Trans-Pennine Upgrade Programme
Environmental Impact Assessment
Scoping Report

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Infrastructure Planning

Trans-Pennine Upgrade Programme

ENVIRONMENTAL IMPACT ASSESSMENT SCOPING REPORT

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Rev 1.0	22.10.17	Initial Draft
Rev 2.0	26.10.17	Updated Draft
Rev 3.0	07.11.17	Final

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1 INTRODUCTION

1.1 Purpose of the Report

1.1.1 The purpose of this Environmental Impact Assessment (EIA) Scoping Report is to establish the scope of the Environmental Statement (ES) for the two Nationally Significant Infrastructure Project (NSIP) schemes identified within the Trans-Pennine Upgrade Programme:

- Mottram Moor Link Road Scheme
- A57(T) to A57 Link Road Scheme

1.1.2 The ES will be prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI No. 572) (hereafter referred to as the 'EIA Regulations'), and will accompany Highways England's application for development consent.

1.1.3 In accordance with paragraph 22 of the Highway and Railway (Nationally Significant Infrastructure Project) Order 2013, both schemes are considered to constitute a NSIP in their own right. This is because both schemes are 'construction of a highway wholly in England' (paragraph 22 (1) (a) and (2) (a)), 'the Secretary of State will be the highway authority for the highway' (paragraph 22 (2) (b)) and 'the area of development of each scheme (the land on which the highway is to be constructed and any adjoining land expected to be used in connection with its construction) is greater than 7.5ha' (paragraph 22 (2) (c) and (4) (c)).

1.1.4 However, for the purposes of this EIA Scoping Report (and the subsequent ES), the Mottram Moor Link Road and the A57(T) to A57 Link Road will be combined and assessed as one scheme (hereafter referred to as 'the Scheme'), in recognition that neither scheme can happen without the other, they are inextricably linked, and they have been combined for assessment purposes during the options development stage. Furthermore, it is considered that this approach accords with paragraph 9 of the Guidance on associated development applications for major infrastructure projects (Department for Communities and Local Government (DCLG), April 2013), which states *"a single application can cover more than one project requiring development consent under the Planning Act. Applicants are encouraged, as far as is possible, to make a single application where developments are clearly linked"*.

1.1.5 This EIA Scoping Report has been prepared in accordance with the Regulation 10(3) of the EIA Regulations, the Planning Inspectorate's Advice Note 7: Preliminary Environmental Information, Screening and Scoping (Version 5, March 2015) and Highways England's Environmental Scoping Report structure document (Version 2, 01/06/17). It should be noted that the latter requires the reporting of potential (pre-mitigation) impacts within each environmental topic chapter. However, following discussion with Highways England, it has been agreed that potential (pre-mitigation) impacts will not be reported in this EIA Scoping Report, to ensure accordance with the approach outlined in Volume 11 of Design Manual for Roads and Bridges (DMRB).

1.1.6 Table 1-1 outlines the information required to be included in a scoping opinion request in accordance with Regulation 10 (3) of the EIA Regulations, and Table 1-

2 outlines the information required to be included in a scoping opinion request in accordance with the Planning Inspectorate's Advice Note 7: Preliminary Environmental Information, Screening and Scoping (Version 5, March 2015). Both tables outline where each element of information can be found within this EIA Scoping Report.

Table 1-1: Information Required by Regulation 10(3) of the EIA Regulations

Information Required by Regulation 10(3) of the EIA Regulations	Location in this Scoping Report
A plan sufficient to identify the land.	Figures 1.2 and 1.3 at Appendix B
A description of the proposed development, including its location and technical capacity.	Section 2.4
An explanation of the likely significant effects of the development on the environment.	Chapter 5

Table 1-2: Information Requested by the Planning Inspectorate's Advice Note 7 (2015)

Information Required by Advice Note 7	Location in this Scoping Report
A plan showing: ▪ The proposed draft DCO site boundary (identified by a red line) including any associated development. ▪ Any permanent land take required for the proposed development. ▪ Any temporary land take required for construction, including construction compounds. ▪ Any existing infrastructure which would be retained or upgraded for use as part of the proposed development and any existing infrastructure which would be removed. ▪ Features including planning constraints and designated areas on and around the site, such as national parks or historic landscapes.	Figures 1.2, 1.3, 5.1-5.17 and 6.1 at Appendix B
An outline of the main alternatives considered and the reasons for selecting a preferred option.	Chapter 3
Results of desktop and baseline studies where available.	Chapter 5 contains a summary of the baseline information obtained for each topic area. Given the extent of baseline information gathered for previous environmental assessment work, it

