (NPPF)	This states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, it should be made safe throughout the life of the development without increasing flood risk elsewhere. It states that planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where informed by an FRA.

6.3 Proposed Methodology and Assessment Criteria

6.3.1 Scoping Methodology

This chapter presents a description of the proposed scoping assessment methodology. There are no published technical guidance criteria for assessing and evaluating effects on the water environment for projects of this nature. The assessment will therefore be based on general EIA methodology and criteria developed through professional experience and as used on previous EIAs of a similar nature.

6.3.2 Proposed Methodology and Assessment Criteria

Features were initially identified through site visit and by developing an understanding of the catchments from baseline data, and then considered for their rarity, importance, attributes/processes and sensitivity. The greater the importance or sensitivity, the higher the value of the feature. The importance of water receptors is shown in Table 6-2.

Table 6-2: Importance of Receptor

Importance	Criteria	Typical Examples
Very High	Attribute has a high quality and rarity on a regional or national scale	Surface Water: Watercourse having a WFD classification shown in a River Basin Management Plan (RBMP) and Q95 $\geq 1.0 \text{ m}^3/\text{s}$; or a site protected/designated under EC or UK legislation (SAC, SPA, SSSI, Ramsar site, salmonid water)/ or species protected by EC legislation. Flood risk: Essential infrastructure or highly vulnerable development - land where water must flow or be stored in times of flood, referred to as Functional Floodplain (Flood Zone 3b). Fluvial Geomorphology: A watercourse that appears to be in complete natural equilibrium and exhibits a natural range of morphological features (such as pools and riffles). There is a diverse range of fluvial processes present with limited signs of modification or other anthropogenic influences. Morphological features and processes would be highly sensitive to change as a result of temporary or permanent works.
High	Attribute has a high quality and rarity on local scale	Surface water: Watercourse having a WFD classification shown in a RBMP and Q95 $< 1.0 \text{ m}^3/\text{s}$; or species protected under EC or UK legislation. Flood risk: More vulnerable development - land having a 1 % AEP or greater of river flooding (Flood Zone 3) Fluvial Geomorphology: A watercourse that appears to be in natural equilibrium and exhibits a natural range of morphological features (such as pools and riffles). There is a diverse range of

Importance	Criteria	Typical Examples
		fluvial processes present, with limited signs of modification or other anthropogenic influences. Morphological features and processes would be sensitive to change as a result of temporary or permanent works.
Medium	Attribute has a medium quality and rarity on local scale	Surface water: Watercourses not having a WFD classification shown in a RBMP and $Q95 > 0.001 \text{ m}^3/\text{s}$. Flood risk: Less vulnerable development - land having between a less than 1 % AEP but greater than 0.1 % AEP of river flooding (Flood Zone 2). Fluvial Geomorphology: A watercourse showing signs of modification and exhibiting a limited range of morphological features (such as pools and riffles). The watercourse is one with a limited range of fluvial processes and is affected by modification or other anthropogenic influences. Morphological features and processes could be sensitive to change as a result of temporary or permanent works.
Low	Attribute has a low quality and rarity on local scale	Surface water: Watercourses not having a WFD classification shown in a RBMP and $Q95 \leq 0.001 \text{ m}^3/\text{s}$. Flood risk: Water compatible development - land having a less than 0.1 % Annual Exceedance Probability (AEP) of river flooding (Flood Zone 1). Fluvial Geomorphology: A highly modified watercourse that exhibits no morphological diversity and has a uniform channel, showing no evidence of active fluvial processes. Has likely been significantly affected by anthropogenic factors which could include modification of flow regime, resulting in a dry channel during prolonged dry periods. Morphological features and processes would be unlikely to be sensitive to temporary or permanent works.

The magnitude of impact is established based upon professional judgement. The magnitude of an impact is not dependent upon the value of a feature and is shown in Table 6-3.

Table 6-3: Magnitude of Impact on a Receptor

Magnitude	Criteria	Typical Example
Major	Results in loss of attribute and / or quality, and integrity of the attribute	Surface Water: Failure of both acute-soluble and chronic-sediment related pollutants and compliance failure with EQS values Loss or extensive change to a fishery or a designated nature conservation site. Loss of regionally important public water supply. Reduction in water body WFD classification. Fluvial Geomorphology: Loss or extensive damage to habitat due to extensive modification of natural channel planform and / or sediment and flow processes.
		Flood risk: Increase in peak flood level ($> 100 \text{ mm}$).
Moderate	Results in effect on integrity of attribute or	Surface Water: Failure of both acute-soluble and chronic-sediment related pollutants and compliance failure with EQS values. Partial loss in productivity of a fishery.

Magnitude	Criteria	Typical Example
	loss of part of attribute	Degradation of regionally important public water supply or loss of major commercial/industrial/agricultural supplies. Contribution to reduction in water body WFD classification. Fluvial Geomorphology: Moderate deterioration from baseline conditions, with partial loss or damage to habitat due to modifications and / or changes to natural fluvial forms, and processes.
		Flood risk: Increase in peak flood level (>50 mm).
Minor	Results in some measurable changes in attributes quality or vulnerability	Surface Water: Minor adverse effect on water supplies. Fluvial Geomorphology: Slight deterioration from baseline conditions, with partial loss / damage to habitat due to modifications and / or changes to natural fluvial forms and processes.
		Flood risk: Increase in peak flood level (>10 mm)
Negligible	Results in effect on attribute, but of insignificant magnitude to affect the use or integrity	The Proposed Project is unlikely to affect the integrity of the water environment.

The significance of the effect is based on the combination of the value of the feature and the magnitude of impact using the matrix in Table 6-4. An effect may be significant if it is likely to meet at least one of the following criteria:

- It could lead to an exceedance of defined guidelines or widely recognised levels of acceptable change (e.g. exceedance of an environmental quality standard of a water quality parameter)
- It threatens or enhances the viability or integrity of an asset or resource group of interest.

Table 6-4: Significance of effects

		Magnitude of Impact			
		Negligible	Minor	Moderate	Major
Importance/ Value of Feature	Low	Neutral	Neutral	Slight	Moderate / Large
	Medium	Neutral	Slight	Moderate	Large
	High	Neutral	Slight / Moderate	Moderate / Large	Large / Very large
	Very High	Neutral	Moderate / Large	Large / Very large	Very large

6.4 Existing Conditions

The following sections will consider the baseline conditions of the water receptors that may be impacted as a result of the Proposed Project.

The nearest main river to the site is Worston Brook, located approximately 100 m to the north of the site boundary. Worston Brook feeds another main river Mearley Brook that lies to the west of the site approximately 200 m. The Worston Brook joins the Mearley Brook at a confluence downstream of the site, from which the Mearley Brook feeds into Pendleton Brook and ultimately the River Ribble. Figure 6 shows the location of Worston Brook and Mearley Brook in relation to the site of the Proposed Project. The Worston Brook is not a water body under the WFD, however, it contributes to the Mearley Brook catchment (WFD GB112071065510) which has a Moderate ecological status. During a site visit there was evidence of existing land drainage in the north-eastern corner of the site.

The Environment Agency flood map for planning shows that the site is designated as Flood Zone 1 i.e. low risk of flooding with a probability of less than 1 in 1,000 (or less than 0.1%). The land adjacent to Worston Brook is designated as Flood Zone 2 and 3. There are no flood defences noted within the vicinity of the site and no information concerning historical flooding at the site²⁸.

The site has a 'Medium Vulnerability' to groundwater flooding due to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a single square kilometre. Groundwater flooding is not considered to be a significant factor across the Ribble Valley Area²⁹.

The Proposed Project is located in an area at 'Very Low Risk' of surface water flooding³⁰. The two areas of 'High' surface water flood risk are: where Pimlico Link Road crosses Worston Brook and down Pimlico Link Road within the indicative planning application boundary (see Figure 7).

The site is not within, or in proximity to, a groundwater source protection zone, however Secondary A aquifers are present within the site boundary. At the time of the assessment, no information was available on abstraction licences or permits within the study area.

6.5 Potential Impacts

The impacts of the Proposed Project on the water environment include:

- Impacts on the hydromorphology of Worston Brook, to which surface drainage from the Proposed Project would be discharged
- Impacts on surface water quality from chemical/silt pollution
- Changes to flood risk
- Changes to surface water characteristics/catchment/runoff rates.

6.6 Design and Mitigation Measures

Many of the above effects are anticipated to be managed through standard good practice measures during construction and operation of the site and therefore would be unlikely to result in significant effects on the

²⁸ Ribble Valley Borough Council (2017) Strategic Flood Risk Assessment – Level 1

²⁹ North West River Basin District Flood Risk Management Plan (2022) Environment Agency

³⁰ Environment Agency (2024) available from <https://check-long-term-flood-risk.service.gov.uk/map> [accessed August 2024]

water environment. Some of the mitigation measures likely to be adopted in relation to the water environment are:

- Maintain greenfield runoff rates by restricting discharge velocity and flow rates and compliance with Environmental Permit requirements
- Consider sustainable drainage systems to intercept and treat runoff and water discharges to avoid risks to water quality and maintain these throughout operation of the Proposed Project
- Consider storage of peak runoff flows during operation to ensure neither the floodplain nor the conveyance of Worston Brook are adversely impacted.

6.7 Summary Scope for the EIA

Further data will be collected to support the water chapter in the ES. This will include third-party information on private water supplies, existing abstractions and discharges and identification of any other relevant consents or permits. A WFD assessment will also be undertaken to support the ES, which will consider effects in water bodies including the Mearley Brook.

Groundwater vulnerability has been scoped out of the assessment as this is likely to have a negligible effect due to impervious surfaces.

The Proposed Project is unlikely to significantly affect flood risk, as it lies within Flood Zone 1 and there is unlikely to be any effect on existing watercourses or the floodplain. There would also be good practice measures in place for controlling runoff identified as part of a surface water drainage strategy. Therefore, this would be scoped out of the EIA. However, further details will be presented in a site-specific Flood Risk Assessment as part of the Planning Application for compliance with the NPPF.

A summary of the proposed scope of the EIA is detailed in Table 6-4.

Table 6-4: Likely Significant Effects for the Water Environment

Receptor	Matter / Likely Significant Effect	Comment
During Construction		
Surface water hydrology & channel morphology	Change in surface water drainage.	Scoped in. Earthworks and compaction of topsoil due to use of heavy machinery and working near watercourses may lead to a change in surface water drainage or sediment flushing into the watercourse.
Surface water quality and water resources	Risk of pollution to watercourses and change to ecological status.	Scoped in. Oil and suspended solids in runoff from vehicles and access roads may pollute watercourses. Unmitigated discharges could worsen water quality and affect the Mearley Brook Moderate ecological status.
During Operation		
Surface water hydrology & channel morphology	Change in surface water drainage and water quality.	Scoped in. New hard surfaces (roads, car parks) may affect surface water drainage and

Receptor	Matter / Likely Significant Effect	Comment
		increase runoff rates; and unrestricted discharges could impact on channel morphology.
Hydromorphology of Worston Brook	Alterations to hydromorphology processes	Scoped in. The proposed surface water drainage outfall structure, and the discharge of drainage waters, may have an adverse effect on downstream hydromorphology processes.
Surface water quality and water resources	Risk of pollution to watercourses and change to ecological status. Risk of adverse effects on water resources	Scoped in. Runoff from roads, car parks and hardstanding may contain pollutants which could contaminate local watercourses. Unmitigated discharges could worsen water quality and affect the Mearley Brook Moderate ecological status. Scoped in. Consideration of potential adverse effects on private water supplies, licensed abstractions of discharges

7 Ecology

7.1 Overview

This chapter presents the outcome of the scoping exercise in relation to potential terrestrial and aquatic ecological effects associated with the Proposed Project.

This chapter includes the current ecological baseline for the Proposed Project and how this was established. It considers the nature conservation value / importance for biodiversity of the ecological features present, the means by which the Proposed Project may potentially affect those features, and provides the ecological surveys required to address gaps and limitations in existing data to inform the impact assessment for the EIA.

7.2 Key Legislation, Policy and Guidance

Table 7-1 sets out legislation and key guidance of relevance to the Ecological Impact Assessment (EclA).

Table 7-1: Ecology Key Legislation and Guidance

Legislation / Guidance	Description
International Legislation	
Convention on Biological Diversity 1992	Established a global vision for biodiversity, including a set of strategic goals and targets to drive action. The Government subsequently published The Natural Choice ('White Paper') in June 2011 ³¹ which responds to the global commitments of the Convention on Biological Diversity, outlining the Government's vision for the natural environment, putting greater emphasis on a more integrated landscape-scale approach as opposed to piecemeal conservation action.
Bern Convention on the Conservation of European Wildlife and Natural Habitats 1979	The primary aims are to ensure conservation and protection of wild plant and animal species and their natural habitats. The obligations of the Convention are transposed into UK law by means of the Wildlife and Countryside Act 1981 as amended.
Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979	Pertains to migratory species and those that regularly cross the political boundaries of countries. The obligations of the Convention are transposed into UK law by means of the Wildlife and Countryside Act 1981 as amended, with the Countryside and Rights of Way Act 2000 strengthening the protection of certain species in England and Wales.
Conservation of Populations of European Bats 1991	Legally binding agreement under the Bonn Convention, which came into force in the UK in 1994. It recognises that endangered migratory species can only be properly protected if activities are carried out over the entire migratory range of the species, and it aims to protect all species of bats identified in Europe through legislation, education, conservation measures and international co-operation.
Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971	Intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Convention has several mechanisms to help Contracting Parties designate their most significant wetlands as Ramsar Sites, and to take the steps necessary to manage them effectively, maintaining their ecological character.
Council Directive 92/43/EEC of 21 May	Referenced by the Conservation of Habitats and Species Regulations 2017 (as amended). Provides definitions for factors such as the favourable conservation

³¹ Defra (2011) The Natural Choice: securing the value of nature (White Paper).
<https://assets.publishing.service.gov.uk/media/5a7cb8fce5274a38e57565a4/8082.pdf>

Legislation / Guidance	Description
1992 on the conservation of natural habitats and of wild fauna and flora	status of habitats and species. Sets out a framework at Annex III for site selection criteria to be applied for the designation of special areas of conservation, in addition to providing lists of natural habitat types (Annex I) and species (Annex II) for which the designation of Special Areas of Conservation (SACs) should be prioritised. Also lists species of animals (Annex IV(a)) and plants (Annex IV(b)) which are in need of strict protection.
National Legislation	
The Conservation of Habitats and Species Regulations 2017 (as amended) Including by: The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	Provides for the identification, designation and protection of Natura 2000 sites including SACs, Special Protection Areas (SPAs) and Ramsar sites. The Regulations also convey a statutory requirement for authorities to undertake a Habitats Regulations Assessment of the potential impacts of plans and projects, including development proposals, on Natura 2000 sites, and also convey strict levels of protection to certain species and their habitats or places of shelter. Derogations are afforded for such species through grant of licences which must satisfy three tests relating to purpose, and there being no satisfactory alternative for the proposed activity, and the maintenance of favourable conservation status of the affected species.
Wildlife and Countryside Act 1981 as amended	The major legal instrument for wildlife protection in the UK, providing varying levels of protection for wild animals, birds and plants, controls for non-native invasive species and protecting the important habitats as Sites of Special Scientific Interest.
Countryside and Rights of Way [CROW] Act 2000	Part III deals specifically with wildlife protection and nature conservation, requiring Government departments to have regard for the conservation of biodiversity in accordance with the Convention on Biological Diversity 1992, and requiring the Secretary of State to publish a list of living organisms and habitat types that are considered to be of principal importance in conserving biodiversity. It also amends and strengthens certain protections afforded by the Wildlife and Countryside Act 1981.
Natural Environment and Rural Communities Act 2006 (NERC)	Imposes a duty on all public bodies to have regard for biodiversity conservation when carrying out their functions. This extends the duty imposed upon Government and Ministers by the CROW Act. Section 41 provides for the establishment of a list of habitats and species that are considered to be of ' <i>principal importance for the purpose of conserving biodiversity</i> ' for which biodiversity conservation should be prioritised. These are referred to hereafter as Habitats of Principal Importance (HPIs) and Species of Principal Importance (SPIs).
National Parks and Access to the Countryside Act 1949	Enables the establishment and management of Nature Reserves: • For the purpose of research and study of flora and fauna or geological and physiographical features • For the preservation of such special features. National Nature Reserves (NNRs) may be established and declared by the statutory nature conservation agencies and managed by them or an approved body. Local authorities may also establish nature reserves and declare them LNRs, provided the relevant statutory nature conservation agency approves.
Hedgerows Regulations 1997	Protects certain 'important' hedgerows from removal or damage without permission from the local planning authority. Works to important hedgerows are exempt under the Regulations if planning consent is granted which allows their removal.
Protection of Badgers Act 1992 (PBA)	This makes it an offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a

Legislation / Guidance	Description
	sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as 'any structure or place which displays signs indicating current use by a badger' and includes above and below-ground features.
Key EclA Guidance	
CIEEM Guidelines for Preliminary Ecological Appraisal ³²	Provides a common framework for preliminary ecological assessment to promote better communication, understanding and cooperation between stakeholders.
CIEEM Guidelines for Ecological Impact Assessment ³³	Promotes good practice, a scientifically rigorous and transparent approach to ecological impact assessment (EclA). Provides a common framework for EclA to promote better communication and closer cooperation between ecologists undertaking EclA and provides decision makers with relevant information about the likely ecological effects of a project.
Biodiversity: Code of practice for planning and development ³⁴	Provides standard recommendations on topics such as professional practices, proportionality, pre-application discussions, ecological survey scope and method, adequacy of ecological information, reporting and monitoring. Cites CIEEM EclA Guidelines as the acknowledged reference on EclA.
Forest of Bowland Area of Outstanding Natural Beauty Management Plan 2019 – 2024 ³⁵	Sets out the challenges and objectives for management of the AONB. One of the three core themes is 'An Outstanding Landscape of Natural and Cultural Heritage' and one of the four objectives for this theme is <i>Habitats and Species: Conserve, enhance and restore the AONB's characteristic mosaic of habitats by improving their connectivity, extent and condition; whilst taking targeted action to conserve key species and improving understanding of the biodiversity of the AONB.</i>
Lancashire Biodiversity Action Plan ³⁶ (LBAP)	Describes Lancashire's biodiversity evidence base and explains the full range of information that should be considered in the planning process including statutory and non-statutory designations, priority habitats and LBAP Species and Habitat Statements, produced for habitats and species requiring protection in Lancashire and for which targets are set for recovery.

7.3 Proposed Methodology and Assessment Criteria

7.3.1 Desk study

7.3.1.1 Proposed Methodology

Data gathering from a combination of web-based sources and local biological records centres was undertaken in August 2018 by United Utilities. Subsequent data gathering was undertaken in August 2019 by Jacobs and in August 2024 by United Utilities. Most of the data-gathering exercise was completed in August 2018 during the early concept phase when detailed design information was not available. Subsequently, part of the desk study data provided in this report have been compiled from early project design and not the detailed development envelopes. A full records search will be undertaken for the EIA.

³² CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, Second Edition.

³³ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.

³⁴ British Standards Institution (2013). Biodiversity: Code of practice for planning and development. BS 42020:2013

³⁵ Forest of Bowland AONB Partnership (2019) Forest of Bowland Area of Outstanding Natural Beauty Management Plan 2019 – 2024

³⁶ Lancashire Biodiversity Action Plan available from <https://ftps.lancashire.gov.uk/> [Accessed June 2020]

Additional desk study searches will be undertaken where it is considered that existing information is insufficient to appropriately assess likely significant ecological effects. This particularly relates to desk study searches for non-statutory designated sites of nature conservation interest and protected / notable species.