Information Required by Advice Note 7	Location in this Scoping Report
	would be impractical to include all baseline information in this Scoping Report. However, figures contained at Appendix B depict the currently known key baseline constraints.
Referenced plans presented at an appropriate scale to convey clearly the information and all known aspects associated with the proposal.	Figures 1.2 and 1.3 at Appendix B
Guidance and best practice to be relied upon, and whether this has been agreed with the relevant bodies together with copies of correspondence to support these agreements	Chapter 5
Methods used or proposed to be used to predict impacts and the significance criteria framework used.	Chapter 5 and Appendix A
Any mitigation proposed and predicted residual impacts	Chapter 5
Where impacts from consequential or cumulative development have been identified, how applicants intend to assess these impacts in the ES	Chapter 6
An indication of any European designated nature conservation sites that are likely to be significantly affected by the proposed development and the nature of the likely significant impact of these sites.	Chapter 5
Key topics covered as part of the applicants' scoping exercise	Chapter 5
An outline of the structure of the proposed ES	Chapter 10
Where the applicant wishes to scope out matters, justification should be provided, preferably supported by evidence of agreement with the relevant consultation bodies.	Chapters 5 and 7

1.2 Overview of the Project

1.2.1 The Trans-Pennine Upgrade Programme is made up of measures announced in March 2015's Road Investment Strategy (RIS), published by the Department for Transport (DfT). These measures comprised the following schemes:

- Mottram Moor Link Road - a new dual-carriageway link road from the M67 terminal roundabout to a new junction at A57(T) Mottram Moor and a new single carriageway link;
- A57(T) to A57 Link Road – a new single carriageway link from the A57 at

Mottram Moor to a new junction on the A57 at Brookfield, bypassing the existing A628/A57 and A57 Woolley Lane/Hadfield road junctions;

- A628 Climbing Lanes – consideration of the provision of two overtaking lanes on the A628 near Woodhead Bridge;
- Safety and Technology Improvements – safety measures focused on addressing accident clusters and the provision of traffic light cameras, speed cameras and message signs to allow drivers to make informed decisions; and
- Upgrade of the A61 at Tankersley to dual carriageway (referred to as 'A61 Dualling').

1.2.2 However, since the RIS was published, the development of 'A628 Climbing Lanes' and 'A61 Dualling' schemes has been postponed until a later date to allow further consideration of the benefits associated with them.

1.2.3 Outside of the RIS, Highways England has previously considered a scheme to improve the junction of the A616 and A61 known as the 'Westwood Roundabout' due to the proximity of this scheme to the A61 Dualling. Although not specifically stated in the RIS, this scheme is now being progressed as part of the Trans-Pennine Upgrade Programme.

1.2.4 Further to public consultation on the schemes outlined above that constitute the Trans-Pennine Upgrade Programme, a 'Preferred Route Announcement' was made on 2 November 2017. The 'Preferred Route' comprises:

- Mottram Moor Link Road and A57(T) to A57 Link Road (Option A);
- Safety and Technology Improvements; and
- Westwood Roundabout.

1.2.5 As stated in Section 1.1, the Mottram Moor Link Road and the A57(T) to A57 Link Road are considered to be NSIPs in their own right, in accordance with paragraph 22 of the Highway and Railway (Nationally Significant Infrastructure Project) Order 2013. However, the other 'Preferred Route' schemes (Safety and Technology Improvements and Westwood Roundabout) are not considered to be NSIPs. Furthermore, following a review of the advice provided in Guidance on associated development applications for major infrastructure projects (DCLG, April 2013), neither are they considered to be associated development.

1.2.6 The reason for this is that Paragraph 3 of Guidance on associated development applications for major infrastructure projects (DCLG, April 2013) states that *"associated development is defined in the Planning Act as development which is associated with the principal development"*. It is considered that neither the Safety and Technology Improvements or Westwood Roundabout are associated with either the Mottram Moor Link Road or the A57(T) to A57 Link Road.

1.2.7 Furthermore, paragraph 5(i) of Guidance on associated development applications for major infrastructure projects (DCLG, April 2013) states *"the definition of associated development….requires a direct relationship between associated development and the principal development. Associated development should therefore either support the construction or operation of the principal development, or help address its impacts"*. Again, it is considered that neither the Safety and Technology Improvements or Westwood Roundabout have a direct relationship

with either the Mottram Moor Link Road or the A57(T) to A57 Link Road, and neither do they support the construction or operation of the Mottram Moor Link Road or the A57(T) to A57 Link Road, or help address impacts of the Mottram Moor Link Road or the A57(T) to A57 Link Road. Neither do the Safety and Technology Improvements or Westwood Roundabout fall under the examples of associated development (highways) provided in Annex A of Guidance on associated development applications for major infrastructure projects (DCLG, April 2013).

1.2.8 Therefore, the Safety and Technology Improvements and Westwood Roundabout schemes will not be referenced in the remainder of this EIA Scoping Report.

2 THE PROJECT

2.1 Need for the Project

2.1.1 The primary Trans-Pennine road route between the Manchester and Sheffield City regions is the trunk route consisting of the A57, A628, A616 and A61. It predominantly consists of all-purpose single carriageways, with steep gradients and sharp bends, and is particularly affected by inclement weather due to the altitude and exposure of the carriageway (approximately 442m at the Woodhead pass, its highest point).

2.1.2 The trunk route connects the M67 at Mottram in the east of the Manchester City Region with the M1 in the north west of the Sheffield City Region.

2.1.3 High priority challenges identified in the Stage 1 Feasibility Report[1] were:

- Journey times are increased by delays at junctions and the geometry and topography of routes;
- Long term traffic growth will bring some urban sections of routes to their capacity;
- Accidents reduce journey time reliability, with high accident rates on some routes and a number of accident clusters;
- Severe weather causes road closures which reduce journey time reliability;
- Maintenance on single carriageway sections reduces journey time reliability; and
- Asset condition, including the standard, age and damage to infrastructure, reduce journey time reliability through significant maintenance operations and risk from closures.
- There is a lack of technology to assist in the operation and management of the routes and provide information for travellers.

2.2 Project Objectives

2.2.1 The high-level objectives are:

- Connectivity – improving the connectivity between Manchester and Sheffield through reduction in journey times and improved journey-time reliability;
- Environmental – avoiding unacceptable impacts on the natural environment and landscape in the Peak District National Park, and optimising environmental opportunities;
- Societal – improving air quality and reducing noise impacts, and addressing the levels of severance on the Trans-Pennine routes in urban areas;
- Capacity – reducing delays and queues that occur during peak hours and

[1] Trans-Pennine Routes Feasibility Study Stage 1 Report February 2015

improving the performance of junctions on the routes;

- Resilience – improving the resilience of the routes through reductions in the number of incidents and reduction of their impacts; and
- Safety – reductions in the number of accidents and reductions in their impacts.

2.3 Project Location

2.3.1 Figure 1.1 at Appendix B presents the location of the Scheme.

2.4 Project Description

2.4.1 The Scheme is shown on Figure 1.2 at Appendix B and permanent and temporary land take is shown on Figure 1.3 at Appendix B. The Scheme includes the following components:

- A new offline bypass of 1.12 miles (1.8km) of dual carriageway road connecting the junction of the M67, A57(T) and A560 to the A57(T) Mottram Moor
- A new offline bypass of 0.81 mile (1.3km) of single carriageway connecting the A57(T) Mottram Moor to the A57 Woolley Bridge
- Creation of four new junctions (Roe Cross Road Junction on Roe Cross Road, Cricket Ground Junction on the new bypass, Mottram Moor Junction on Mottram Moor, and Brookfield Junction on Woolley Bridge road)
- Creation of four new structures (Old Hall Farm underpass, Mottram Tunnel, Carr House Farm underpass, and River Etherow Bridge).
- One main compound area located close to the M67/A57(T)/A560 Junction, with three other locations along the route for storage.

2.4.2 Associated works for temporary access, temporary lay-down, work areas and ancillary works will also be required.

Route Alignment

2.4.3 The Scheme commences with a new connection to the existing roundabout at the end of the M67 at its junction with the A57(T) and the A560, known as Terminal Roundabout.