A summary of the desk study searches undertaken as part of this assessment is provided below:

- A search for statutory designated sites of nature conservation interest within 5 km (restricted to 2 km for LNR) of the Proposed Project
- A search for non-statutory designated sites of nature conservation interest and protected / notable species within 2 km of the Proposed Project
- A search for European Protected Species Mitigation Licences within 2 km of the Proposed Project.

In 2024 as part of the desk study, the following data sources were contacted or accessed for records:

- Lancashire Environment Record Network for protected / notable species and non-statutory designated sites data (data received September 2018 and reviewed August 2024)
- The Multi Agency Geographic Information for the Countryside (MAGIC) website³⁷ for statutory designated sites, to search for European Protected Species Mitigation Licences and to identify if the Proposed Project falls within any of Natural England's Impact Risk Zones for SSSIs
- Google Maps³⁸ to identify potential habitat and species present including a search for ponds which may support amphibians up to 500 m from the Proposed Project
- Environment Agency data requested August 2019 and August 2024. In addition to Open Government macroinvertebrate / macrophyte site and metric data, a request for data relating to freshwater invertebrates, freshwater macrophytes and diatoms, and protected species records was submitted for selected watercourses across the Proposed Project.

7.3.1.2 Proposed Assessment Criteria

The scope of further field survey work needed to inform the EIA has been determined based upon current baseline knowledge of the assessment area and a review of current good practice survey guidance and nature conservation legislation / policy frameworks.

7.3.2 Field Survey

The following field surveys were undertaken by Bowland Ecology on behalf of United Utilities between April 2024 and August 2024:

- UK Habitat Classification System, including assessment for species of conservation concern
- Great crested newt eDNA
- Water vole
- Otter

³⁷ Multi Agency Geographic Information for the Countryside website available at <https://magic.defra.gov.uk/MagicMap.aspx> [accessed March 2024]

³⁸ Google Maps available at <https://www.google.co.uk/maps> [accessed March 2024]

- Badger
- Bat activity.

Field surveys are ongoing and therefore it has only been possible to incorporate data captured to date within this report. Surveys were selected based on professional judgement and will continue throughout the EIA process, where required, to address any data gaps and provide further baseline information where appropriate. Surveys will be complete prior to ES submission.

7.4 Proposed Assessment Criteria

7.4.1 Field Surveys

The scope of further field survey work needed to inform the EIA has been determined based upon current baseline knowledge of the assessment area and a review of current good practice survey guidance and nature conservation legislation and policy frameworks (e.g. NPPF; Natural Environment and Rural Communities (NERC) Act 2006 Section 41 list, etc.).

7.4.2 Evaluation of Ecological Features

This Scoping Report, current survey data, along with data obtained from further field surveys are intended to form the framework for the completion of an EIA which will be undertaken using guidance from the Guidelines for Ecological Impact Assessment.³⁹ The preliminary evaluation of the importance of ecological features identified within this Scoping Report has been based on Section 4 of the Guidelines for Ecological Impact Assessment. This includes the following geographical frame of reference:

- International and European
- National (England)
- Regional (North West England)
- County (Lancashire)
- District (local authority - Ribble Valley Borough Council)
- Local (the feature is of ecological importance beyond the Proposed Project but is not considered to be of district importance for biodiversity)
- Less than local (the feature does not meet the criteria for local importance).

7.5 Existing Conditions

7.5.1 Designated Sites

Salthill and Bellmanpark Quarries SSSI is located approximately 150 m north of the Proposed Project. Clitheroe Knoll Reefs SSSI is located over 700 m north-east. Coplow Quarry SSSI is located over 1.2 km north-west. Little Mearley Clough SSSI is located over 2 km south-east. The locations of the designations are shown on Figure 5:

- Salthill Quarry LNR is located within 150 m north of the Proposed Project. Crosshill Quarry LNR is located over 1.3 km north-west of the Proposed Project.

³⁹ Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine September 2018
Chartered Institute of Ecology and Environmental Management September 2018 Version 1.2 – Updated April 2022

- No NNR or other statutory wildlife sites were identified within 5 km from the Proposed Project.
- The Proposed Project overlies SSSI Impact Risk Zones. These identify risk categories relating to minerals, oil and gas, air pollution, combustion and waste processes and therefore are not relevant to the Proposed Project.
- Salthill Quarry Biological Heritage Site (BHS) and Bellmanpark Quarry BHS are located north of the Proposed Project within 150 m. Worston Common BHS is located over 500 m east. Worsaw Hill, Warren Hill, Crow Hill and The Ridge BHS are located over 700 m north-east. Bellman Farm Marsh BHS is located over 800 m north. Coplow Quarry and Pimlico Road Grasslands is located over 1.2 km north-west.

Table 7-2: Designated Sites for Nature Conservation Baseline Information and Preliminary Evaluation

Site Name	Designation	Reason for Designation	Preliminary Evaluation
Salthill and Bellmanpark Quarries	SSSI	Primarily designated for its geological interest in the form of Chadian and Knoll Reefs.	National
Clitheroe Knoll Reefs	SSSI	Primarily designated for its geological interest in the form of Knoll Reefs formed in Chadian Stage.	National
Coplow Quarry	SSSI	Primarily designated for its geological interest in the form of Knoll Reefs formed in the Chadian age and its associated sediments.	National
Little Mearley Clough	SSSI	Primarily designated for its geological interest in the form of excellent exposure of rock layers laid during the Namurian period, 320 million years ago.	National
Salthill Quarry	LNR	A botanically rich habitat supporting an array of wildflowers, woodland and as well as the fossilised remains of Crinoids. Habitat supports a diversity of birds and invertebrates.	County
Crosshill Quarry	LNR	A mosaic of woodland and small meadow. Habitat supports a diversity of birds and invertebrates.	County
Salthill Quarry	BHS	The site comprises a mosaic of habitats including limestone grassland, scrub and developing woodland surrounding a former limestone quarry which has been developed as an industrial estate. The main areas of interest are the exposed outcrops and stony ground which have been colonised by diverse flora. The site is also noteworthy for the presence of LBAP bryophytes and birds. The labyrinth spider occurs here.	County
Bellmanpark Quarry	BHS	Bellmanpark Quarry is cut into one of a series of limestone hills and is a link in a chain of calcareous habitats and features between Clitheroe and Downham. The quarry floor comprises variously sized hummocks and mounds as well as areas of flat ground, with the vegetation ranging from open calcareous to grass-dominated swards, together with areas of ash and hawthorn scrub.	County
Worston Common	BHS	The site comprises species-rich grassland with a diverse sward. Two species occurring at the site, namely green figwort and melancholy thistle, are included in the <i>Provisional Lancashire Red Data List of Vascular Plants</i> .	County
Worsaw Hill, Warren Hill,	BHS	The cluster of limestone knolls is also notified as a Geological Site of Special Scientific Interest. The site is of particular importance for its species-rich limestone	County

Site Name	Designation	Reason for Designation	Preliminary Evaluation
Crow Hill and The Ridge		grassland. Worsaw Hill supports the largest single area of limestone grassland in the Forest of Bowland. It is also notable in supporting the only population in the Forest of Bowland of the nationally scarce blue moor-grass. Limestone bedstraw, a species listed in the <i>Provisional Lancashire Red Data List of Vascular Plants</i> , also occurs frequently. In addition, Worsaw Hill is important for the occurrence of two nationally scarce lichens, <i>Polyblastia cupularis</i> and <i>Rinodina bischoffii</i> . As well as limestone grassland the site also includes areas of neutral and acidic grassland. These occur where glacial deposits overlie the limestone and mask its influence. The calcareous grassland comprises the National Vegetation Classification CG2 <i>Festuca ovina-Avenula pratensis</i> and the CG9 <i>Sesleria albicans-Galium sternerii</i> grasslands. The species diversity of these calcareous grasslands is far greater.	
Bellman Farm Marsh	BHS	The wet fields have an underlying peaty soil, indicative of a historical wetland habitat. Their situation between slightly elevated limestone formations to the north-west and south-east indicates a former valley mire. Formerly managed as meadowland, their vegetation is essentially fen meadow. The wet fields flood in winter attracting mallard, teal, snipe and water rail, with lesser whitethroat, sedge warbler and reed bunting present through the summer. The site is considered an important moult and roost site for passerines.	County
Coplow Quarry and Pimlico Road Grasslands	BHS	The site comprises areas of species-rich, semi-natural calcareous grassland and developing scrub at Coplow Quarry. The site includes Coplow Quarry Geological SSSI.	County

7.5.2 Habitats and Species of Principal Importance

Under the provisions of the NERC Act 2006 Section 40, all public bodies, including local authorities and statutory undertakers (including United Utilities), are required to take account of the conservation of SPI and HPI). These habitats and species generally form the basis for local Biodiversity Action Plan targets and should be considered by developers, even though not all these habitats / species are legally protected.

There is one defunct hawthorn hedgerow on site, and another adjacent to the site along the site boundary (not qualifying as important hedgerows, but both are HPI).

Other broadleaved woodland is present within and adjacent to the site boundary.

Running water is located adjacent to the site boundary.

7.5.3 Habitats Within the Survey Area

The majority of the site is other neutral grassland in good condition. This habitat is not considered to be a HPI or LBAP habitat.

Table 7-3: Preliminary Evaluation of Habitats

Habitat	Description	Habitat of Principal Importance (NERC Act, 2006)	LBAP	Preliminary Evaluation
Species-poor defunct hedge	Present on site	Yes	Yes	County
Species-poor intact hedge	Present on site	Yes	Yes	County
Neutral grassland	Present on site	No	No	Less than local
Silage field	Present on site	No	No	Less than local
Other lowland mixed deciduous woodland	Adjacent to site	Yes	Yes	County
Other broadleaved woodland	Present on site	Yes	Yes	County
Running water	Adjacent to site	Yes	Yes	County
Roadside verge	Present on site	No	No	Less than local

7.5.4 Species

All ponds within 250 m of the site boundary were subject to eDNA survey and results returned negative for great crested newts.

Suitable bat foraging and commuting habitat is present over grassland and along hedgerows within the site boundary. Excellent habitat lies to the north (outside of the site boundary) along the woodland edge and Worston Brook. The woodland along the road, within the boundary, contains potential roost features in the form of mature trees with light ivy cover present. Although the ivy stems were not thick or overlapping and therefore could not form a feature, the ivy may have obscured potential roosting features on the main stem of trees. BT1, a mature beech with multiple knotholes and wounds, and a tree group (six beech, one oak) with butt rot, are all within 10 m of the site boundary. Bat emergence and activity surveys have identified high numbers of bats and there is an indication that there is a roost in the trees or within the barn, both adjacent to site.

A barn owl was confirmed roosting in a barn approximately 10 m from the western corner of the site. A further roost was confirmed present in a tree to the north of the site along the stream. The site provides suitable habitat for hunting barn owl and other raptors. However, the site is not considered locally important as there are similar habitats in the surrounding locality.

The other neutral grassland present within the site is suitable for ground-nesting species including skylark and lapwing. The hedgerows also offer breeding bird habitat.

The watercourse to the north of the site boundary area is suitable for otter and water vole, however no evidence was found during the first survey visit. A second visit is required to comply with survey guidelines.

A recently used kingfisher nest was recorded within the watercourse north of the site boundary. Vacant nest sites were present within 50 m of the drainage outfall location.

Information received from the Ribble Rivers Trust stated that salmon and bullhead are present within the watercourse to the north.

No evidence of badger was identified, although suitable commuting and foraging habitat was present.

Other considerations include potential for common amphibians, reptiles, foraging raptors, hedgehog and brown hare, however no evidence of any these species was recorded during the survey.

Table 7-4: Preliminary Evaluation of Protected and Notable Species

Species	Description	Legal Protection	Species of Principal Importance (NERC Act, 2006)	LBAP	Preliminary Evaluation
Great crested newt	No evidence of GCN recorded	Yes	Yes	Yes	Local to District
Bat	Present within the woodland and barn	Yes	Yes	Yes	European/ International
Barn owl	Present within the woodland and barn	Yes	Yes	Yes	European/ International
Kingfisher	Present within watercourse	Yes	Yes	Yes	European/ International
Birds (various)	Potentially present	Yes	Yes	Yes	Local to European/ International
Water vole	Potentially present	Yes	Yes	Yes	District
Otter	Potentially present	Yes	Yes	Yes	Local to District
Salmon	Present within watercourse	Yes	Yes	Yes	District
Bullhead	Present within watercourse	Yes	Yes	Yes	District
Common amphibians	No records returned as part of the desktop study	No	Yes	Yes (common toad)	Local
Reptiles	Potentially present	Yes	Yes	No	Local to District
Hedgehog	Potentially present	No	Yes	Yes	Local to District
Brown hare	Potentially present	No	Yes	Yes	Local to District
Badger	Potentially present	Yes	No	No	Less than Local, to Local

7.6 Potential Impacts

The development may affect site-specific ecological features (habitats and floral species) and mobile ecological features (fauna). Impacts may occur through several means including:

- Direct loss of wildlife habitats through land-take including the resulting effects upon species reliant on those habitats
- Indirect harm through disturbance (dust, noise, vibration, increase in human presence)
- Light pollution from construction and operational activities and site compounds
- Changes in air quality.

Disruption of local watercourses and drainage patterns may cause:

- Changes in water quality
- Morphological and geomorphological variations

- Polluted runoff affecting the water environment
- Increased sediment delivery to the water environment
- Increase in severance and fragmentation, by dividing habitats or wildlife corridors
- Direct mortality, injury, disturbance or displacement through construction activities
- Deposits of contaminated substrate affecting habitats and species
- Introduction of invasive non-native plants and animals.

7.7 Design, Mitigation Measures and Biodiversity Net Gain

The Proposed EIA and design will be an iterative process. The early stage and ongoing ecology surveys will feed into the Proposed Project design which would minimise impacts on biodiversity.

Where adverse ecological effects are identified, a sequential process would be adopted to avoid, mitigate and compensate for these effects. This is referred to as the 'mitigation hierarchy' and includes avoidance, mitigation, compensation and enhancement measures which will be identified as part of the EclA process.

Many of the adverse ecological effects would be temporary and primarily attributed to the construction phase of the Proposed Project. Habitats would be reinstated, where practicable, on completion of works. Adverse effects on protected species will be identified, and an appropriate licensing regime applied to deliver the mitigation required.

United Utilities is committed to at least a 10 % Biodiversity Net Gain (BNG) on the Proposed Project and will include a BNG plan with the planning application to set out how this gain will be achieved.⁴⁰

7.8 Summary Scope for EIA

This Scoping Report along with data obtained from the current and further field surveys, are intended to form the framework for the completion of an EclA. The EclA will be undertaken using guidance from the Guidelines for Ecological Impact Assessment⁴¹. The EclA will in turn form part of the EIA for the Proposed Project.

Ecological features which are assessed as being of less than local value for biodiversity will be scoped out of the EclA as these features are not important enough to warrant further consideration. For those features scoped in for EclA (i.e. of Local importance or higher), assessments will be undertaken which consider construction, operational and decommissioning effects.

Table 7-5: Summary of the Proposed Scope of the EclA

Receptor	Matter / Likely Significant Effect	Comment
During Construction		
Designations Salthill & Bellmanpark Quarries SSSI Clitheroe Knoll Reefs SSSI	Risk of indirect harm through disturbance (dust,	Scoped in: Unmitigated indirect harm through disturbance could impact the qualifying features.

⁴⁰ In England, biodiversity net gain is required under a statutory framework introduced by Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021).

⁴¹ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.

Receptor	Matter / Likely Significant Effect	Comment
Coplow Quarry SSSI Little Mearley Clough SSSI Salthill Quarry LNR Crosshill Quarry LNR Salthill Quarry BHS Bellmanpark Quarry BHS Worston Common BHS Worsaw Hill, Warren Hill, Crow Hill and The Ridge BHS Bellman Farm Marsh BHS Coplow Quarry and Pimlico Road Grasslands BHS	noise, vibration, runoff).	
Habitats Hedgerows Woodland Running water	Direct loss of wildlife habitats through land-take including the resulting effects upon species reliant on those habitats. Risk of indirect harm through disturbance (dust, noise, vibration, runoff). Disruption of local watercourses and drainage patterns.	Scoped in: Loss of habitats through earthworks and compaction. Disruption of the local watercourse and field drainage patterns causing: • Changes to water quality • Morphological and geomorphological variations • Polluted runoff affecting the water environment • Sediment delivery, mortality, injury, displacement of species • Introduction of invasive, non-native plants and species. Unmitigated indirect harm through disturbance could impact retained habitats including polluted runoff, dust, noise and vibration.
Species Great crested newt Bats Barn owl Kingfisher Birds (various) Water vole Otter Salmon Bullhead Common amphibians Reptiles Hedgehog Brown hare	Direct loss of wildlife habitats through land-take including the resulting effects upon species reliant on those habitats. Indirect harm through disturbance (dust, noise, vibration, lighting, runoff,	Scoped in: Loss of habitats through earthworks and compaction: • Indirect harm through disturbance (dust, noise, vibration) • Lighting pollution from construction activities and site compounds • Increase in human presence • Changes in air quality • Increase in severance and fragmentation, by dividing habitats or wildlife corridors • Direct mortality, injury, disturbance or displacement through construction activities • Deposits of contaminated substrate affecting habitats and species

Receptor	Matter / Likely Significant Effect	Comment
Badger	increase in human presence) Disruption of local watercourses and drainage patterns.	• Introduction of invasive non-native plants and animals.
During Operation		
Designations Salthill & Bellmanpark Quarries SSSI Clitheroe Knoll Reefs SSSI Coplow Quarry SSSI Little Mearley Clough SSSI Salthill Quarry LNR Crosshill Quarry LNR Salthill Quarry BHS Bellmanpark Quarry BHS Worston Common BHS Worsaw Hill, Warren Hill, Crow Hill and The Ridge BHS Bellman Farm Marsh BHS Coplow Quarry and Pimlico Road Grasslands BHS Bellmanpark	Risk of indirect harm through disturbance (dust, noise, vibration, runoff).	Scoped in Unmitigated indirect harm through disturbance could impact the qualifying features.
Habitats Hedgerows Woodland Running water	Direct loss of wildlife habitats through land-take including the resulting effects upon species reliant on those habitats. Risk of indirect harm through disturbance (dust, noise, vibration, runoff). Disruption of local watercourses and drainage patterns.	Scoped in: Loss of habitats through compaction Disruption of the local watercourse and field drainage patterns causing: • Changes to water quality • Morphological and geomorphological variations, • Polluted runoff affecting the water environment • Sediment delivery, mortality, injury, displacement of species • Introduction of invasive non-native plants and species. Unmitigated indirect harm through disturbance could impact retained habitats including polluted runoff, dust, noise and vibration.
Species Great crested newt	Direct loss of wildlife habitats	Scoped in: • Loss of habitats through compaction

Receptor	Matter / Likely Significant Effect	Comment
Bats Barn owl Kingfisher Birds (various) Water vole Otter Salmon Bullhead Common amphibians Reptiles Hedgehog Brown hare Badger	through land-take including the resulting effects upon species reliant on those habitats. Indirect harm through disturbance (dust, noise, vibration, lighting, runoff). Disruption of local watercourses and drainage patterns.	• Indirect harm through disturbance (dust, noise, vibration) • Lighting pollution from operational activities and site compounds • Increase in human presence • Changes in air quality • Direct mortality, injury, disturbance or displacement through operational activities • Deposits of contaminated substrate affecting habitats and species • Introduction of invasive non-native plants and animals.