2.4.4 From the Terminal Roundabout an all-purpose dual carriageway will run to the north east across existing farmland toward Mottram Moor.

2.4.5 A new junction in the form of a roundabout, Cricket Ground Junction, will be created to the west of Roe Cross Road. This junction will facilitate a connection with a new junction on Roe Cross Road. Roe Cross Road Junction will take the form of a signalised 'T' junction connecting the new bypass to Roe Cross Road.

2.4.6 From Cricket Ground Roundabout, the Scheme will enter the proposed Mottram Tunnel. Mottram Tunnel is proposed to be a dual bore tunnel constructed using the cut and cover method to carry the new road beneath the community of Mottram.

2.4.7 After exiting the Mottram Tunnel, the Scheme will be in cutting of approximately 12m deep known as Mottram Cutting, and continue towards a new junction,

Mottram Moor with the existing Mottram Moor. Mottram Moor Junction will take the form of a roundabout connecting Mottram Moor with the new Mottram Moor Link Road.

2.4.8 The separated sections of Mottram Moor would be connected with the realigned Mottram Moor in the form of an uncontrolled junction to retain access to the existing properties on Mottram Moor.

2.4.9 The route then continues as an all-purpose single carriageway, across existing farmland heading toward the River Etherow. A new structure would be constructed to carry the Scheme over the River Etherow.

2.4.10 The route would then terminate to a new signal controlled 'T' junction on Woolley Bridge Road, known as Brookfield Junction.

2.4.11 The final layout of all junctions will be dependent upon the results of traffic modelling.

Earthwork Design

2.4.12 The earthworks design is currently being finalised and is being optimised to minimise the depth of the proposed Mottram Tunnel cutting, whilst still providing environmental screening to the route.

2.4.13 Between the M67 Terminal Roundabout and Cricket Ground Junction and Mottram Moor Junction and Brookfield Junction, a series of mounds are proposed either side of the route to enhance the level of environmental screening.

Highway Structures

2.4.14 Table 2-1 presents a list of the proposed structures along the Scheme.

Table 2-1: Proposed Structures

Name of Structure	Detail of Proposed Works
Old Hall Lane Underpass	New underpass to maintain connectivity for the agricultural land either side of the Scheme and provide a crossing point for 2 No. public rights of way
Mottram Tunnel	New cut and cover tunnel to carry the Scheme beneath the community of Mottram
Carr House Farm Underpass	New underpass to provide connectivity for Carr House Farm onto Mottram Moor
River Etherow Bridge	New bridge to carry the Scheme over the River Etherow
Culverts	A number of culverts will be required to carry existing watercourse beneath the Scheme

2.4.15 Construction details of all proposed structures will be determined through the design phase.

Highway Drainage

2.4.16 The new highway drainage will be designed to meet the requirements of Highways England, as well as stakeholders including the Environment Agency, local authorities and United Utilities where possible. It is envisaged that along the length

of the Scheme, attenuation ponds will be used to reduce the flow into outfall to existing watercourses.

Highways Lighting

2.4.17 The requirement for lighting is currently being developed and the extent of any new lighting is not yet confirmed.

2.4.18 The lighting design would minimise light pollution which can cause sky glow, glare and light trespass. The design of the lighting would take into account potential landscape and ecological effects.

Non-Motorised User (NMU) Provision

2.4.19 Where the proposed route would affect existing public rights of way, network provision would be made to ensure routes remain open by providing suitable crossing points or diversions.

2.4.20 All junctions that interface with NMU's will be designed to take account of NMUs.

2.4.21 All NMU provision on the existing A57(T) and A57 will be maintained with possible improvements that will be agreed with the relevant local highway authorities.

2.4.22 No provisions are planned for Non-Motorised Users (NMU's) along with the Scheme. Instead, they will be encouraged to use facilities provided along the existing A57 corridor. NMU's will be prohibited from using the section of the Mottram Moor Link Road between Cricket Ground and Mottram Moor Junction due to the Mottram Tunnel.

Construction

2.4.23 Construction is anticipated to last for approximately 3 years and would commence in March 2020.

Terminal Roundabout

2.4.24 Construction of the new connection onto the existing terminal roundabout would be likely to require some lane closures on the roundabout carriageway to allow the new connection to be built.