8 Cultural Heritage

8.1 Overview

This chapter presents the outcome of the scoping exercise in relation to potential cultural heritage effects arising from the Proposed Project. In this context, cultural heritage includes:

- Archaeological remains: the material remains of human activity from the earliest periods of human evolution to the present. These may be buried traces of human activities, sites visible above ground, or moveable artefacts
- Historic buildings: architectural, designed or other structures with a significant historical value. These may include structures that have no aesthetic appeal or structures not usually thought of as buildings, such as milestones or bridges
- Historic landscapes: the current landscape, whose character is the result of the action and interaction of natural and / or human factors.

The historic environment covers all aspects of the environment resulting from the interaction between people and places through time. This includes all surviving physical remains of past human activity and the changes that humans have had on the environment. Development proposals have the potential to have a physical effect on heritage assets during construction and operation. They can also change how a heritage asset is perceived.

All heritage assets including buried remains have a setting, which is defined as the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve⁴². Where a setting contributes to the value of a heritage asset this can be affected by impacts on the setting during construction and operation.

In this chapter, the cultural heritage baseline of the assessment area is summarised, and an initial indication of the potentially significant cultural heritage effects is provided. The scope of the cultural heritage impact assessment for the EIA and the technical methodology are described.

The assessment will be undertaken in accordance with Design Manual for Roads and Bridges (DMRB) LA 106 Cultural Heritage Assessment⁴³ and other relevant guidance set out within this chapter.

8.2 Key Legislation, Policy and Guidance

Table 8-1 sets out the relevant legislation, policy and guidance in relation to cultural heritage.

Table 8-1: Cultural Heritage Key Legislation, Policy and Guidance

Applicable Legislation, Policy and Guidance	Description
Planning (Listed Buildings and Conservation Areas) Act 1990	This Act provides specific protection for buildings and areas of special architectural or historic interest.
Ancient Monuments and Archaeological Areas Act 1979	This Act provides specific protection for archaeological monuments of national interest.

⁴² Department for Levelling Up, Housing and Communities (2023) National Planning Policy Framework

⁴³ Highways England (2020) Design Manual for Roads and Bridges (DMRB) LA 106 Cultural Heritage Assessment

Applicable Legislation, Policy and Guidance	Description
The Hedgerows Regulations 1997	These Regulations outline criteria for determining whether a hedgerow is 'important' and should be protected, based on characteristics such as age and historical associations.
National Planning Policy Framework (NPPF)	The preservation and enhancement of heritage assets forms an important part of the NPPF. There are policies protecting the historic environment throughout the NPPF but Section 16 Paragraphs 195 to 214 deal specifically with conserving and enhancing the historic environment. Paragraph 206 relates to the consideration of impacts on the setting of heritage assets.
National Planning Practice Guidance ⁴⁴	This is a dynamic web-based resource in support of the NPPF. For the historic environment, it provides useful guidance particularly with regard to assessing whether development will cause substantial harm (para 193-196 of the National Planning Policy Framework.).
DMRB LA 106 Cultural heritage assessment ⁴⁵	Whilst DMRB sets out guidance on the assessment of the impacts of motorway and trunk road infrastructure projects, it provides a robust and widely accepted methodology that can also be adopted for other types of development. DMRB LA 106 sets out methods for the assessment of the value of cultural heritage assets, the magnitude of impacts and the significance of those impacts.
Historic Environment Good Practice Advice in Planning: Note 2 - Managing Significance in Decision-Taking in the Historic Environment (GPA2) ⁴⁶	GPA2 provides detail on how to determine the significance of assets and methods used to enable that assessment including desk-based assessments and field evaluation.
Historic Environment Good Practice Advice in Planning: Note 3 - The Setting of Heritage Assets (GPA3) ⁴⁷	GPA3 provides detail on the setting of heritage assets and replaces earlier guidance on this matter published by English Heritage in 2011 which has now been withdrawn.

8.3 Proposed Methodology and Assessment Criteria

The assessment will be undertaken using professional judgement, guided by DMRB LA 106 Cultural Heritage Assessment. As part of the data collection supporting the EIA, the following activities will be undertaken:

- Walkover survey
- Settings assessment
- Geophysical survey will be undertaken.

Professional judgement will be used to determine which designated heritage assets are likely to be affected by temporary impacts on setting due to potential visual and noise intrusion. Preliminary assessment indicates that one designated asset, Clitheroe Castle (NHLE 1016196) has the potential to be affected due to

⁴⁴ Ministry of Housing, Communities & Local Government (2019) National Planning Practice Guidance

⁴⁵ Highways England (2020) Design Manual for Roads and Bridges (DMRB) LA 106 Cultural Heritage Assessment.

⁴⁶ Historic England (2015) Historic Environment Good Practice Advice in Planning: Note 2 – Managing Significance in Decision-Taking in the Historic Environment

⁴⁷ Historic England (2017) Historic Environment Good Practice Advice in Planning: Note 3 (2nd Edition) – The Setting of Heritage Assets.

temporary changes in its setting. The assessment area will include the full extent of any neighbouring features of special value to reflect the setting of those features. The assessment of setting will be conducted in general accordance with the following guidance: *Conservation Principles*⁴⁸ and *GPA3: The Setting of Heritage Assets*⁴⁹.

Information from NPPF and DMRB LA 106, together with Historic England guidance (GPA2 and GPA3), will be used as a basis for the heritage value and effect assessment. The identification of impacts and effects will consider potential physical and settings effects on heritage assets. The assessment of likely significant effects will take account of mitigation proposals developed as an integral part of the overall project design. Any proposed evaluation and subsequent mitigation will be designed with reference to the research aims contained in *An Archaeological Research Framework for North West England*⁵⁰.

The NPPF defines significance as 'the value of a heritage asset to this and future generations because of its heritage interest'. This may be related to 'archaeological, architectural and artistic or historic elements, and may also derive from the setting of the site'⁵¹.

The value of heritage assets will be assessed on a six-point scale of Very High, High, Medium, Low, Negligible and Unknown as set out below in Table 8-2 and Table 8-3 for archaeological remains and historic buildings respectively. A five-point scale of Very High, High, Medium, Low, and Negligible will be used to assess historic landscape types as set out in Table 8-3. All assessment will be moderated by professional judgement and informed by guidance contained in DMRB LA 104 Section 3 and LA 106 Section 3.

Table 8-2 presents the criteria used to assess the magnitude of impact (change), which considers the extent that the Proposed Project would impact a receptor and whether that impact is temporary, permanent or reversible.

Table 8-2: Criteria to Assess the Value of Archaeological Remains

Value	Criteria
Very High	- World Heritage Sites (including nominated sites) - Assets of acknowledged international importance - Assets that can contribute significantly to acknowledged international research objectives.
High	- Scheduled Monuments (including proposed sites) - Undesignated assets of schedulable quality and importance - Assets that can contribute significantly to acknowledged national research objectives.
Medium	Designated or undesignated assets that contribute to regional research objectives.
Low	- Designated and undesignated assets of local importance - Assets compromised by poor preservation and / or poor survival of contextual associations - Assets of limited value, but with potential to contribute to local research objectives.
Negligible	Assets with very little or no surviving archaeological interest.
Unknown	The importance of the resource has not been ascertained.

⁴⁸ English Heritage (2008) *Conservation Principles, Policies and Guidance*

⁴⁹ Historic England (2017) *Historic Environment Good Practice Advice in Planning: Note 3 (2nd Edition) – The Setting of Heritage Assets*.

⁵⁰ Brennand, Chitty and Nevell (Eds.) (2007) *An Archaeological Research Framework for North West England*

⁵¹ Department for Levelling Up, Housing and Communities (2023) *National Planning Policy Framework*

Table 8-3: Criteria to Assess the Value of Historic Buildings

Value	Criteria
Very High	- Structures inscribed as of universal importance as World Heritage Sites - Other buildings of recognised international importance.
High	- Scheduled Monuments with standing remains - Grade I, Grade II* and Grade II Listed Buildings - Conservation Areas containing very important buildings - Undesignated structures of clear national importance.
Medium	- Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations - Conservation Areas containing buildings that contribute significantly to their historic character - Historic Townscapes or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).
Low	'Locally Listed' buildings - Historic (unlisted) buildings of modest quality in their fabric or historical association - Historic Townscapes or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).
Negligible	Buildings of no architectural or historical note; buildings of an intrusive character.
Unknown	Buildings with some hidden (i.e. inaccessible) potential for historic significance.

Table 8-4: Criteria to Assess the Value of Historic Landscape Types

Value	Criteria
Very High	- World Heritage Sites inscribed for their historic landscape qualities - Historic landscapes of international value, whether designated or not - Extremely well-preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).
High	- Designated historic landscapes of outstanding interest - Undesignated landscapes of outstanding interest - Undesignated landscapes of high quality and importance, and of demonstrable national value - Well preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	- Designated special historic landscapes - Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value - Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).
Low	- Robust undesignated historic landscapes - Historic landscapes with importance to local interest groups

Value	Criteria
	Historic landscapes whose value is limited by poor preservation and / or poor survival of contextual associations.
Negligible	Landscapes with little or no significant historical interest.

Table 8-5: Criteria to Assess the Magnitude of Impact for Cultural Heritage

Value	Criteria
Major	- Changes to archaeological remains resulting from severe damage or major improvement to the key archaeological characteristics, features, or elements which affects the quality or integrity of the asset such that the asset is totally lost or altered - Comprehensive changes to setting of archaeological assets - Changes to historic buildings resulting from severe damage or major improvement to the key architectural characteristics, features, or elements which affects the quality or integrity of the asset such that the asset is totally lost or altered - Comprehensive changes to the setting of historic buildings - Changes to historic landscapes resulting from severe damage or major improvement to the key characteristics, features, or elements which affects the quality or integrity of the asset such that the asset is totally lost or altered.
Moderate	- Changes to archaeological remains, although not affecting the integrity of the asset, resulting from partial damage or improvement to the key archaeological characteristics, features, or elements such that the asset is clearly modified - Considerable changes to setting that affect the character of the archaeological asset - Changes to historic buildings, although not affecting the integrity of the asset, resulting from partial damage or improvement to the key architectural characteristics, features, or elements such that the asset is clearly modified - Changes to the setting of a historic building, such that it is significantly modified - Changes to historic landscapes, although not affecting the integrity of the asset, resulting from partial damage or improvement to the key characteristics, features, or elements such that the asset is clearly modified.
Minor	- Some measurable change in attributes, quality or vulnerability of the archaeological remains resulting from minor loss of, benefit to, or alteration to, one or more key archaeological characteristics, features or elements such that the asset is slightly altered - Slight changes to setting - Some measurable change in attributes, quality or vulnerability of the historic building resulting from minor loss of, benefit to, or alteration to, one or more key architectural characteristics, features or elements such that the asset is slightly altered - Change to setting of a historic building, such that it is noticeably changed - Some measurable change in attributes, quality or vulnerability of the historic landscape resulting from minor loss of, benefit to, or alteration to, one or more key characteristics, features or elements such that the asset is slightly altered.

Value	Criteria
Negligible	• Very minor changes to archaeological materials or setting resulting from very minor loss, detrimental alteration of, or benefit to one or more archaeological characteristics, features or elements such that the resource is hardly affected • Very minor changes to archaeological materials or setting resulting from very minor loss, detrimental alteration of, or benefit to one or more archaeological characteristics, features or elements such that the resource is hardly affected • Very minor changes to the historic landscape resulting from very minor loss, detrimental alteration of, or benefit to one or more characteristics, features or elements such that the resource is hardly affected.
No Change	• No loss or alteration of characteristics, features or elements of archaeological remains and no observable impact upon archaeological assets or their setting • No loss or alteration of characteristics, features or elements of historic building fabric and no observable impact upon historic buildings or their settings • No loss or alteration of characteristics, features or elements of the historic landscapes and no observable impact upon historic landscapes.

Likely significant effects have been assessed using professional judgement considering the value (sensitivity) of the receptors, and the magnitude of change (impact) likely to be caused by the Proposed Project. These factors are combined to give an overall significance of effect. The assessment of significance of effects has been undertaken using the significance matrix in Table 3.8.1 in DMRB LA 104.

This has been supplemented by professional judgement, which where applicable, has been explained to give the rationale behind the values assigned. In accordance with DMRB LA 104 Table 3.7, effects of moderate significance and above can be considered to be material decision-making factors.

8.4 Existing Conditions

8.4.1 Study Area

There are two study areas identified for the cultural heritage assessment based on the heritage asset. The first comprises an area extending 300 m in all directions from the site boundary for non-designated heritage assets. The 300 m study area will allow for identification of potential physical impacts and impacts on heritage assets through more immediate changes within their settings and a broader study of the non-designated heritage assets within the vicinity of the Proposed Project. This can be used to infer the potential for unknown archaeological remains to be present within the site boundary (referred to as archaeological potential).

A second study area extending to 1 km from the site boundary, has been used to identify designated heritage assets whose settings may be affected by the construction and/or operation of the Proposed Project. These study areas are in line with the guidance provided by DMRB LA 106 and are based on professional judgement. The study areas are considered appropriate to fully capture the likely significant effects from the Proposed Project.

The initial baseline for the cultural heritage topic comprises a review of the designated heritage assets (World Heritage Sites, Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, Registered Historic Battlefields, Protected Wrecks and Conservation Areas) and non-designated heritage assets within the 300 m study area, and designated heritage assets within 1 km of the Proposed Project boundary. This has been established using the following sources:

- Historic England's National Heritage List for England (NHLE)⁵² for designated heritage assets
- The Lancashire Historic Environment Record (HER) for non-designated heritage assets.

The initial baseline of heritage assets is discussed below by three subtopics:

- Archaeological remains
- Historic buildings
- Historic landscapes.

8.4.2 Archaeological Remains

The archaeological remains subtopic comprises the material remains of human activity from the earliest periods of human evolution to the present. These may be buried traces of human activities, sites visible above ground, or moveable artefacts.

There are no designated heritage assets within the site boundary or 300 m study area.

One non-designated heritage asset lies within the site boundary consisting of the line of a Roman road between Ribchester and Ilkley (HER MLA15479, MLA15480, MLA26080). This asset is of medium value due to its regional archaeological interest.

Nine other non-designated heritage assets are located within the 300 m study area including:

- The earthworks of a possible trackway (HER MLA18868) lie approximately 105 m north-east of the site boundary; aligned with the point at which the Roman road crosses Worston Brook, this asset holds archaeological interest and is of medium value
- Part of a hollow way (HER MLA 18869) of low value has also been recorded along Worston Brook around 230 m north-east of the Proposed Project
- Two isolated findspots of a flint arrowhead (HER MLA192) and a stone axe (HER MLA193) are recorded within the study area, which are indicative of early prehistoric activity and may suggest the potential for previously unknown archaeological remains within the study area.

The remaining non-designated remains relate to quarrying activity within the vicinity of the Proposed Project, including assets within the Bellmanpark Quarry complex around 225 m north of the Proposed Project boundary. These comprise former quarry buildings (HER MLA27946) and a drinking fountain (HER MLA27947), both of which have been removed due to the extension of the quarry so are of negligible value, and the southern extent of a former mineral tramway (HER MLA18872). The former mineral tramway extends by a small way into the 300 m study area, and although it is visible as a cropmark beyond the limits of the current quarry, it has been totally removed within the 300 m study area. A small number of undated pit and linear features (HER MLA26046) were also recorded within the grounds of the Bellmanpark Quarry extension 290 m north-east of the Proposed Project, which have also been destroyed and are of negligible value. The site of a post-medieval limestone quarry and lime kiln (HER MLA5626) was recorded 205 m to the north-west of the Proposed Project boundary, however the site remains only as a depression in the landscape truncated by the construction of modern industrial units, therefore is of negligible value.

Seven previous archaeological investigations undertaken within the 300 m study area are recorded as events within the Lancashire HER. Archaeological trial trenching, building recording and earthwork survey (HER

⁵² Historic England (2024) National Heritage List for England available at <https://historicengland.org.uk/listing/the-list> [accessed on August 2024]

ELA1007, ELA1524) conducted north of the Proposed Project boundary at Bellmanpark Quarry recorded the remains of several former post-medieval quarry buildings and associated earthworks, although ancient remains were limited to agricultural features including ridge and furrow. Geophysical survey in the grounds of the Bellmanpark Quarry (HER ELA1006) indicated a limited number of anomalies, possibly a series of pits and ditches, north of the Roman road. Surviving sections of the Roman road were also recorded just beyond the 300 m study area during archaeological excavations at Hanson Cement Quarry (HER ELA3175). Two desk-based assessments of areas north of the Proposed Project (HER ELA1008, ELA2200) were also undertaken prior to the extension of Bellmanpark Quarry. To the west of the study area, geophysical survey and archaeological trial trenching (HER ELA2591, ELA2594) in support of development on the former Twinbrooks Golf Driving Range did not identify any surviving features of archaeological interest.

Lying approximately 750 m north of the site boundary, the Bellmanpark lime kilns and associated trackway (NHLE 1021105) are the only Scheduled Monument located within the 1 km wider study area. All Scheduled Monuments are identified to be of national importance and have statutory protection from unauthorised works. As such, they are identified to be of high value due to their archaeological and historical interest.

8.4.3 Historic Buildings

The historic buildings subtopic comprises architectural, designed or other structures with historical value. These may include structures that have no aesthetic appeal or structures not usually thought of as buildings, such as milestones or bridges. There are no built heritage assets within the site boundary.

Although not subject to any statutory or local listing, New House, a disused stone vernacular building, was observed during a site visit and lies 5 m from the site boundary (Photo 8-1). New House did not appear on the first edition 1847 Ordnance Survey map or 1890 edition map but was observed on the 1912 edition map. This asset holds architectural interest and is of low value.



Photo 8-1: New House

There are four Listed Buildings within the wider study area (1 km of the site boundary), all of which are Grade II Listed. These comprise:

- Bellman Farmhouse (NHLE 1362214), approximately 730 m north
- Crow Hill Cottage (NHLE 1165628) approximately 750 m north-east

- Worston Old Hall (NHLE 1317256) and the wall enclosing gardens to the south of Worston Old Hall (NHLE 1362336), approximately 830 m north-east.

Given their designated statuses, these assets are considered to be of high value. All of the designated assets evidence strong archaeological, architectural and historic interest.

There is also one Conservation Area, Worston, which is located to the north-east of the Proposed Project within the 1 km wider study area and is of medium value.

Although outside of the wider study area, Clitheroe Castle (NHLE 1016196) has also been included due to its prominent location with views over the surrounding landscape (Photo 8-2). This asset consists of a ruinous 12th Century tower keep located approximately 1.75 km west of the Proposed Project and was noted to be visible from within the site boundary during a site visit. As a Grade I Listed Building, Clitheroe Castle is a designated heritage asset of high value with archaeological, architectural and historic interest of national importance.



Photo 8-2: South-westerly View Towards Clitheroe Castle (NHLE 1016196) from within the site boundary

8.4.4 Historic Landscape

There are no designated historic landscape assets (World Heritage Sites, Registered Parks and Gardens, Registered Historic Battlefields) within the site boundary or study areas.

The historic landscape has been divided into historic landscape types (HLT) by the Lancashire Historic Landscape Characterisation⁵³ to facilitate assessment. Historic landscape types are land parcels with a common character such as land use or field pattern. Post-medieval Enclosure is the only HLT represented within the site boundary. This is a widespread and common type in Lancashire, therefore is of low value.

Three further HLTs are represented within the 300 m study area alongside Post-medieval Enclosure. Ancient Enclosure is located approximately 60 m north of the site boundary and an area of Ancient and Post-Medieval Industry associated with Bellmanpark Quarry lies 100 m north-east of the Proposed Project. Both landscape types hold archaeological interest and are of medium value. An area of Modern Industry located

⁵³ Lancashire County Council (2017) Lancashire Historic Landscape Characterisation

approximately 105 m north-west of the Proposed Project holds limited archaeological interest and is of negligible value.