Roe Cross Road Junction

2.4.25 Construction of the Roe Cross Road Junction would be likely to require a series of lane closures on the existing Roe Cross Road. It is anticipated that after discussion with the local highway authority, it will be necessary to ensure that a minimum of a single lane is required at this location.

Mottram Moor Junction

2.4.26 Construction of Mottram Moor Junction will require a series of lane closures. It is anticipated that once parts of the new carriageway are complete, traffic will be temporarily diverted onto them to facilitate construction of the remaining sections of the junction. Access will be maintained to all existing properties at all times.

Brookfield Junction

2.4.27 Construction of Brookfield Junction would be likely to require a series of lane closures on the existing Woolley Bridge Road. It is anticipated that after discussion with the local highway authority, it will be necessary to ensure that a minimum of a single lane is required at this location.

Mottram Tunnel

2.4.28 Mottram Tunnel is proposed to be constructed using the cut and cover method. It is currently planned that the tunnel will be constructed in a number of sections. Three existing roads cross the tunnel - Roe Cross Road, Old Road and Old Hall Lane. It is currently proposed that traffic flows will be maintained on Roe Cross Road and Old Road during tunnel construction. This would be by the use of a temporary road which would be constructed adjacent to the existing roads. Traffic would then be diverted onto the temporary road until the works were completed and the existing roads reinstated in their previous locations. Proposals are currently being considered for Old Hall Lane, but Old Hall Lane may be temporarily severed for the duration of the works in that area. Access would be provided from either side of the works, and NMU's along Old Hall Lane would be provided with a temporary diversion for the duration of the closure.

Mottram Moor Link Road and the A57(T) to A57 Link Road

2.4.29 The construction of the Mottram Moor Link Road and the A57(T) to A57 Link Road will require significant excavations and deposition of fill material to achieve the required vertical profile. Interfaces with existing public rights of way would need to be managed. Most of the Scheme can be constructed in a sterile site.

Demolition

2.4.30 A number of properties would need to be demolished in the vicinity of the Mottram Tunnel.

Services and Utility Diversions

2.4.31 A number of services will be required to be diverted where the new junctions intersect with the existing highway network.

2.4.32 A significant number of utilities will also be required to be diverted on Roe Cross Road, Old Road and Old Hall Lane due to the construction of Mottram Tunnel.

3 ASSESSMENT OF ALTERNATIVES

3.1 Assessment Methodology

3.1.1 A sifting exercise has been undertaken in order to identify the most optimal options in terms of development design, technology, location, size and scale. Section 3.2 details the sifting processes undertaken, but is summarised as follows:

Early Options Sifting Exercise

3.1.2 Initial options in relation to the Trans-Pennine Upgrade Programme at the time of sifting were in relation to the Mottram Moor Link Road and A57(T) to A57 Link Road. Assessment considerations for overall recommendation were based on value for money; journey time benefits; delay reductions and least environmental impacts.

First Sift (Strategic Sift)

3.1.3 Assessment was undertaken using the Early Assessment and Sifting Tool (EAST); an Additional Sift Tool and a high level economic assessment using Transport User Benefit Appraisal (TUBA).

Long List Sift Exercise

3.1.4 Assessment was undertaken using the EAST, alongside an Additional Sift Tool which considered the performance of each option against the project objectives.

Second Sift Exercise

3.1.5 Assessment undertaken using the Options Appraisal Framework.

3.2 Reasonable Alternatives Studied

3.2.1 A scheme to help alleviate traffic congestion along the A57/A628 trunk road through Mottram, Hollingworth (in the Tameside district of Greater Manchester) and Tintwistle (in the High Peak district of Derbyshire and partly within the Peak District National Park) was first introduced to the Roads Programme in 1989. Following appraisal of alternatives, two routes were presented at Public Consultation in 1992 and in October 1993, the Secretary of State announced a Preferred Route for a bypass scheme. However, the bypass was suspended from the Roads Programme in 1996.

3.2.2 In 'A New Deal for Trunk Roads in England' published in July 1998, the A57/A628 Mottram -Tintwistle Bypass and A628/A616 Route Restraint Measures was listed as a scheme for which preparation would continue to enable it to be taken forward without delay, subject to full appraisal and the views of the Regional Planning Bodies. The Scheme was approved in principle, subject to further appraisal, at the North West Regional Planning Conference in April 1999.