8.4.5 Potential Impacts

Potential adverse impacts to cultural heritage assets can be divided into two categories:

- Physical – the loss or damage to heritage assets occurring during the construction or operation of the Proposed Project. Examples include removal or damage to archaeological remains, and changes to groundwater levels.
- Setting – intrusion on the setting of a heritage asset that would affect the value of the asset during the construction or operation of the Proposed Project. This could include noise or visual changes.

8.4.6 Design and Mitigation Measures

A staged programme of archaeological investigations would be undertaken to establish the nature, extent and survival of known and unknown archaeological remains within the Proposed Project. This would comprise non-intrusive evaluation such as desk-based research and geophysical survey which would inform the requirement for intrusive archaeological investigations (trial trenching). There may be the need for archaeological mitigation based on the results of evaluation.

Mitigation measures may include:

- Design-related mitigation measures for example the use of landscape design (earthworks and planting) to reduce impacts arising from changes to the setting of heritage assets. Although, such measures can themselves have adverse effects on cultural heritage assets.
- Archaeological mitigation such as retention of archaeological remains through changes in design, targeted archaeological excavation, or strip map and sample prior to construction, or an archaeological watching brief during construction.

8.5 Significance of Effects

Potential impacts on heritage assets during the construction and operation of the Proposed Project are summarised in Table 8-6.

Table 8-6: Likely Significant Effects for Heritage Assets

Receptor / Receptor Group	Matter / Likely Significant Effects	Comments
Archaeological remains	Any groundworks associated with the Proposed Project have the potential to adversely impact previously unknown archaeological remains through truncation or removal.	Scoped in The assessment will consider: • Partial or complete removal of archaeological remains within the footprint of the Proposed Project. • Damage to archaeological remains within the footprint of the Proposed Project through their compression during construction, through the movement of machinery or spoil storage areas • Damage to archaeological remains through changes to groundwater levels caused by engineering activities associated with the Proposed Project • Temporary noise, dust, and/or visual intrusion on the setting of archaeological remains during construction

Receptor / Receptor Group	Matter / Likely Significant Effects	Comments
		activities such as groundworks, placement of site compounds, and from construction traffic in the vicinity of archaeological remains.
Historic buildings (New House)	This asset could be adversely impacted through changes to the setting or indirect physical impacts which could result in a significant effect.	Scoped in The assessment will consider: • Indirect physical impacts on historic buildings through changes to groundwater levels or vibrations caused by engineering activities associated with the Proposed Project • The alteration to the setting of historic buildings through the removal of vegetation or associated above-ground elements during construction • Temporary noise, dust, and/or visual intrusion within the setting of historic buildings during construction activities such as groundworks and from and from construction traffic in the vicinity of historic buildings.

Due to distance and the intervening topography and vegetation, it is unlikely that the Proposed Project would have significant effects on the designated heritage assets, including the Scheduled Monument (NHLE 1021105) and Listed Buildings (NHLE 1362214, 1165628, 1317256, 1362336), within the 1 km study area. Although Clitheroe Castle (NHLE 1016196) is visible from within the site boundary, the distance between this asset and the Proposed Project means it is unlikely to result in a significant effect. There would be no physical impacts to the designated heritage assets and these are scoped out of the assessment.

As the line of the Roman road (HER MLA15479, MLA15480, MLA26080) lies within the eastern part of the Proposed Project, albeit lying entirely within the footprint of the existing Pimlico Link Road, any surviving remains of this part of the asset could be physically impacted by the Proposed Project. This extends to the remains of any previously unknown roadside settlement or activity, for which there is archaeological potential. Any surviving remains may be removed during groundworks within the site boundary, which could result in a significant effect. However, it should be noted that only a small section of the Roman road crosses the Proposed Project boundary and would be located in previously disturbed ground associated with the highway work envelope. Therefore it is likely any remains of the Roman road within the Proposed Project boundary were already removed during the construction of the existing Pimlico Link Road.

Although the Proposed Project would result in the partial removal of an area of Post-medieval Enclosure HLT, this is unlikely to result in a significant effect due to the small amount of the type removed and the fact the Proposed Project is an extension of a previously existing road structure. Therefore, the historic landscape subtopic will be scoped out of further assessment.

9 Soils, Geology and Land Use

9.1 Overview

This chapter presents the outcome of the scoping exercise in relation to potential soils, geology and land effects of the Proposed Project, including potential effects from land contamination on human health, surface water and groundwater receptors.

For surface and groundwater quality, this chapter only considers effects from existing (historical and contemporary) land contamination. Assessment of other potential effects from the Proposed Project on water quality is provided in Chapter 6 Water Environment.

9.2 Key Legislation, Policy and Guidance

Table 9-1 sets out the legislation and guidance relevant to soils, geology and land quality.

Table 9-1: Soils, Geology and Land Key Legislation and Guidance

Applicable Legislation or Guidance	Description
Part 2A of the Environmental Protection Act 1990	This Act sets out the contaminated land regime for the UK and requires land to be determined as contaminated if it poses an unacceptable risk to human health, controlled waters or the environment.
National Planning Policy Framework ⁵⁴	This requires planning authorities to consider the economic and other benefits of the best and most versatile agricultural land. It also requires that planning decisions should consider the potential impacts of pollution or land instability issues to ensure that a development is appropriate for its intended location. It requires that decisions should ensure that a site is suitable for use with regard to ground conditions, including land contamination and land instability.
Land Contamination Risk Management ⁵⁵	This document presents best-practice guidance for the assessment of land contamination in England, Northern Ireland and Wales.
Guide to assessing development proposals on agricultural land ⁵⁶ and A Green Future: Our 25 Year Plan to improve the Environment 2018 ⁵⁷	Policy and legislation requires consideration of development proposals which may affect agricultural land and soils. They aim to protect: • The best and most versatile (BMV) agricultural land from significant, inappropriate or unsustainable development proposals • All soils by managing them in a sustainable way A Green Future sets out the Government's 25 year plan to improve the health of the environment, including soil resources. It plans to, among other things: • Protect the best agricultural land • Put a value on soils as part of our natural capital • Manage soils in a sustainable way by 2030.
Design Manual for Roads and Bridges (DMRB) LA 109 Geology and Soils ⁵⁸	Whilst DMRB sets out guidance on the assessment of the impacts of motorway and trunk road infrastructure projects, it provides a robust and widely accepted methodology that can also be adopted for other types of

⁵⁴ Department for Levelling Up, Housing and Communities (2023) National Planning Policy Framework

⁵⁵ Environment Agency (2020) Land Contamination Risk Management.

⁵⁶ Guide to assessing development proposals on agricultural land (Updated 5 February 2021) Natural England

⁵⁷ A Green Future: Our 25 Year Plan to Improve the Environment DEFRA

⁵⁸ Highways England (2019) Design Manual for Roads and Bridges LA 109 Geology and Soils

Applicable Legislation or Guidance	Description
	development. DMRB LA 109 sets out the requirements for assessing and reporting effects on geology, soils and land contamination.

9.3 Proposed Methodology and Assessment Criteria

The methodology described in this chapter is in accordance with DMRB LA 109 Geology and Soils whereby the level of significance of a potential effect on the existing baseline condition is determined by the value/importance of the receptor/attribute, combined with the magnitude of impact.

The environmental value or sensitivity of a receptor will be assigned according to the criteria outlined in Table 9-2.

Table 9-2: Environmental Value (Sensitivity) Criteria for Soils and Geology

Value (Sensitivity)	Typical Description
Very high	Geology: International designated sites of geological value (e.g. World Heritage Sites). Soil: ALC grades 1 and 2. Soils directly supporting an EU designated site (e.g. SAC or SPA). Human health: Very sensitive land use such as residential or allotments.
High	Geology: Rare and of national importance with little potential for replacement (e.g. geological SSSI). Human health: High sensitivity land use such as public open space. Soil: ALC subgrade 3a. Soils directly supporting a UK designated site (e.g. SSSI).
Medium	Geology: Regionally Important Geological Sites with limited potential for replacement. Human health: Medium sensitivity land use such as commercial or industrial. Soil: ALC subgrade 3b. Soils supporting non-statutory designated sites (e.g. LNR).
Low	Geology: Geology of local importance / interest with potential for replacement (e.g. non-designated geological exposures, former quarries / mining sites). Human health: Low sensitivity land use such as highways and rail. Soil: ALC grades 4 and 5. Soils supporting non-designated notable or priority habitats.
Negligible	Geology: No geological exposures, little / no local interest. Human health: Undeveloped surplus land / no sensitive land use proposed. Soil: Previously developed land formerly in 'hard uses' with little potential return to agriculture.

For the purposes of scoping, the study area comprises a 250 m buffer around the site boundary to facilitate consideration of historical and land use searches and receptors located in the vicinity of the site.

Magnitude of impact (change) on receptors will be assessed according to the criteria outlined in Table 9-3 (from DMRB LA 109, Table 3.12) and the application of professional judgement.

Table 9-3: Magnitude of Impact Criteria for Soils and Geology

Magnitude of Impact (Change)	Typical Description
Major adverse	Geology: Loss of geological feature / designation and/or quality and integrity, severe damage to key characteristics, features or elements. Soil: Physical removal or permanent sealing of >20 ha agricultural land. Human health: Significant contamination identified. Contamination levels significantly exceed background levels and relevant screening criteria (e.g. category 4 screening levels) with potential for significant harm to human health. Contamination heavily restricts future use of land.

Magnitude of Impact (Change)	Typical Description
Moderate adverse	Geology: Partial loss of geological feature / designation, potentially adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements. Soil: Physical removal or permanent sealing of 1ha – 20ha of agricultural land or permanent loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g. through degradation, compaction, erosion of soil resource). Human health: Contaminant concentrations exceed background levels and are in line with limits of relevant screening criteria (e.g. category 4 screening levels). Significant contamination can be present. Control / remediation measures are required to reduce risks to human health / make land suitable for intended use.
Minor adverse	Geology: Minor measurable change in geological feature / designation attributes, quality or vulnerability. Minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. Human health: Contaminant concentrations are below relevant screening criteria (e.g. category 4 screening levels). Significant contamination is unlikely with a low risk to human health. Best practice measures can be used to avoid or reduce risks to human health. Soil: Temporary loss / reduction of one or more soil function(s) and restriction to current or approved future use (e.g. through degradation, compaction, erosion of soil resource).
Negligible adverse	Geology: Very minor loss or detrimental alteration to one or more characteristics, features or elements of geological feature / designation. Overall integrity of resource not affected. Human health: Contaminant concentrations substantially below levels outlined in relevant screening criteria (e.g. category 4 screening levels). No requirement for control measures to reduce risks to human health / make land suitable for intended use. Soil: No discernible loss / reduction of soil function(s) that restrict current or approved future use.

In determining the magnitude of change for soil receptors, the resilience of the soils to structural damage during handling (i.e. soil stripping, stockpiling and restoration) would also be considered. The interactions between soil texture, moisture, structure and climate are the key to understanding soil resilience and Table 9-4 sets out the criteria that would be followed. This follows the approach set out in A New Perspective on Land and Soil in Environmental Impact Assessment⁵⁹.

Table 9-4: Resilience of Soil Receptors

Resilience	Description
Low	Soils with high clay and silt fractions (clays, silty clay, sandy clays, heavy clays, heavy silts, clay loams, and heavy clay loams) and organic mineral and peaty soils where the field capacity days (FCDs) are 150 or greater. Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams) where the FCDs are 225 or greater. All soils in wetness class (WC) V or WCVI.
Medium	Clays, silty clays, sandy clays, heavy clay loams, silty loams and organic mineral and peaty soils where FCDs are fewer than 150 medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams where FCDs are fewer than 225.

⁵⁹ IEMA (2022) A New Perspective on Land and Soil in EIA

Resilience	Description
	Sands, loamy sands, sandy loams and sandy silt loams where the FCDs are 225 or greater or are WCIII or WCIV.
High	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams) where FCDs are fewer than 225 and are in WCI or WCII.

Significance of effect will be derived using the significance matrix in Table 4-4. Significance of effect is derived by combining the value (sensitivity) of a receptor and the magnitude of impact (change) on the receptor. For the purposes of this assessment, significant effects are considered to be those that are within the moderate and categories.

9.4 Existing Conditions

The baseline conditions for soil and geology have been identified using data from the following sources:

- British Geological Survey (BGS) online mapping available at <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/> [accessed August 2024]
- Magic Map Application available at (<https://magic.defra.gov.uk/>) [accessed August 2024]
- LandIS Soilscales Viewer available at (<https://www.landis.org.uk/soilscales/>) [accessed August 2024]
- Commercially and publicly available records relating to current and historical land uses, pollution incidents, waste management and environmental permitting (Groundsure Enviro + Geo Insight Report Ref: GS-C6K-M1B-7M3-7TR and Groundsure Map Insight Ref: GS-QWI-GW3-DD8-9AJ).

9.4.1 Geology

The online BGS mapping identifies the superficial deposits underlying the study area to predominantly consist of Devensian Till, described as diamicton. A thin band of alluvium, described as clay, silt, sand and gravel is identified in the north / north-eastern section of the site, associated with Worston Brook as it flows from east to west immediately north of the site.

The bedrock deposits underlying the superficial deposits consist of the Clitheroe Limestone Formation and Hodder Mudstone Formation (undifferentiated).

Whilst no geological SSSIs have been identified on site, the Salthill and Bellmanpark Quarries, located approximately 100 m north of the site, have been designated as a geological SSSI. No open-source local scale mapping of Geological Conservation Sites or Local Geological Sites is available and therefore their absence cannot be confirmed at this stage.

9.4.2 Soils and Land Use

The land falling within the boundary of the Proposed Project is presently tenanted farmland. United Utilities would enter into an agreement with the landowner and tenant farmer to enable the Proposed Project to be constructed on the land, subject to planning permission.

The value of soils for biomass production is primarily determined by the agricultural land classification (ALC) grade. Best and most versatile agricultural land equates to grades 1, 2 and subgrade 3a of the ALC system. Provisional ALC data show the site and wider study area to be classified grade 3 (good to moderate quality) agricultural land. The provisional ALC data do not differentiate subgrades 3a and 3b. There are no publicly available post-1988 ALC data available for the study area.

Soilscales identifies the following soil type within the study area:

- 17 – Slowly permeable seasonally wet acid loamy and clayey soils
- No peat or peaty soils have been identified in the study area.

Agricultural land use and ALC will be considered in the Environmental Statement, noting that the loss of land would be both temporary and reversible, following completion of the HARP works and reinstatement of the agricultural land before handover under the terms of the landowner / tenant agreement.

9.4.3 Land Contamination

No ground investigation data are available to confirm the soil and groundwater quality beneath the study area. However, a review of the available historical maps provided by Groundsure indicates that the site has remained in agricultural use since the earliest available map dated 1847. In addition, no current or historical waste sites (including landfills), environmental permits or other licensed industrial activities have been identified within the site boundary.

Bellmanpark Limestone Quarry lies approximately 100 m north of the site boundary and was first identified on the 1890 map and remains an active quarry. By 1988, Bellmanpark Quarry had been redeveloped with Bellman Mill now identified on the site of the Quarry closest to the site. The Mill is currently operated by Dugdale Nutrition which produces animal feeds, pet foods, hay and straw and operates under an environmental permit for treating vegetables and raw materials for food.

Salthill Limestone Quarry lies approximately 500 m north-west of the site boundary and was first identified on the 1910 map. Salthill quarry expanded to the east towards Bellmanpark Quarry and was identified as disused by 1979, at which point the quarry was approximately 100 m north-west of the site boundary.

Based on the desk study, the potential risks from land contamination are considered to be low given the current and historical agricultural setting of the site.

9.5 Potential Impacts

Developments can cause potentially significant effects on geological and soil resources, such as designated geological sites and agricultural land classified as Best and Most Versatile, whilst the nature and condition of the soil and underlying rocks can be a key constraint on project design. Under some circumstances, a project can also compound environmental effects caused by previous activity, for instance by mobilising contamination that may be present in the ground from former industrial and landfill activities. Soils can be affected, for example, by the physical removal or temporary sealing, through degradation during stripping, handling and storage, or through mechanisms such as compaction and smearing. Soil quality may also be degraded by mobilising contaminants or from contaminated surface water runoff.

9.6 Design and Mitigation Measures

Many of the above effects are anticipated to be managed through standard good practice measures during construction and operation of the site and therefore would be unlikely to result in significant effects. Some of the mitigation measures likely to be adopted in relation to soils, geology or land quality are:

- Consolidating the footprint of the Proposed Project to reduce the degradation of soil functions and soil sealing and using good practice measures when stripping, storing and reinstating soil, such as storing topsoil and subsoil separately, not handling soil when frozen or saturated and potentially covering or seeding soil stockpiles. Such measures would be set out in a management plan
- Completion of an ALC and soil resource survey to inform method statements about the management of soil and to inform how soil would be reinstated during decommissioning of the Proposed Project to allow for eventual agricultural restoration

- Good practice measures to reduce the risk of pollution to groundwater and soils.

9.7 Summary Scope for the EIA

Table 9-5 outlines the likely significant effects on soils, geology and land quality from the Proposed Project.

Table 9-5: Likely Significant Effects for Soils, Geology and Land Quality

Receptor / Receptor group	Matter / likely significant effects	Comments
Soil	Soils may be affected by earthworks and tracking of HGVs during construction.	Scoped in (for construction only). The assessment will consider: • The risk of soil degradation during stripping, movement and spreading through mechanisms such as compaction and smearing. At this stage, it is assumed that all soils identified within the site boundary would be affected.
Agricultural land use	Temporary loss of agricultural land.	It is anticipated that an agreement would be established between the tenant farmer, the landowners and United Utilities. The land in question would be reinstated and returned to agricultural use on decommissioning of the Proposed Project.

No sites of geological importance have been identified within the site boundary and it is considered unlikely that the geological SSSI (Salthill and Bellmanpark Quarries) would be impacted by the Proposed Project. As such, there are no likely significant effects anticipated on geological sites and these have been scoped out of the assessment.

Whilst soil stripping during the construction phase of the Proposed Project has been scoped in, effects on soils during the operation phase have been scoped out of further assessment. This is on the basis that the topsoils and subsoils will be stored responsibly within the site of the Proposed Project in accordance with standard good practice guidelines.

Agricultural land use and agricultural land quality will be addressed in the Environmental Statement.

Land contamination has been scoped out of further assessment on the basis that the baseline information did not identify a significant source of land contamination that could directly affect the Proposed Project, nor would the Proposed Project introduce significant new sources of contamination into the soils and geology environment.

10 Traffic and Movement

10.1 Overview

This chapter outlines the proposed scope and EIA methodology for the traffic and movement assessment during the construction, operation and decommissioning phases of the Proposed Project.

The Proposed Project concerns an alternative site to the consented P&R / HGV facility. The traffic and movement effects associated with the consented schemes remain largely unchanged. The scope of the proposed assessment relates only to two specific sections of road on the local highway network where there would be changes to traffic flows and the movement of people due to the Proposed Project - namely A671 Pimlico Link Road and West Bradford Road. No other parts of the local road network would experience traffic and movement changes over and above those described in the planning applications for the consented schemes.

The Proposed Project would be accessed from Pimlico Link Road by a new, temporary junction. The junction would be designed in consultation with the highways authority, meeting relevant highways standards for motorist and non-motorised user (NMTU) safety. P&R footpath FP0348005, which crosses Pimlico Link Road at the site of the proposed junction, would be temporarily diverted and incorporated into the junction to enable users to pass safely from one side of the road to the other, without coming into conflict with HGVs and other HARP-related traffic.

Potential environmental effects arising from traffic and movement are considered in this chapter, reflecting the Guidelines: Environmental Assessment of Traffic and Movement⁶⁰. These potential effects include:

- Road vehicle driver and passenger delay
- Non-motorised user delay
- Road user and pedestrian safety
- Hazardous/ large loads.