3.2.3 In January 2000, the Highways Agency conducted an assessment of the impacts of various strategies to solve the traffic problems within the three villages of Mottram, Hollingworth and Tintwistle and within the wider area. The results of these assessments were presented to the Regional Planning Bodies in November 2002 and, following their approval, a scheme was included in the Government's Targeted Programme of Improvements (TPI) in April 2003. The assessment concluded that there were no realistic alternatives to a bypass of the villages.

3.2.4 The preferred route promoted in 2003 was a bypass of approximately 5.7km in

length, which would bypass the existing A57/A628 route in the villages of Mottram, Hollingworth and Tintwistle, with a link road connecting to the A57 at Mottram Moor between Mottram and Hollingworth. An extension of this link road from the A57 Mottram Moor to the A57 Woolley Lane was being promoted jointly as the Glossop Spur by Tameside Metropolitan Borough Council and Derbyshire County Council. This followed the same alignment as the Brown Route considered in the Early Options Sifting Exercises (see paragraphs 3.2.10 to 3.2.15 below and Figure 3.3 at Appendix B).

3.2.5 Both the A57/A628 Mottram - Tintwistle Bypass and A628 Route Restraint Measures, and the Glossop Spur projects were subject to public inquiry in 2007. The public inquiry closed in 2009 and the A57/A628 Mottram - Tintwistle Bypass and A628 Route Restraint Measures project was removed from the Highways Agency programme.

Historic Scheme Options

3.2.6 During the intricate history of work in this area, numerous options have been considered and discarded. A review was undertaken during the early sifting exercises to capture these historic options and the reasons for rejection at the time.

3.2.7 The Mottram Moor Link Road and the A57(T) to A57 Link Road options presented for consideration within this EIA Scoping Report have been informed by learning from historic options studies. For example, options generally considered to be less preferable have not been reconsidered at this time, and design development has been informed by historic study information where applicable.

The Trans-Pennine Feasibility Study

3.2.8 In 2015, the DfT commissioned a series of feasibility studies to investigate solutions to some of the most significant and longstanding congestion hotspots in the country. A study was undertaken to identify the opportunities and understand the case for future investment on Trans-Pennine routes that will improve connectivity between Manchester and Sheffield, and that are deliverable, affordable and offer value for money. This study considered three western end variants of:

- Bypass of Mottram, Hollingworth and Tintwistle;
- Mottram Moor Link Road; and
- A57 Mottram One Way.

3.2.9 The study also recognised a need for a central package of improvements along the A57/A628/A61 to accompany each western end variant, which included the A57(T) to A57 Link road.

Early Options Sifting Exercises

Coverage of the Sifting Process

3.2.10 The initial options at the time of sifting were in relation to the Mottram Moor Link Road and A57(T) to A57 Link Road.

3.2.11 This decision to progress this western end variant (in conjunction with the central package of improvements) was based on this option having a good strategic fit and alignment with stakeholder aspirations, and is expected to deliver a positive effect on the economy at a lower cost than the full Mottram, Hollingworth and Tintwistle

bypass whilst providing good journey time and reliability benefits. The overall recommendation for this option being progressed was based on:

- High value for money case and it would improve connectivity between Manchester and Sheffield to some extent, but recognises that it does not provide significant additional capacity for these trips.
- Journey time benefits for both local trips from in and around the Mottram/Tintwistle/Glossop area and for existing Trans-Pennine trips using the A628 or A57 with an expected improvement in reliability for all users.
- Effective in reducing delays on the A628 and A57 and moves traffic from the village of Mottram which will bring benefits for local residents in the form of improved air quality, less noise, reduced accidents and reduced severance.
- Expected to bring slight adverse impacts to the landscape, noise, historic environment, biodiversity and the water environment.
- Anticipated that delivery of all elements of the package could be completed by early 2023.

3.2.12 A decision was made to extend the brief to include options to benefit Hollingworth and Tintwistle; and so the Brown Route, Red Route and Blue Route options were brought into the sifting process. These were considered with the intention of progressing a longer bypass option as part of a phased approach due to funding being unavailable within the current RIS.

3.2.13 An original long list of nine Mottram Moor Link Road options were presented to Highways England in September 2015. In accordance with the design brief, these included long bypass options (of Mottram, Hollingworth and Tintwistle) and short bypass options (of Mottram only) and included the option to include or exclude the A57(T) to A57 Link Road.

3.2.14 These nine options were:

- Options 0, 3 & 4 – options for A57(T) to A57 Link Road crossing the A57(T) close to Mottram (Figure 3.1 at Appendix B).
- Options 1, 2 & 5 – options for A57(T) to A57 Link Road crossing the A57(T) closer to the Gun Inn junction at Hollingworth (Figure 3.2 at Appendix B).
- Brown Route, Blue Route and Red Route – options for a Mottram, Hollingworth, and Tintwistle Bypass (Figure 3.3 at Appendix B). The Brown Route was the preferred route for the Mottram, Hollingworth and Tintwistle Bypass taken to Public Inquiry in 2007.

First Sift (Strategic Sift)

3.2.15 This sift was completed using EAST, alongside an Additional Sift Tool which considered the performance of each option against the Trans-Pennine Upgrade Programme objectives.

3.2.16 Highways England decided that a sifting exercise should be completed in an attempt to inform a strategic decision as to whether to pursue a long or short bypass. For this reason, the First Sift exercise was completed using one long and

one short bypass option (Option A and Brown Route), considering these both with and without the inclusion of the A57(T) to A57 Link Road.

3.2.17 The first sift included the following elements:

- Appraisal using an additional sift tool
- Appraisal using the EAST
- A high level economic assessment using TUBA

3.2.18 The following broad conclusions were drawn from the first sift.

- The Brown Route performs better economically than Option A route (both with and without the A57(T) to A57 Link Road)
- Options with the A57(T) to A57 Link Road perform better than the comparative option without the A57(T) to A57 Link Road.

3.2.19 A decision was made to remove options without the A57(T) to A57 Link Road, as these performed less well. However, a strategic decision between long and short bypass options could not be made at the time of sifting, and so it was decided to proceed to a Long List Sift.

Long List Sift Exercise

3.2.20 This sift was completed using the EAST, alongside an Additional Sift Tool which considered the performance of each option against the Trans-Pennine Upgrade Programme objectives.

3.2.21 The nine Mottram Moor Link Road options presented in September 2015 were all considered as part of the Long List Sift, all with the inclusion of the A57(T) to A57 Link Road.

3.2.22 The options discarded at this stage were:

- Options 1 and 2: The proximity of these two options to the Gun Inn junction affected the potential deliverability and feasibility in comparison to Option B which is of a similar alignment.
- Options 3 and 4: The highway alignment of these two options was less preferable in terms of Highways Standards in comparison to Option A.
- Blue Route: This route would pass directly between Hollingworth and Tintwistle, potentially bringing additional severance issues between the two villages. The route would also include the upgrade of the existing road within Tintwistle Conservation Area.
- Red Route: This route would require construction over the top of Arnfield Reservoir, which was considered to pose deliverability challenges.

3.2.23 The best performing options that were taken forward to the Second Sift Exercise were:

- Brown Route. It was the better performing of the Mottram, Hollingworth, & Tintwistle type options considered in the Long List Sift.
- Option 0. This option was appraised in the original first sift, and was considered the better performing of the Mottram Moor Link Road options considered which cross the A57(/T) closer to Mottram.

- Option B. This option was considered to be the better performing of the Mottram Moor Link Road options considered which cross the A57(T) closer to the Gun Inn at Hollingworth.

3.2.24 As a result of the historic options review exercise undertaken as noted in paragraphs 3.2.6 to 3.2.7, a potentially feasible option was rediscovered that had not been previously rejected. This option is referred to as 'DfT Low Cost Option 1' and is shown on Figure 3.4 at Appendix B. This option was also considered a viable alternative to the Brown Route and was therefore taken through to the Second Sift Exercise, alongside Options 0, 5 and Brown Route.