In accordance with the planning conditions for the consented schemes, the timing of HGV vehicle movements associated with construction of the Proposed Project would continue to be restricted as described in Section 1.2.1.

10.2 Key Legislation, Policy and Guidance

There is no legislation specific to the environmental assessment of traffic and movement and associated effects. Relevant policy and guidance is listed in Table 10-1.

⁶⁰ IEMA (2023) Guidelines: Environmental Assessment of Traffic and Movement

Table 10-1: Traffic and Movement Key Policy and Guidance

Applicable Legislation or Guidance	Description
National Planning Policy Framework ⁶¹	Seeks to encourage development which aligns with the sustainable objectives of minimising the need for road journeys and promoting the efficient delivery of goods and supplies.
Environmental Assessment of Traffic and Movement	This guidance states that an EIA is needed when the volume of traffic has exceeded certain criteria. The IEMA guidance recommends two broad 'rules of thumb', listed below, which should be considered as criteria to assist in delimiting the scale and extent of the environmental assessment: Rule 1 – Include highway links where traffic flows will increase by more than 30 % (or the number of HGVs will increase by more than 30 %) Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10 % or more.
Transport Analysis Guidance Unit M4 – Forecasting and Uncertainty ⁶²	This document provides guidance on the traffic analysis of forecasting and uncertainty. The guidance recommends the use of an uncertainty log to document and assess the certainty of various future development and infrastructure projects in order to derive a realistic future baseline scenario, with and without the Proposed Project.

10.3 Existing Conditions

10.3.1 Study Area

As highlighted in Section 10.1, the Proposed Project relates only to the relocation of the P&R and HGV marshalling area that formed a component of both consented schemes. The proposed traffic and movement study area therefore reflects only those sections of the highway network where changes in traffic patterns occur between the previously consented P&R and HGV facility and the Proposed Project. The proposed study area will therefore cover the following sections of highway network:

- From the A59/ A671 Pimlico Link Road junction south of the Proposed Project's access, as far north as the Pimlico Link Road / Chatburn Road roundabout at the community hospital
- From the roundabout at the community hospital, north along Pimlico Link Road and then West Bradford Road, as far as the consented P&R / HGV facility.

It is not anticipated that the volumes of construction and workforce vehicles required for the construction of HARP would differ to those presented as part of the consented schemes. Therefore, the magnitude of impacts identified on the wider highway network are expected to remain consistent with those set out in the consented schemes. It is therefore appropriate to align the study area to those links identified above where traffic changes associated with the Proposed Project are likely to occur.

⁶¹ Department for Levelling Up, Housing and Communities (2023) National Planning Policy Framework

⁶² Department for Transport (2023) Transport Assessment Guidance Unit M4 Forecasting and Uncertainty

10.3.2 Baseline Information Sources

The assessment will be conducted using baseline traffic count data obtained for the road network and from assumptions generated from first principles regarding vehicle trip generation and distribution. The following data have been used to inform the baseline:

- Recent traffic surveys on A671 Pimlico Link Road conducted between 1 to 7 July 2024. These include automatic traffic counts (ATC) and a vehicle speed survey in the vicinity of the proposed site access and a manual classified count (MCC) at the A671 Pimlico Link Road/ A59 junction south of the proposed site
- NMU survey conducted on a weekday (2 July 2024) and weekend (6 July 2024) associated with footpath FP0348005 located north of the proposed site access.
- The following will also be examined to inform the baseline conditions as part of the ES:
- Road Safety Review analysing road collisions and safety statistics for the most recent five-year period available (excluding COVID years). The catchment area will reflect, and be limited to, the extent of the proposed study area described in Section 10.3.1.

The recent traffic surveys conducted in July 2024 have been compared to the previous 2019 traffic surveys that supported the consented schemes. A comparison of five-day weekday averages reveals that background traffic levels on A671 Pimlico Link Road, where the access is planned, remain consistent to those recorded in 2019. During the AM Peak (08:00 to 09:00) total vehicle flows have increased by approximately 5.5 % compared to the previous 2019 baseline flows, whilst the PM Peak (17:00 to 18:00) reflects a slight increase of 0.2 %. Across a twelve-hour duration (07:00 to 19:00) total vehicle flows have increased by approximately 8 %. These comparisons demonstrate that the existing baseline position remains consistent to that which informed the consented schemes and therefore the existing link capacity of A671 Pimlico Link Road is likely to be of a similar level.

A vehicle queue survey was undertaken on 2 July 2024 at the A59 / Pimlico Link Road junction with the aim of understanding queuing conditions. The surveys revealed a short (15-minute period) during which queues reached their peak, with a maximum queue length of approximately 260 m recorded at 17:10 in the evening period. This is less than the distance of approximately 380 m between the A59/ A671 Pimlico Link Road junction and the proposed site access. Further analysis of queueing characteristics will be undertaken for the traffic and movement assessment.

As highlighted, there is an existing PRoW footpath (FP0348005) which traverses the location of the proposed access. An NMU survey conducted at this location on 2 July (weekday) and 6 July (weekend) 2024 indicated that there is minimal activity associated with this route. A total of five pedestrian movements (two travelling eastbound, three travelling westbound) were recorded across a neutral weekday and 16 pedestrian movements (nine pedestrians travelling eastbound, seven travelling westbound) were recorded over Saturday 6 July. No cyclists or equestrians were recorded using this PRoW on either of these surveyed days.

The ATC survey located on Pimlico Link Road revealed a small number of cyclists using this corridor. A total average of eight cyclists (two-direction) were recorded during Monday to Friday and similarly eight cyclists (two-direction) were recorded on a Saturday.

10.4 Future Conditions

10.4.1 Future Baseline Information

When determining the future baseline, future changes in traffic flows will be estimated based on industry standard traffic growth forecasts including appropriate growth factors. These will be applied to baseline traffic data to uplift the background network traffic levels. Appropriate factors from the National Transport Model,

locally adjusted using the most recent version of TEMPRO software⁶³, will be used to identify the appropriate growth and applied accordingly.

Any committed developments identified to coincide with the peak construction year will be examined to identify whether the associated development traffic would occur within the proposed study area, predominantly travelling on A671 Pimlico Link Road. These will be incorporated into the future baseline traffic flows.

10.5 Sensitive Receptors

Within the proposed study area, Clitheroe Community Hospital lies approximately 660m north-west of the site boundary, with egress only taken off A671 Pimlico Link Road. There are dispersed residential properties on side roads which adjoin West Bradford Road; there are no residential properties fronting onto Pimlico Link Road or side roads adjoining this part of the A671.

Pimlico Link Road and West Bradford Road are generally busy, traffic travels at higher speeds, and there are no footways present on A671 Pimlico Link Road between A59/ A671 junction south of the proposed site and Lincoln Way to the north. This discourages the use of Pimlico Link Road by NMUs and results in low volumes of NMU traffic. A PRoW footpath (FP0348005) is located at the proposed site access; however, recent surveys reveal limited NMU activity throughout both weekday and weekend periods.

Non-HARP traffic driving through the study area will also be considered in the Transport Statement.

10.6 Potential Impacts

Potential impacts on traffic and movement could be experienced during both the construction and operational phases of the Proposed Project. These could include:

- Road vehicle driver and passenger delay – there may be delays caused by temporary traffic management whilst highway alterations are made during the construction phase. Delays could potentially also occur on Pimlico Link Road during the operation phase of the Proposed Project. Nevertheless, because the Proposed Project would bring HARP construction traffic off Pimlico Link Road sooner than for the consented P&R and HGV marshalling area, there would be reduced traffic volumes further north on Pimlico Link Road and West Bradford Road
- NMU delay – temporary road closures are not currently envisaged to enable construction of the new junction serving the Proposed Project. However, the ES will address this issue should further design development result in potential disruption to, for example, public transport and cyclist travel times
- Road user and pedestrian safety – increased traffic volumes during construction of the Proposed Project, introduction of a new junction, and potential changes in speeds could create safety issues. Any highways works, including the new junction, would meet current highways safety standards and be developed in conjunction with feedback from the highways authority. A road safety audit will be prepared.

10.7 Assessment Methodology

10.7.1 Assessment

The outcome of the assessment will be presented in a Transport Statement. This will provide full technical detail on the baseline conditions, together with the construction and operational phases of the Proposed

⁶³ <https://www.gov.uk/government/publications/tempro-downloads> [Accessed October 2024]

Project. A summary of the Transport Statement will be presented in the ES Traffic and Movement Chapter, in line with the Guidelines: Environmental Assessment of Traffic and Movement.

The CTMP for the consented schemes remains relevant to this application since it forms the proposed traffic mitigation measures for the consented schemes, of which the Proposed Project would be a component, subject to planning consent. Any additional information relevant to the current proposals will therefore be presented as an Addendum to an updated CTMP.

10.7.2 Criteria

Based on the Guidelines: Environmental Assessment of Traffic and Movement the following two criteria will be used to assist in identifying the extent of the assessment:

- Rule 1: 'Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)'
- Rule 2: 'Include highway links of high sensitivity where traffic flows increased by 10% or more'.

The NPPF states that '*Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.*' (Paragraph 115). As such, the assessment within the Transport Statement will extend beyond the IEMA Rule 1 and Rule 2 thresholds. The Transport Statement will also consider whether any traffic movements associated with the Proposed Project would have an unacceptable impact on highway safety, or the potential residual cumulative impacts on the road network would be severe.

10.7.3 Traffic Scenarios

The following traffic scenarios will be considered as part of the traffic and movement assessment:

- Construction of the alternative temporary P&R and HGV marshalling area – unlike the consented P&R and HGV facility, the Proposed Project would require the construction of a purpose-built facility and associated vehicular access. The associated construction traffic generated during this phase will therefore be reflected in the traffic and movement assessment. Nevertheless, the volume of construction vehicles generated during this phase is expected to be significantly lower than the number of vehicles accessing/ egressing the alternative temporary P&R and HGV marshalling area during its operation
- Operation of the alternative temporary P&R and HGV marshalling area during the wider HARP construction phase – the consented schemes remain unchanged, therefore the volumes of light and heavy goods vehicles accessing/ egressing the alternative temporary P&R and HGV marshalling area would remain the same. There would be a change in traffic patterns on A671 Pimlico Link Road and West Bradford Road resulting from the alternative siting of the facility. The effects of these changes in traffic patterns will therefore be reflected in traffic and movement assessment
- Decommissioning of the alternative temporary P&R and HGV marshalling area – given the temporary nature of the proposals, there would be a requirement to decommission the facility at the end of its life. Similarly to the construction phase, the number of vehicle movements required during the decommissioning of the alternative temporary P&R and HGV marshalling area would likely be significantly less than during its operation. The effects of these changes in traffic patterns will however be reflected in traffic and movement assessment.

10.8 Determining Magnitude of Impacts

The Guidelines: Environmental Assessment of Traffic and Movement presents how to assess the magnitude of traffic impacts from an individual development which will be used as part of the assessment for the Proposed Project:

- Road vehicle driver and passenger delay – delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system
- NMU delay – changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site. Professional judgement will be used to determine whether pedestrian delay constitutes a significant effect
- Road user and pedestrian safety – IEMA guidance references 'collision cluster' assessments or the 'safe system'. Professional judgement will be used to determine whether this constitutes a significant effect
- Large loads – estimates will be provided of the number of abnormal loads and their timing within the construction programme, with professional judgement being applied to assess their implications.

10.9 Mitigation

A series of embedded mitigation measures was identified in the CTMP to enable the consented schemes to operate without giving rise to undue adverse impacts on the highway network. These measures included monitoring and managing the condition of the highway, driver training, establishing highway stakeholder groups, and engagement with local communities. The measures would similarly apply to the Proposed Project. An updated version of the CTMP will accompany the ES for the Proposed Project. The updated CTMP will contain an Addendum which relates specifically to the Proposed Project.

10.10 Summary of Scope for the EIA

Table 10-2 summarises the potential traffic and movement impacts and receptor groups that are to be scoped in or out of further assessment, along with the rationale for the choice.

Table 10-2: Traffic and Movement Impacts Scoped In and Out of Further Assessment

Environmental Matter / Receptor	Scoped in/out	Rationale
Severance / Local Communities	Out	The Proposed Project would not give rise to community severance as there would be no new or additional community effects over and above those described in the ES for the consented schemes. Potential severance of PRoW and NMU routes will be addressed under 'NMU Amenity' (below).
Driver delay	In	There is known to be queuing during peak periods on the southbound carriageway of Pimlico Link Road at the junction with the A59. The assessment will quantify and evaluate driver delays against the number and timing of forecast vehicles movements associated with the Proposed Development.
Pedestrian and NMU delay	In	Construction and operation of the proposed new junction on Pimlico Link Road has the potential to cause pedestrian delay where the PRoW traverses this section of the highway.
Fear and intimidation	Out	It is not anticipated that the nature and scale of the Proposed Project would give rise to likely significant fear and intimidation concerns for road users and will therefore be descope from the assessment.
Road user and pedestrian safety	In	Design, construction and operation of the proposed new junction on Pimlico Link Road requires consideration of road user and pedestrian safety.
Hazardous / large loads	In	The assessment will describe use by the Proposed Project of abnormal indivisible loads (for example, delivery of the tunnel boring machines required at the HARP construction compounds). No hazardous goods shipments are anticipated.

Table 10-3 outlines the likely significant effects on traffic and movement from the Proposed Project.

Table 10-3: Likely Significant Effects on Traffic and Movement

Receptor / Receptor Group	Matter / Likely Significant Effects	Comments
Construction and Operation		
Communities	Communities can experience severance from additional traffic and reduced amenity due to increased vehicles flows on local road networks.	Scoped out. Traffic associated with the Proposed Development would not cause severance of any local communities.
Road users	Road users can experience delays to journey times and increased safety risks.	Scoped in. This will consider road users on Pimlico Link Road and West Bradford Road only.

Receptor / Receptor Group	Matter / Likely Significant Effects	Comments
NMU	NMU could experience severance caused by the impact of highways works on a local PRow.	Scoped in. This will consider impacts on footpath FP0348005 and any others directly affected by the Proposed Project; and also severance at road crossings.

The outcome of the assessment will be presented in a Transport Statement. This will provide a technical appraisal of baseline conditions, together with consideration of the construction and operational phases of the Proposed Project. A summary of the Transport Statement will be presented in the ES Traffic and Movement Chapter, in line with Guidelines: Environmental Assessment of Traffic and Movement.

11 Noise and Vibration

11.1 Overview

Noise and vibration may, in certain circumstances, lead to effects on human, ecological and infrastructure receptors. This chapter of the Scoping Report considers the potential for the following activities to give rise to noise and vibration effects during construction and decommissioning of the Proposed Project including:

- Noise and vibration arising from additional road traffic
- Noise and vibration arising from plant and machinery.

Chapter 7 Ecology considers noise and vibration effects on ecological receptors. Chapter 8 Cultural Heritage considers noise and vibration effects on the setting of historical receptors such as Listed Buildings.

The activities that would take place at the Proposed Project are divided into construction, operation and decommissioning phases. The operational phase of the site would be part of the wider construction phase of the HARP scheme and, as such, has been assessed against the construction criteria set out in this chapter.

11.2 Key Legislation, Policy and Guidance

Table 11-1 sets out the key legislation, policy and guidance relevant to noise and vibration.

Table 11-1: Noise and Vibration Key Legislation, Policy and Guidance

Applicable Legislation, Policy and Guidance	Description
Control of Pollution Act 1974	The Act defines the powers of Local Authorities to control construction noise and vibration by restricting construction methods, plant and working hours.
Environmental Protection Act 1990 Part III	The Act requires control of pollution, including noise and vibration, arising from industrial, commercial or other activities and restates the law defining statutory nuisances and improves the summary procedures for dealing with them.
National Planning Policy Framework ⁶⁴	This states that planning decisions should mitigate, and reduce to a minimum, potential adverse impacts resulting from noise and vibration from new development.
Noise Policy Statement for England (NPSE) ⁶⁵	This provides explanation of the term 'significant adverse impact' from the NPPF. The document also defines the meanings of the terms, Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL).
Planning Practice Guidance – Noise ⁶⁶	This provides advice on how the planning system can manage potential noise impacts in new development.
British Standard (BS) 5228-1:2009+A1:2014 Code of practice for noise and vibration	This provides a method for assessing and predicting noise from construction sites at nearby sensitive receptors. The standard also includes noise control guidance and presents a library of construction plant noise emission data.

⁶⁴ Department for Levelling Up, Housing and Communities (2023) National Planning Policy Framework.

⁶⁵ Department for Environment, Food and Rural Affairs (2010) Noise Policy Statement for England.

⁶⁶ Ministry of Housing, Communities and Local Government, 2019. Planning Practice Guidance – Noise.

Applicable Legislation, Policy and Guidance	Description
control on construction and open sites – Part 1: Noise ⁶⁷	
BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration ⁶⁸	This provides guidance related to the assessment and prediction of vibration due to activities at construction sites at nearby sensitive receptors. The standard also includes guidance on the control and measurement of vibration.
Design Manual for Roads and Bridges (DMRB) - Sustainability & Environment Appraisal LA 111 - Noise and Vibration ⁶⁹	This provides an assessment approach for noise from vehicles on existing highways and was also used to inform the construction noise and vibration assessment approach.

11.3 Proposed Methodology and Assessment Criteria

This section sets out the methodology for determining likely significant effects from the Proposed Project on receptors due to noise and vibration.

11.3.1 Study Areas

Separate study areas are defined below for each element of the noise and vibration assessment.

- Construction (including operational phase) noise: The study area is 300 m from the site boundary, based on BS 5228-1 and DMRB LA 111
- Construction vibration: The study area is 100 m from the site boundary, based on DMRB LA 111
- Construction (including operational phase) traffic noise: The study area is defined as 50 m from the carriageway edge of public roads with the potential for an increase in basic noise level (BNL) of 3dB(A) or more. These routes will be determined on review of the data which will be generated by the Traffic and Movement Assessment. The procedure for calculating a BNL is set out in Calculation of Road Traffic Noise⁷⁰ and relates to a noise level at a reference location 10 m from the carriageway edge
- Construction traffic vibration on temporary haul roads: The study area is defined as 4 m from the carriageway edge of any unmaintained temporary route (e.g. haul route) used by HGVs, based on guidance presented by Transport and Roads Research Laboratory⁷¹, which indicates that a 'Heavy lorry on a poor road surface' would result in groundborne vibration levels of approximately 0.3 mm/s at a distance of approximately 4 m.

DMRB LA 111 states the following regarding vibration from road traffic:

⁶⁷ British Standards Institution (2014) BS 5228-1:2009 +A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1: Noise.

⁶⁸ British Standards Institution (2014). BS 5228-2:2009 +A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 2: Vibration.

⁶⁹ Highways England (2020) Design Manual for Roads and Bridges LA 111 - Noise and vibration.

⁷⁰ Department of Transport and the Welsh Office (1988) Calculation of Road Traffic Noise.

⁷¹ New, B. M. (1986) Ground vibration caused by civil engineering works, Research Report 53 Transport and Roads Research Laboratory.

'Operational vibration is scoped out of the assessment methodology as a maintained road surface will be free of irregularities as part of project design and under general maintenance, so operational vibration will not have the potential to lead to significant adverse effect'.

As such, vibration impacts from vehicle movements on highways are not considered in this assessment. Potential vibration impacts arising from vehicle movements on the internal site access temporary haul road would be included within the assessment scope.

11.3.2 Assigning Sensitivity

Both DMRB LA 111 and IEMA *Guidelines for Environmental Noise Impact Assessment* note that receptors may have various sensitivities to noise, but do not specifically define a sensitivity scale.

Many of the guidance documents cited in Table 11-1 present different assessment criteria for different receptor types. The sensitivity of receptors has, therefore, been considered when selecting the assessment criteria used to describe the magnitude of impact. As such, it is not necessary to define a separate sensitivity scale for noise receptors.

11.3.3 Assigning Magnitude and Significance of Effect

The NPSE introduced the concept of LOAEL and SOAEL values for noise but, for the purposes of the assessment of the Proposed Project it is assumed these can apply equally to both noise and vibration. NPSE describes a LOAEL as the level above which adverse effects on health and quality of life can be detected, while a SOAEL is the level above which significant adverse effects on health and quality of life occur. The NPSE also defines the No Observed Effect Level (NOEL), which is the level below which no effect can be detected.

11.3.4 Construction Airborne Noise

Construction noise levels would be predicted at selected receptors within the 300 m study area. CadnaA® noise modelling software (or equivalent) or spreadsheets will be used to implement the BS 5228-1 calculation method. The construction noise magnitude scale adopted for this assessment is presented in Table 11-2. This reproduces the example threshold for a potential significant effect at dwellings presented in Table E.1 of BS 5228-1, which would be adopted as the SOAEL values for the assessment of construction noise at residential properties. The construction noise LOAEL would be considered to be the baseline noise level (dB LAeq,T) at the noise sensitive receptor. The LOAEL and SOAEL values for residential properties are set out in Table 11-3.

Table 11-2: Magnitude of Impact - Construction Airborne Noise

Magnitude of Impact	Construction Noise Level
Major	Above or equal to SOAEL +5 dB(A)
Moderate	Above or equal to SOAEL and below SOAEL +5 dB(A)
Minor	Above or equal to LOAEL and below SOAEL
Negligible	Below LOAEL

Table 11-3: Noise Effect Levels from Residential Receptors

Reference Period	SOAEL Threshold Value dB LAeq,T (Façade)		
	Category A ⁽¹⁾	Category B ⁽²⁾	Category C ⁽³⁾
Weekday daytime (07:00-19:00)	65	70	75
Saturdays (07:00-13:00)			
Weekday evenings (19:00-23:00)	55	60	65
Saturdays (13:00-23:00)			

Reference Period	SOAEL Threshold Value dB LAeq,T (Façade)		
	Category A ⁽¹⁾	Category B ⁽²⁾	Category C ⁽³⁾
Sundays (07:00-23:00)			
Night-time (23:00-07:00)	45	50	55
NOTES (1) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values. (2) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values. (3) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values. Note: A potential significant effect is indicated if the LAeq,T noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.			

The construction airborne noise SOAEL values for non-residential receptors are presented in Table 11-4.

Table 11-4: Construction Noise Impact Criteria for Non-residential Properties and Community Assets

Receptor Type	Impact Criteria		Source
	Day 07:00 – 23:00	Night 23:00 – 07:00	
Schools and colleges ⁽¹⁾	50 dB ⁽²⁾ LAeq,T or a change of >3 dB	-	BS 8233, EFA Acoustics Performance Standards, HTM 08 01 ⁷² , World Health Organisation Guidelines
Outdoor teaching spaces	55 dB LAeq,T, with at least one area suitable for outdoor teaching where noise levels are below 50 dB LAeq,T ⁽³⁾	-	
Hospitals ⁽¹⁾	50 dB ⁽²⁾ LAeq,T or a change of >3 dB	45 dB ⁽⁴⁾ LAeq,T or a change of >3 dB	
Hotels, care homes, nursing homes, places of worship and community facilities	As per the approach adopted for residential properties ⁽⁵⁾		BS 5228-1
Public open spaces	Total noise exceeds existing ambient (LAeq,T) by 5 dB or more ⁽⁶⁾	-	BS 5228-1
NOTES (1) Assessment criteria presented within HS2 London – West Midlands Environmental Statement, Volume 5 Technical Appendices, SV-001-000⁷³. (2) Based on an internal level of 35 dB LAeq,T consistent with Education Funding Agency (EFA) and BS 8233⁷⁴. Equivalent external level assuming 15 dB reduction for a partially open window. (3) Based on the LAeq,30min noise criteria presented in the IOA/ANC Acoustics of Schools design guide. (4) Based on an internal level of 30 dB LAeq,T consistent with BS 8233, World Health Organisation guidelines. Equivalent external level assuming 15 dB reduction for a partially open window.			

⁷² NHS England. Health Technical Memorandum 08-01: Acoustics. <https://www.england.nhs.uk/publication/health-sector-buildings-acoustic-design-requirements-htm-08-01/>

⁷³ Department for Transport (2013). Sound, noise and vibration. High Speed 2. <https://www.gov.uk/government/publications/hs2-phase-one-environmental-statement-volume-5-sound-noise-and-vibration/hs2-phase-one-environmental-statement-volume-5-sound-noise-and-vibration>

⁷⁴ British Standards Institute (2014) BS 8233:2014. Guidance on sound insulation and noise reduction for buildings. <https://knowledge.bsigroup.com/products/guidance-on-sound-insulation-and-noise-reduction-for-buildings?version=standard>

Receptor Type	Impact Criteria		Source
	Day 07:00 – 23:00	Night 23:00 – 07:00	
(5) BS 5228-1 states that the evaluation criteria are generally applicable to residential properties, hotels and hostels, buildings in religious use and buildings in health and/or community use. The SOAEL value for buildings in educational use shall be defined as set out in note (1). (6) BS 5228-1 advises that for public open space, the impact might be deemed to cause significant effects if the total noise exceeds the ambient noise (LAeq,T) by 5 dB or more for a period of one-month or more. However, the extent of the area impacted relative to the total available area also needs to be considered in determining whether the impact causes a significant effect.			

The magnitude scale, and LOAEL and SOAEL methodology set out above are applicable to the range of receptors presented.

Based on guidance contained within DMRB LA 111 and BS 5228-1, a significant effect would be identified where it is determined that Major or Moderate magnitude of impact would occur for a duration of either of the following:

- 10 or more days or nights in any 15 consecutive days or nights
- A total number of days exceeding 40 in any six consecutive months.

The assessment shall assume all works would occur for a duration of at least that presented above (in the vicinity of each receptor assessed), unless otherwise stated.

Subject to the duration of noise exposure set out above, a significant effect would generally occur where noise/vibration levels at or above the SOAEL are predicted to occur. The exception to this is traffic noise on public highways, where a potential significant effect would be considered to occur between the LOAEL and SOAEL if a sufficient increase in noise from the road is also predicted.

11.3.5 Construction Vibration

Vibration levels will be predicted at receptors within the study area based upon guidance presented in BS 5228-2. No occupied receptors have been identified within the study area; therefore, human response to construction vibration has been scoped out to the Noise and Vibration assessment. The risk of structural damage due to construction vibration is considered by reference to criteria set out in BS 7385-2⁷⁵. Based upon BS 5228-2 and the professional experience of the assessment team, the criteria set out in Table 11-5 would be adopted.

Table 11-5: Construction Vibration Impact Criteria to Prevent Cosmetic Damage to Buildings

Category of Building	PPV mm/s – at Building Foundation	
	Transient Vibration ⁽¹⁾	Continuous Vibration ⁽²⁾
Potentially vulnerable buildings ⁽³⁾	6	3
Structurally sound buildings	12	6
NOTES Thresholds are based on those used for HS2 vibration impact criteria for buildings. Taken from HS2 (November 2013) London – West Midlands Environmental Statement, Volume 5, Technical Appendices. Methodology, assumptions and assessment (route-wide). Sound, noise and vibration. High Speed 2. (1) Transient vibration relative to building response such as impulsive vibration from percussive piling. (2) Continuous vibration relative to building response such as vibrating rollers.		

⁷⁵ British Standards Institution (1993) BS 7385-2:1993 Evaluation and measurement for vibration in buildings - Guide to damage levels from groundborne vibration.

Category of Building	PPV mm/s – at Building Foundation	
	Transient Vibration ⁽¹⁾	Continuous Vibration ⁽²⁾
(3) BS 7385 highlights that the criteria for aged buildings may need to be lower if the buildings are structurally unsound. The standard also notes that criteria should not be set lower simply because a building is important or historic (listed). Properties shall be considered structurally sound, unless stated otherwise.		

11.3.6 Construction Road Traffic Noise on Public Highways

The noise impact magnitude scale for construction road traffic, and the LOAEL and SOAEL values for residential properties, are set out in Table 11-6. The onset of a potential significant effect from road traffic noise, subject to change in road traffic noise, may occur at or above the LOAEL.

Table 11-6: Magnitude of Impact for Construction Road Traffic Noise

Magnitude of Impact	Change in Basic Noise Level (BNL) Resulting from Construction Traffic Noise		
	Where BNL is less than LOAEL of 55 dB LA10,18hr façade	Where BNL is between LOAEL and SOAEL	Where BNL is more than SOAEL of 68 dB LA10,18hr façade (equivalent to 66 dB LAeq,T)
Major	-	Greater than or equal to 5.0 dB	Greater than or equal to 5.0 dB
Moderate	-	Greater than or equal to 5.0 and less than 10.0	Greater than or equal to 3.0 and less than 5.0
Minor	-	Greater than or equal to 3.0 and less than 5.0	Greater than or equal to 1.0 and less than 3.0
Negligible	Any	Less than 3.0	Less than 1.0

A significant effect is where a Major or Moderate magnitude of impact would occur for a duration of either:

- 10 or more days or nights in any 15 consecutive days or nights
- A total number of days exceeding 40 in any six consecutive months

The assessment shall assume all works would occur for a duration of at least that presented above (in the vicinity of each receptor assessed), unless otherwise stated.

11.4 Existing Conditions

11.4.1 Baseline Noise Levels

No baseline noise survey data are available for the Proposed Project. As such, online noise mapping data (England Noise Map Viewer⁷⁶) have been used to determine indicative existing baseline noise levels (arising from road and rail noise sources). The existing environment and prevailing baseline conditions in the vicinity of the site are likely to be dominated by activities and the commercial and industrial premises north and west of the site, and road traffic noise, predominantly from:

- A671, off which the site is proposed to be located

⁷⁶ Extrium Noise and Air Quality Viewer. Available at: [Extrium.co.uk/noiseviewer.html](https://extrium.co.uk/noiseviewer.html) [Accessed 19 August 2024]

- A59, to the south and east of the site.

Given the nature of the development and the lack of noise-sensitive receptors within the study area, no baseline noise surveys are proposed for the Proposed Project.

11.4.2 Baseline Vibration Levels

No significant sources of groundborne vibration have been identified, other than highways and the railway in Clitheroe (which is located nearly 1 km north of the site boundary). Existing levels of vibration at receptors (including those adjacent to highways and railway) would not influence the assessment as they are typically orders of magnitude below levels that would give rise to adverse vibration effects. As such, in accordance with DMRB LA 111, baseline vibration levels are assumed to be zero for all receptors.

11.4.3 Sensitive Receptors

The closest noise-sensitive receptors are residential properties at Up-Brooks, approximately 380 m from the site boundary. Further residential properties are located in Chatburn Road (760 m away) and in Worston (520 m away). Clitheroe Royal Grammar School and Clitheroe Community Hospital are located approximately 800 m and 660 m from the site boundary respectively. The industrial and commercial developments located north and north-west of the Proposed Project, on Lincoln Way, Deanfield Court and Twin Brook Road are not considered to be noise sensitive.

The New House property, located at the western edge of the Proposed Project, is within approximately 5 m of the site boundary and is the only building that has been identified within 100 m of the site boundary. The New House property is derelict and unoccupied.

There are no noise Important Areas within 2 km of the Proposed Project. The closest are 14365 and 10509 on the A671 south of Clitheroe, positioned 2.5 km and 3.3 km from the Proposed Project respectively.

11.5 Potential Impacts

At this time, it is anticipated that all works would be undertaken during weekday daytime (07:00 to 19:00) and Saturday morning (07:00 to 13:00) hours, including all works associated with highway modifications. Based on this and the current project description, potential noise and vibration effects may arise from the following activities.

- Noise and vibration generated from general construction activities, associated general use of construction plant and machinery, undertaking earthworks and highway modifications and installing hardstanding areas
- Noise and vibration generated from traffic movements within the site and on the existing highway during construction, operational phases and decommissioning phases
- Noise and vibration generated by the use of equipment, such as a generator and mechanical ventilation systems, particularly when operating at night (during the operational phase).

11.6 Design and Mitigation Measures

The works would be carried out in accordance with Best Practicable Means as defined in section 72 of the Control of Pollution Act 1974 and in accordance with the recommendations of BS 5228 part 1 and part 2. In addition, many of the above effects are anticipated to be managed through standard good practice measures during construction and operation of the site and therefore would help to avoid the risk of any likely significant effects. Some of the mitigation measures likely to be adopted in relation to noise and vibration are:

- Soil storage bunds could be located along the boundary of the site which, in conjunction with perimeter hoarding, would reduce noise impacts
- Turning off vehicles and plant when not in use
- Using acoustic screens to reduce noise emissions from noise-generating plant and machinery.

11.7 Summary Scope for the EIA

Table 11-7 presents the likely significant effects anticipated for noise. No noise-sensitive receptors have been identified within the 300 m study area at this stage.

Table 11-7: Likely Significant Effects for Noise

Receptor / Receptor Group	Matter / Likely Significant Effects	Comments
Construction (and Decommissioning) Phase		
Noise-sensitive Receptors	Noise from vehicles movements and plant within the site boundary	Although no noise-sensitive receptors have been identified within the 300 m study area, an assessment of potential noise effects is proposed based on a precautionary approach given the information available at this time.
	Noise from the Proposed Project traffic on Pimlico Link Road and West Bradford Road.	Construction road traffic data are not available at this time and as such, the potential for significant effects as a result of traffic movements cannot be discounted and this matter remains within the scope of assessment.
New House	Vibration from construction activities undertaken in vicinity of the New House property	The unoccupied New House property is located within approximately 5 m of the Proposed Project site boundary. An assessment of potential structural impacts due to construction vibration activities will be undertaken.
Operational phase		
Noise-sensitive receptors	Noise from project traffic on the local road network	Operational phase road traffic data will be prepared for the assessment stage and would be assessed to determine the potential for significant traffic noise effects.

12 Air Quality

12.1 Overview

The construction and operation of the Proposed Project has the potential to impact local air quality and receptors such as people and biodiversity. This chapter of the Scoping Report presents an initial scoping assessment of the air quality baseline environment conditions and identifies the likely effects of the Proposed Project on air quality.

12.2 Key Legislation, Policy and Guidance

Table 12-1 sets out the key legislation, strategies and national and local policies.

Table 12-1: Air Quality Key Legislation, Relevant Strategies and Policies

Applicable Legislation, Strategies, and Policies	Description
Environmental Protection Act 1990 Part III	Provides statutory nuisance provisions for dust.
Environment Act 1995, Part IV	Defines requirements for Local Air Quality Management (LAQM).
Environment Act 2021	Updates the Environment Act 1995 and improves the previously established LAQM framework, allowing better local action on air pollution.
The Air Quality (England) Regulations 2000; and The Air Quality (England) (Amendment) Regulations 2002	Legislates for the Air Quality Objectives (AQOs) for pollutants set out in the 2007 Air Quality Strategy.
Air Quality Standards Regulations 2010/2016 (as amended)	Transposes the air quality Limit Values set out in the EU ambient air quality directive 2008/50/EC (European Commission, 2008) to UK law. Prior to Brexit, the UK Government was responsible to the EC for ensuring that it complied with the provisions of EU Directives.
Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020	Includes an amended annual average Limit Value for PM _{2.5} of 20 µg/m ³ .
Environmental Targets (Fine Particulate Matter) (England) Regulations 2023	Sets two PM _{2.5} targets into law and contains provisions on how they will be monitored and assessed.
Air Quality Strategy for England, Scotland, Wales and Northern Ireland ⁷⁷	Updates the 2000 Air Quality Strategy, and sets out how local air quality is managed, through the application of AQOs based on The Air Quality (England) Regulations 2000 and The Air Quality (England) (Amendment) Regulations 2002.
Air Quality Strategy for Local Authority Delivery ⁷⁸	Sets out how local air quality is managed through the application of AQOs, Limit Values and Targets, which are based on an understanding of the health effects of exposure to air pollutants and have been specified to control health and environmental risks to an acceptable level.

⁷⁷ Department for Environment, Food and Rural Affairs (2007) *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland - Volume 1*.

⁷⁸ Department for Environment, Food and Rural Affairs (2023). Air Quality Strategy Framework for local authority delivery.

Applicable Legislation, Strategies, and Policies	Description
Clean Air Strategy ⁷⁹	Sets out how different air pollutants are planned to be tackled going forward for their impact on both nature and humans.
National Planning Policy Framework (NPPF)	States that planning policies and decisions should contribute towards compliance with relevant limit values and air quality objectives, taking into account Air Quality Management Areas. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects of pollution on health and the natural environment.
Guidance on the assessment of dust from demolition and construction ⁸⁰	This provides guidance on the assessment of dust from demolition and construction. It sets out an assessment distance of 250 m for human receptors and 50 m for ecological receptors from a project.
Design Manual for Roads and Bridges (DMRB) LA 105 – Air Quality ⁸¹	This provides guidance for the assessment of road traffic emissions during construction and operation and to inform the determination of significance of air quality effects).
DMRB HA207/07 ⁸²	This provides guidance to supplement the road traffic screening criteria.

Local planning policy DMG1 in the adopted Ribble Valley Borough Council Core Strategy⁸³ states that developments should not affect amenity of surrounding areas and air quality should be considered, with adverse impacts mitigated where possible.

12.3 Existing Conditions

Baseline data have been collected from a variety of sources, including:

- Local Air Quality Management (LAQM) reviews undertaken by Ribble Valley Borough Council, including monitoring data⁸⁴
- Pollution Climate Mapping model (PCM) outputs
- Background concentration maps produced by Defra
- Human receptor locations and information on ecological receptors (see Chapter 7 Ecology).

⁷⁹ Department for Environment, Food and Rural Affairs, Ministry of Housing, Communities & Local Government, Department for Transport, Department of Health and Social Care, HM Treasury, and Department for Business, Energy & Industrial Strategy (2019) Clean Air Strategy 2019]

⁸⁰ Institute of Air Quality Management (2024) Guidance on the assessment of dust from demolition and construction

⁸¹ Highways England (2019) DMRB LA 105 Air Quality

⁸² Highways England (2007) DMRB, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 1 HA 207/07 Air Quality.

⁸³ Ribble Valley Borough Council (2014) Core Strategy 2008 – 2028 A Local Plan for Ribble Valley

⁸⁴ Ribble Valley Borough Council (2024) Annual Status Report (ASR), June 2024.

12.3.1 Local Air Quality Management (LAQM)

Ribble Valley Borough Council has declared one Air Quality Management Area (AQMA) (Whalley Road Clitheroe Number 1) for annual mean nitrogen dioxide (NO₂) concentrations. The AQMA is at the junction of Whalley Road and Greenacre Street, about 2.2 km west of the Proposed Project.

There is currently no continuous monitoring undertaken within the borough. The council is responsible for a network of passive NO₂ diffusion tube monitoring locations. The measured concentrations recorded in the AQMA and across the borough have been below the Air Quality Objective (AQO) of 40 µg/m³ for the last five years of monitoring data (2019 – 2023), as shown in Table 12-2. The highest roadside NO₂ concentration measured in 2023 (DT2&DT3) was 26.9 µg/m³ within the AQMA. The urban background diffusion tube in Clitheroe (Site ID DT1) recorded concentrations of between 10 µg/m³ and 8.5 µg/m³ from 2019 to 2023. There is a general downward trend in measured NO₂ concentrations over the last five years.

Table 12-2: Annual Mean NO₂ Concentrations at Locations Closest to the Proposed Project

Site ID	Name	Site Type	OS Grid Co-ordinate		NO ₂ Concentration (µg/m ³)				
			X (m)	Y (m)	2019	2020	2021	2022	2023
DT1	31 Bolland Prospect	Urban background	374789	441514	10	9.1	8.5	9.1	8.5
DT2 & 3	Royal British Legion *	Roadside	374234	441291	34.1	26.3	27.9	27.2	26.9
DT4	Greenacre Street	Roadside	374222	441315	25	18.8	21.2	21.1	20.2
DT5	49 Whalley Road	Roadside	374219	441256	32.8	25.5	26.7	27.1	25.6
DT6	85 Whalley Road	Roadside	374175	441153	26.5	21.4	22.5	21.9	21.8
DT7	Entrance at Wall Court	Roadside	373910	441501	16	13.9	15.3	14.9	14.5
Notes									
* Average of duplicate site locations DT2 and DT3 Royal British Legion 1 and 2.									

12.3.1.1 Pollution Climate Mapping (PCM)

The PCM model reports on the concentrations of pollutants in the atmosphere. Modelled PCM NO₂ concentrations are provided for a 2018 base year and projected to future years at representative roads throughout the UK. The closest PCM links in the model to the Proposed Project are the A671 (Census ID 802077794). The A671 PCM link is within the Whalley Road Clitheroe Number 1 AQMA and has a modelled annual mean NO₂ concentration below the EU Limit Value of 40 µg/m³.

12.3.1.2 Defra Background Mapping

The Defra mapped 1 km x 1 km grid background pollutant concentrations for 2024⁸⁵ encompassing the Proposed Project is presented in Table 12-3 (grid square E 376500, N 442500). All mapped background pollutant concentrations are well within the relevant AQOs indicating that air quality is good in the vicinity of the Proposed Project. The background NO₂ concentrations are similar to monitored concentrations at the urban background location (Site ID 1) within Clitheroe (8.5 µg/m³) in 2023.

Table 12-3: Mapped Background Annual Mean Pollutant Concentrations (2024)

Pollutant (AQOs Shown in Brackets)	2024 Background Concentration Range (µg/m ³)
Nitrogen dioxide (NO ₂) (AQO of 40 µg/m ³)	6.1
Oxides of nitrogen (NO _x) (AQO of 30 µg/m ³)	7.7
Particulate matter (PM ₁₀) (AQO of 40 µg/m ³)	8.7
Particulate matter (PM _{2.5}) (AQO of 20 µg/m ³)	5.7

12.3.1.3 Sensitive Receptors

For a local air quality assessment of emissions from road traffic, human receptor locations are selected within 200 m of affected roads. The types of locations searched for within the assessment area include residential properties, schools, hospitals and care homes. Footpaths and other public locations where exposure would occur over shorter periods are also identified. All human locations are considered of equal value and sensitivity. For the assessment of dust impacts, the sensitivity varies and prescribed sensitivities are applied according to building type or use.

The closest residential properties are located at Up-Brooks (approximately 380 m west of the site boundary). Clitheroe Community Hospital is located approximately 660 m north-west of the site boundary and Clitheroe Royal Grammar School and Brookside Primary School are approximately 800 m north-west and 1 km west of the site boundary, respectively. Industrial and commercial developments are located north and north-west of the site boundary on Lincoln Way, Deanfield Court and Twin Brook Road. The closest commercial building is approximately 120 m north of the site boundary.

Ecological designated sites could contain features which may be sensitive to changes in air quality pollutant concentrations, either directly (on the primary habitat designated) or indirectly (i.e. on the habitat associated with a non-habitat designation, e.g. birds), and which could be adversely affected by the effect of an increase in air pollution on vegetation. The relevant ecological receptors are listed in Chapter 7.

12.4 Potential Impacts

Potential air quality impacts could arise from the following and could all affect human health or ecological receptors:

- Dust emissions generated by earthworks and other activities during construction and decommissioning
- Exhaust emissions of pollutants (NO₂, PM₁₀ and PM_{2.5}) to air from plant (diesel generators), machinery and road vehicles on the local road network (e.g. cars, vans, minibuses and lorries) during construction, operation and decommissioning of the Proposed Project.

⁸⁵ Defra Mapped 1km grid Background Concentrations. Available at <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>. [Accessed September 2024].

Given that much of the site would be hardstanding, and no activities which cause dust emissions would be undertaken during operation, no impacts from dust emissions are anticipated during the operation of the Proposed Project.

12.5 Design and Mitigation Measures

The above effects are anticipated to be managed through standard good practice measures during construction and operation of the site and therefore would be unlikely to result in significant effects. Some of the mitigation measures likely to be adopted in relation to air quality are:

- Turning off machinery and plant when not in use
- Using good practice measures when stripping, storing and reinstating soil, to reduce dust, for example potentially covering or seeding soil stockpiles to prevent wind-blown dust.

12.6 Significance of Effect

12.6.1 Dust emissions

There are no residential properties within 250 m from the site boundary. There are some commercial/ industrial units approximately 120 m to the north, however, these are assigned as lower sensitivity in accordance with the *IAQM Guidance on the Assessment of Dust from Demolition and Construction*⁸⁶. There are no ecological sites within 50 m of the site boundary.

Based on the above, and given the relatively small-scale of the construction works, dust risk is categorised as negligible to low risk in accordance with the IAQM guidance. In addition, dust would be controlled and mitigated in line with the good practice measures set out for the HARP project. Consequently, assessment of construction dust is screened out from the EIA for construction, operation and decommissioning.

12.6.1.1 Plant and machinery

Based on the IAQM guidance, emissions to air from construction plant and machinery are likely to lead to imperceptible increases in pollutant concentrations at human and ecological receptors. This is based on the relatively small scale and duration (approximately 10 months) of the construction activities and low numbers of construction plant that would be expected to be active on-site at any one time in the same area.

There may be a diesel generator at the welfare areas within the construction compound to provide power and lighting. There would also be a small diesel generator during operation to provide power for lighting, security and welfare areas. In both cases, these would lead to imperceptible increases in pollutant concentrations at the nearest relevant human receptors (approximately 380 m to the east) and ecological receptor (approximately 100 m to the north).

Based on the above, construction plant, machinery and generator emissions are screened out from requiring further assessment from the EIA for construction, operation and decommissioning.

⁸⁶ IAQM (2024) Guidance on the assessment of dust from demolition and construction version 2.2

12.6.1.2 Road traffic emissions

The change in vehicle numbers on the local road network due to the construction of the Proposed Project would be below the DMRB LA 105⁸⁷ screening criteria of 200 heavy duty vehicles (as an Annual Average Daily Traffic flow (AADT)) and 1,000 total AADT. Therefore, the air quality impact would be negligible and no significant effects are likely at human or ecological receptors within 200 m of road links.

During the operation of the Proposed Project, the only changes in road vehicle flows compared to the currently consented P&R / HGV facility are expected between Pimlico Link Road and West Bradford Road. On these road links, the light duty vehicle movements would be reduced compared to the consented facility, as car movements would be replaced with a lower number of minibus movements. Heavy duty vehicle movements on all road links would remain the same as for the consented P&R / HGV facility. The road traffic changes would remain below the DMRB LA 105 screening criteria (negligible impact) and an assessment of operational road traffic emissions is therefore screened out.

As the increase in road traffic flows on all road links remains below the DMRB LA 105 screening criteria, PCM links (i.e. those A671 PCM links within the Whalley Road Clitheroe Number 1 AQMA) do not require further consideration as any changes in NO₂ concentrations would be imperceptible and would not affect compliance with the EU Limit Value of 40 µg/m³.

12.7 Summary

Table 12-4 summarises the potential air quality impacts that are proposed to be scoped in or out of further assessment, along with the rationale for the choice.

Table 12-4: Likely Significant Effects for Air Quality and Scope of Further Assessment

Potential Sources/Impacts	Scoped In / Scoped Out	Rationale
Construction (and Decommissioning) Phase		
Dust emissions	Scoped out	Dust risk is negligible to low and would be controlled in line with the good practice measures set out on the HARP. Effects would be not significant.
Plant and machinery emissions	Scoped out	Would lead to imperceptible increases in pollutant concentrations at the nearest human and ecological receptors. Effects would be not significant.
Road traffic emissions	Scoped out	Impact would be negligible and below the relevant criteria for identifying the need for an assessment. Effects would be not significant.
Operational phase		
Generator emissions	Scoped out	Would lead to imperceptible increases in pollutant concentrations at the nearest human and ecological receptors. Effects would be not significant.
Road traffic emissions	Scoped out	Road vehicle movements on the road network would be the same or lower than the consented schemes and remain below the relevant criteria for identifying the need for an assessment. Effects would be not significant.

⁸⁷ Highways England (2019) DMRB LA 105 Air Quality

Appendix 1 - Figures

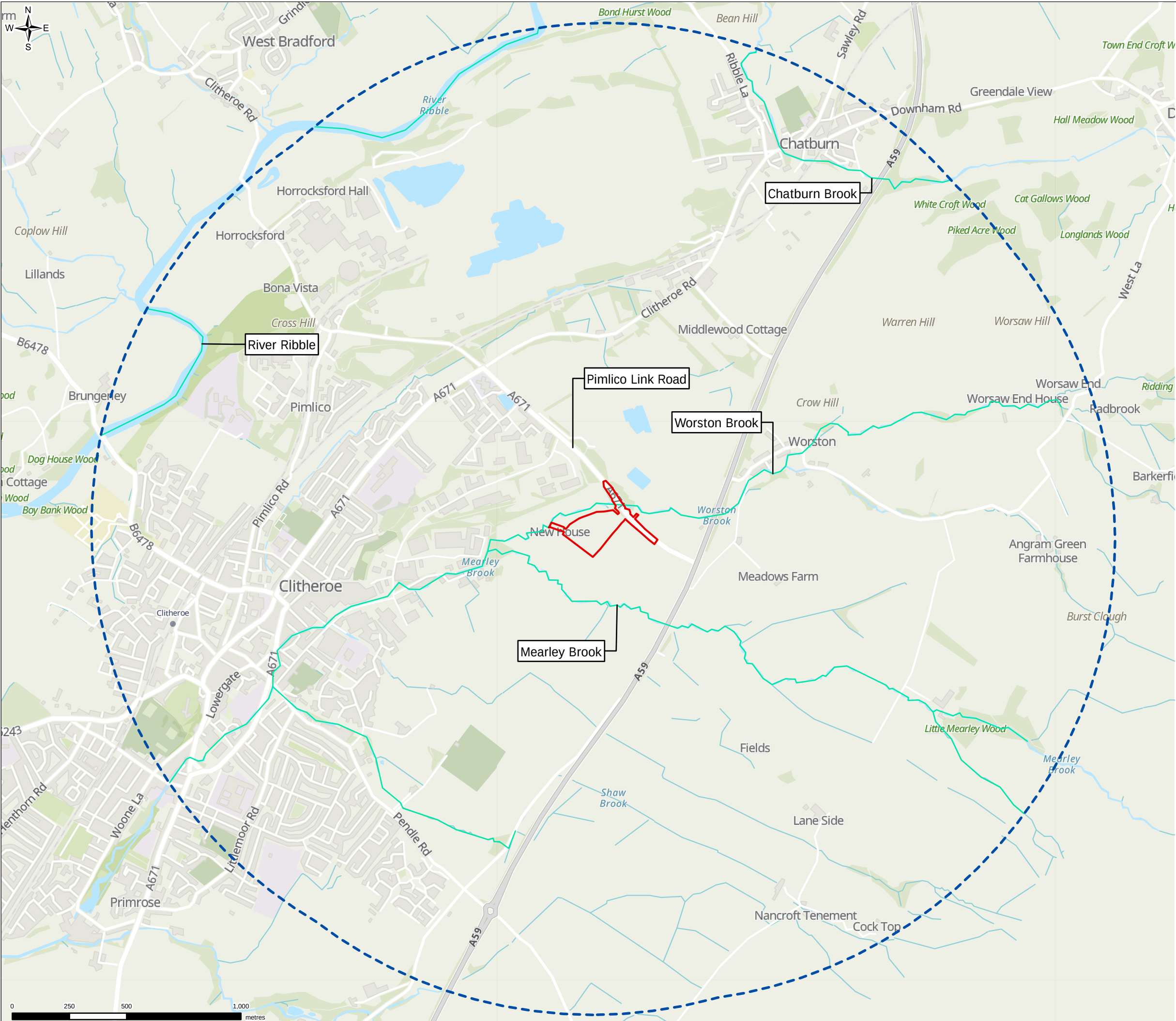
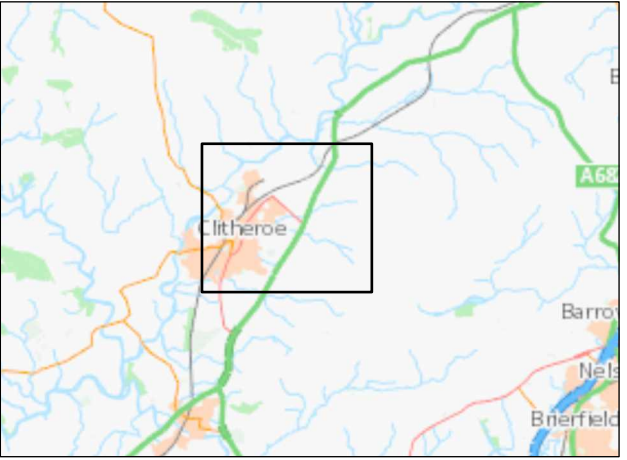


FIGURE 1

- Legend
- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
 - 2km Study Area
 - Watercourse



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LOCATION PLAN
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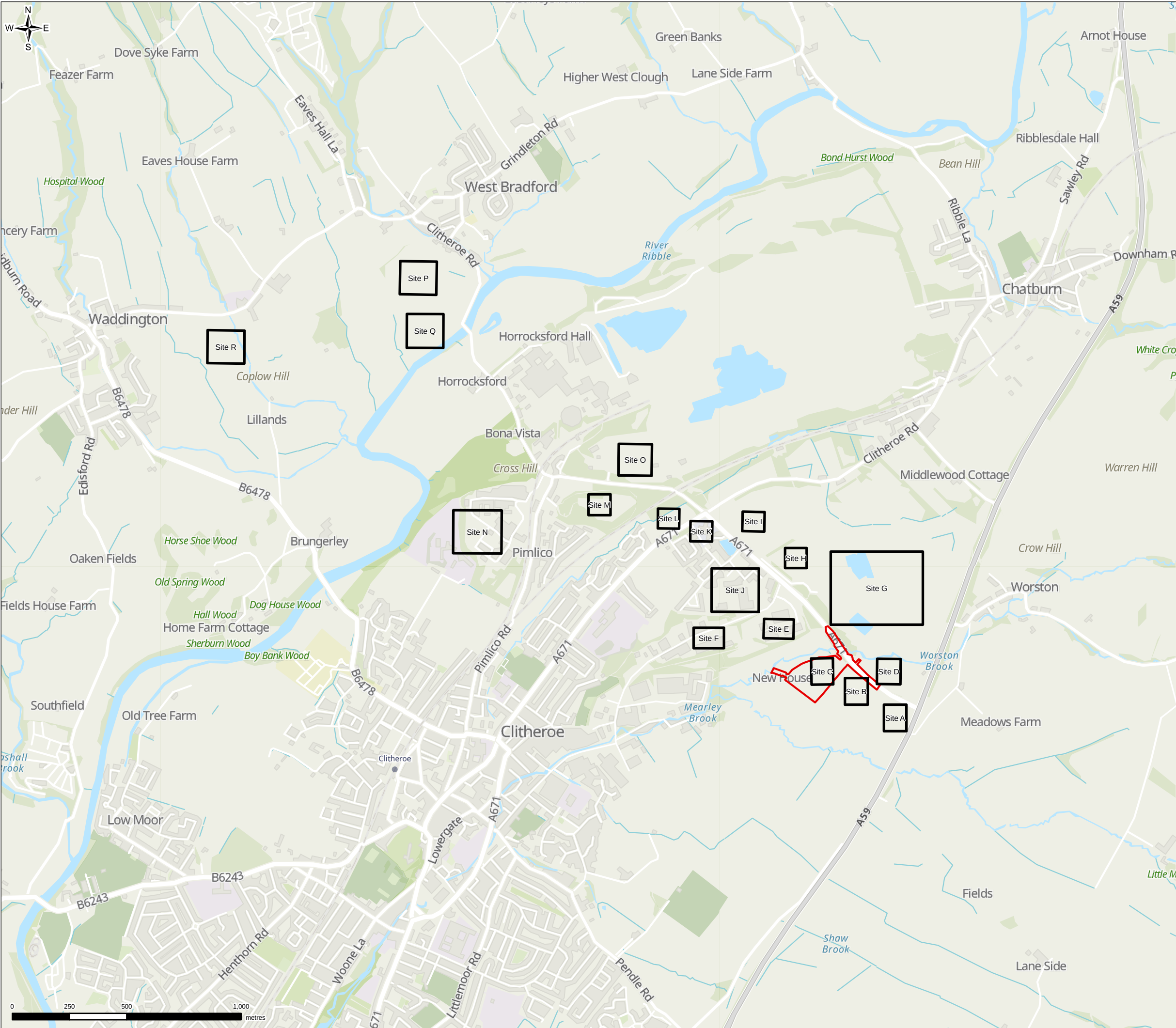


FIGURE 2

Legend

- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
- Alternative Options

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ALTERNATIVE OPTIONS
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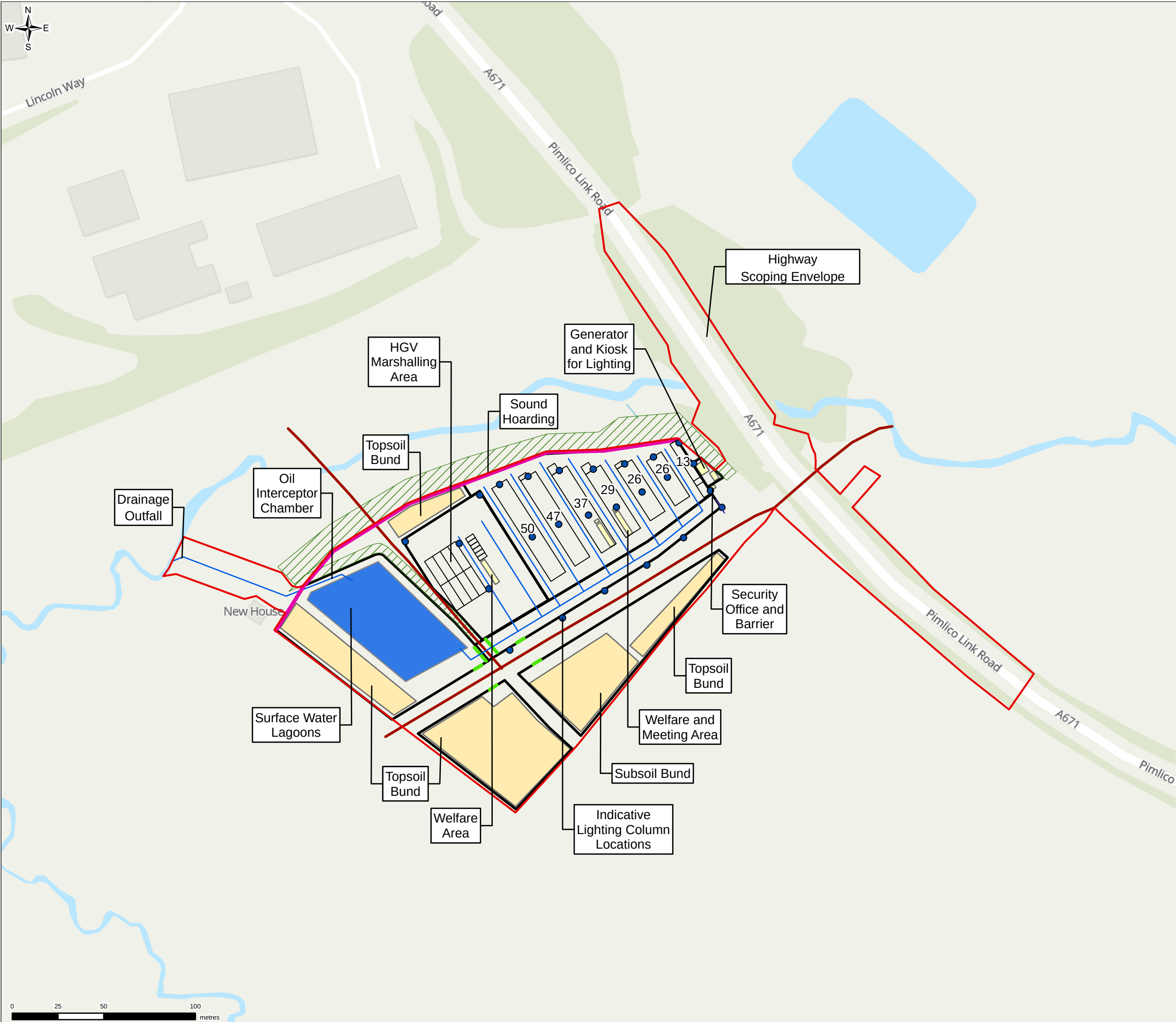


FIGURE 3

- Notes**
- 1. Assumed surface runoff drains to surface water retention pond which drains to Worston Brook.
 - 2. Assumed site to be reinstated to original condition and use as grassland.
 - 3. Palisade fencing to be installed on perimeter, assumed height 2m.
 - 4. Security cabin and gates to be provided on entrance from road.
 - 5. Carpark surface tarmac. Assumed road build up to be 350mm as ground assumed to be soft clay.
 - 6. Lighting to be installed as per applicable standards.
 - 7. Signage to be provided on road and in carpark and marshalling area.
 - 8. Highway Scoping Envelope for the purposes of EIA scoping, area to be refined once further discussions have taken place with Lancashire County Council.

- Legend**
- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
 - Line of palisade fencing
 - Vegetation Buffer Zone
 - Soil bunds
 - Assumed Surface Water Ponds
 - Surface water drainage pipes
 - Buildings including welfare
 - 13 Number of car parking spaces
 - Sound Hoarding
 - Indicative Lighting columns
 - Parking spaces
 - Line of overhead electricity
 - Goalpost Crossings of Overheads



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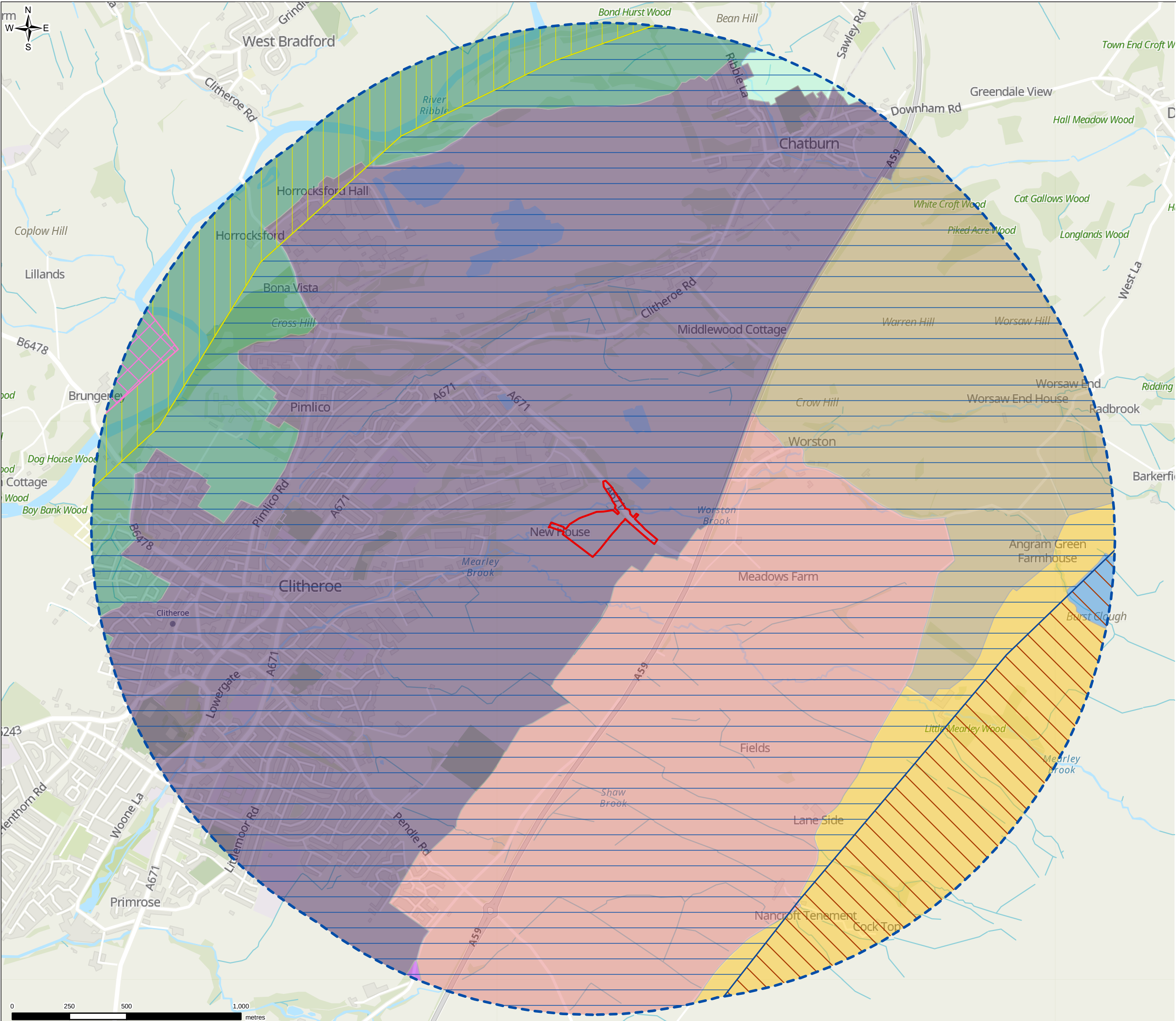
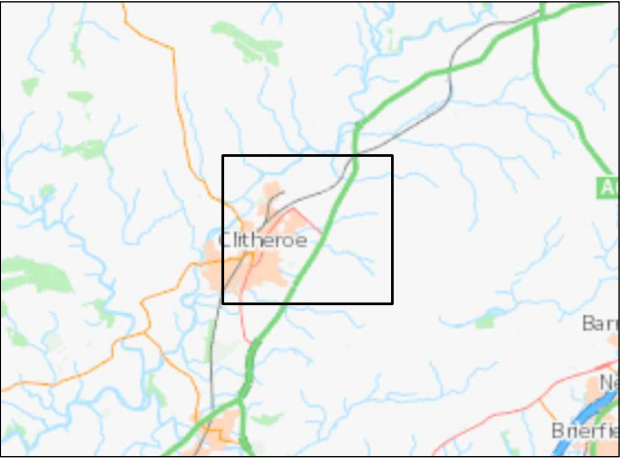


FIGURE 4

- Legend
- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
 - 2km Study Area
- A Landscape Strategy for Lancashire
- 04i North Pendle Fringe
 - 05e Lower Ribblesdale (Clitheroe to Gisburn)
 - 11a Lower Ribble Valley
 - 5b Lower Hodder and Loud Valley
- Forest of Bowland AONB Landscape Character Assessment
- B4 Pendle Hill
 - D8 Pendleton
 - E7 Worston
 - E8 Dudland and Gisburn
 - G5 Downham
 - H1 Clitheroe and Chatburn
 - H2 Higher and Lower Standen
 - J2 Ribble



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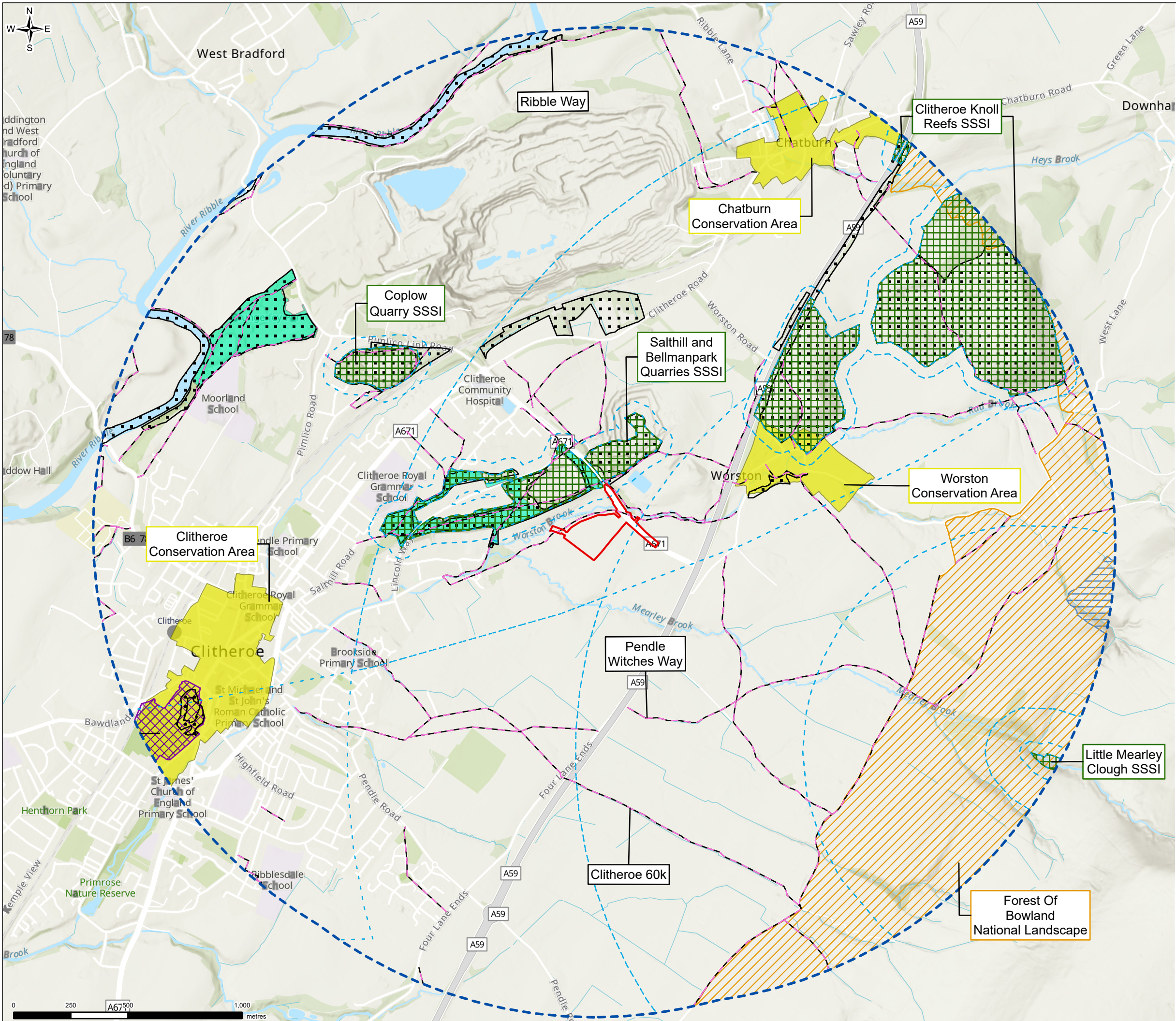
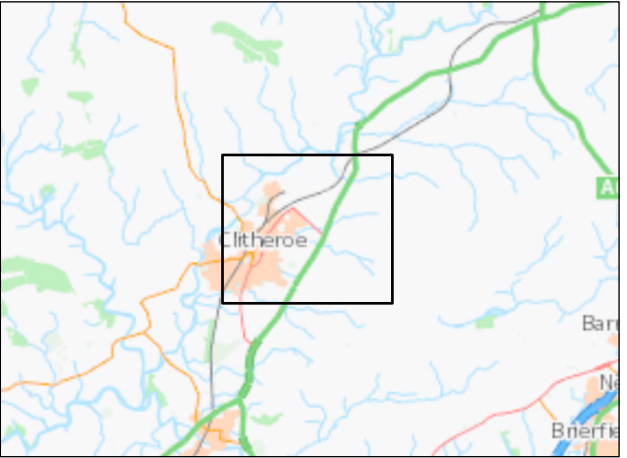


FIGURE 5

- Legend
- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
 - 2km Study Area
 - Public Right of Way
 - Biological Heritage Site
 - Conservation Areas
 - Forest of Bowland National Landscape
 - Local Nature Reserve
 - Open Access Land
 - Registered Parks and Gardens
 - Sites of Special Scietific Interest
 - Site of Special Scientific Interest - Impact Risk Zone



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FIGURE 6

- Legend
- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
 - Watercourse
 - Flood Zone 2
 - Flood Zone 3



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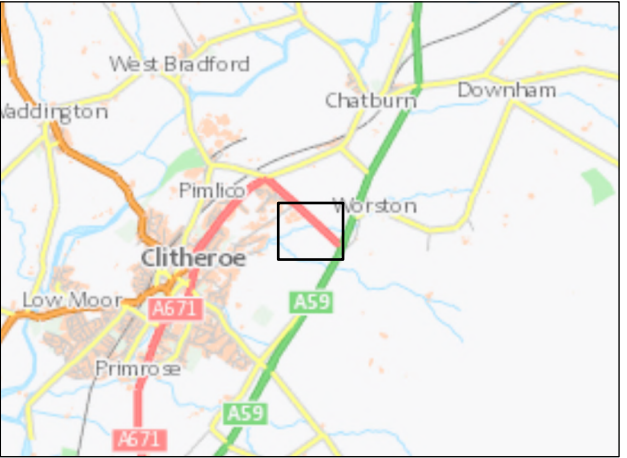
FIGURE 7

Legend

- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
- Watercourse

Risk of Flooding from Surface Water

- 3.3 Percent Annual Chance
- 1 Percent Annual Chance
- 0.1 Percent Annual Chance



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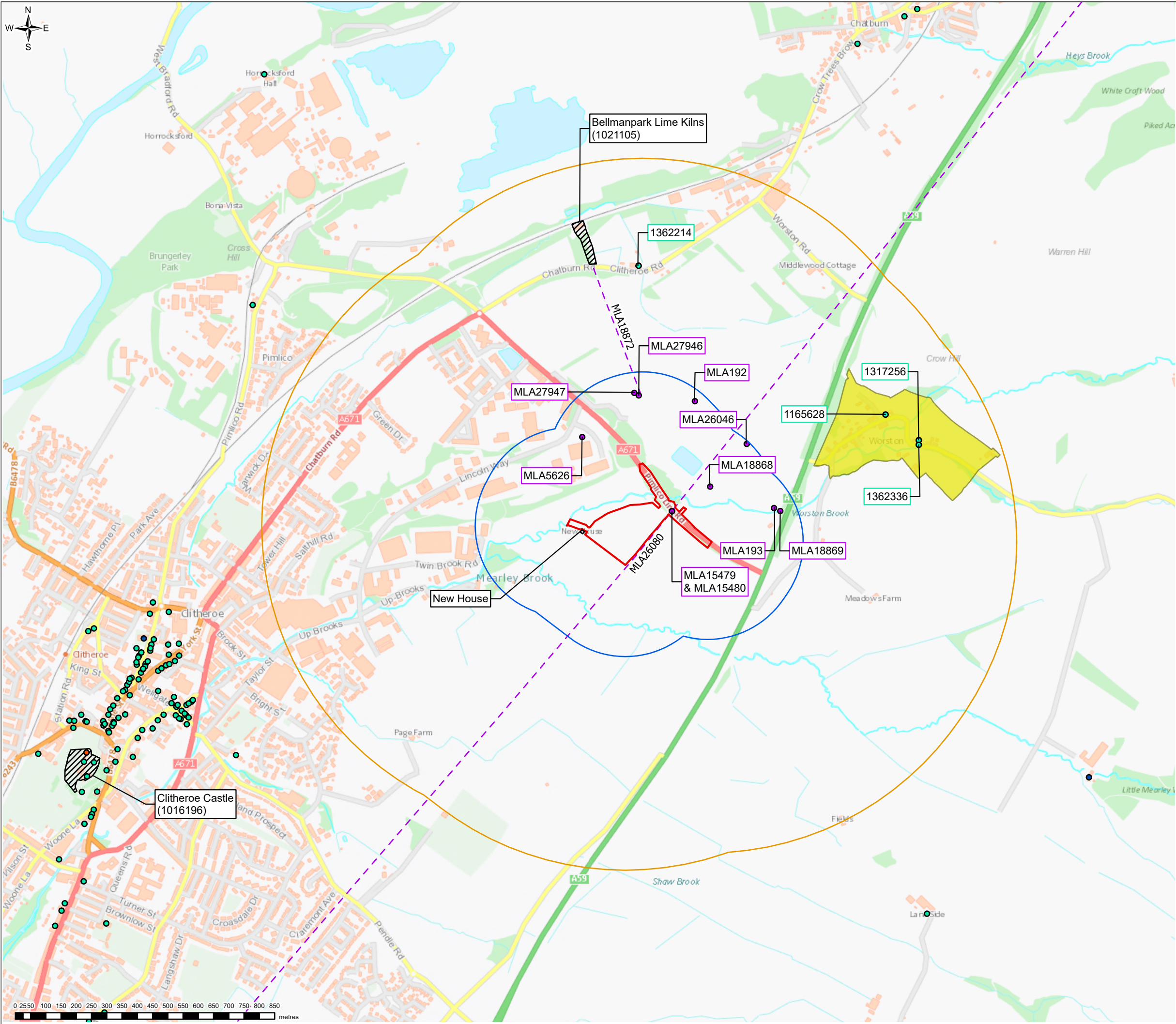
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WATER ENVIRONMENT - SURFACE WATER FLOOD RISK
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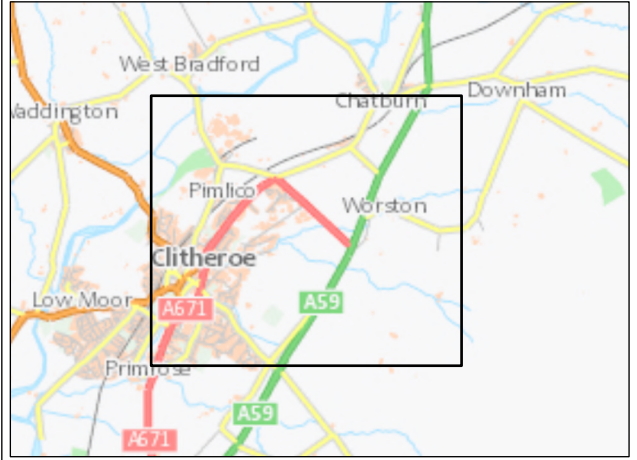


FIGURE 8



Legend

- Alternative Temporary Park and Ride and HGV Marshalling Area Indicative Planning Application Boundary
- 300m Study Area
- 1km Study Area
- Listed Building**
 - Grade I
 - Grade II
 - Grade II*
- Conservation Area
- Scheduled Monument
- New House
- Lancashire County Council - Historic Environment Record Point
- Lancashire County Council - Historic Environment Record Line



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