Second Sift Exercise

3.2.25 The second sift exercise was undertaken using the Options Appraisal Framework.

3.2.26 The options presented for Second Sift were:

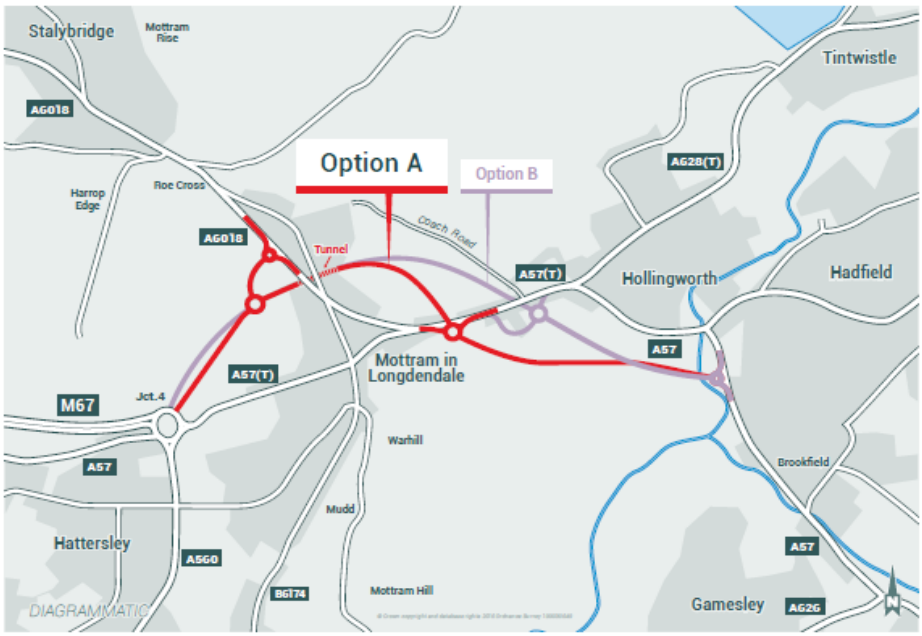
- Brown Route including A57(T) to A57 Link Road (long bypass)
- DfT Low Cost Option 1 including A57(T) to A57 Link Road (long bypass)
- Mottram Moor Link Road Option A including A57(T) to A57 Link Road (short bypass)
- Mottram Moor Link Road Option B including A57(T) to A57 Link Road (short bypass)

3.2.27 During a Value Management workshop, the benefits and dis-benefits of the four options were considered. The two long bypass options were expected to attract significantly more traffic to the area, plus bring about additional impacts in relation to the Peak District National Park, air quality and noise. The two long bypass options did provide the higher cost-benefit ratio in comparison to the short bypass options.

3.2.28 At the Value Management workshop, the risk relating to funding for a long bypass being unavailable within the current RIS was highlighted, and the decision was made to take the following two options through to the next stage, see Figure 3-1 below:

- Mottram Moor Link Road Option A (short bypass)
- Mottram Moor Link Road Option B (short bypass)

Figure 3-1 Mottram Moor Link Road Option A and Option B



3.3 Justification for Chosen Option

3.3.1 On 22 June 2017, a Value Management Workshop was held to ensure the options proposed for the Preferred Route Announcement met the high level strategic drivers defined in the Client Scheme Requirements, which are:

- Encouraging economic growth
- Making the network safer
- Keeping the network in good condition
- Supporting the smooth flow of traffic
- Delivering better environmental outcomes
- Helping cyclists, walkers and other vulnerable users of the network
- Improving user satisfaction
- Achieving real efficiency

3.3.2 Whilst considering the merits of Option A and Option B of the Mottram Moor Link Road/A57(T) to A57 Link Road, Option A and Option B both meet the transport objectives as defined in the Client Scheme Requirements, the workshop identified Option A as the preferable option due to:

- Less impact on properties
- Lower cost than Option B
- Option A was preferred by the majority of respondents to the non-statutory consultation undertaken in March and April 2017

3.3.3 It has therefore been recommended that Option A is progressed as the preferred route, and was subsequently included in the 'Preferred Route Announcement' made on 2 November 2017.

4 CONSULTATION

4.1 Consultation Undertaken to Date

4.1.1 A public non-statutory consultation took place between 13 March 2017 and 10 April 2017. Five options were consulted on, including Mottram Moor Link Road and the A57 (T) to A57 Link Road.

4.1.2 Publicity for the consultation included:

- 25,000 consultation brochures, delivered to the households in closest proximity to the Trans-Pennine Upgrade Programme, and placed at 19 deposit locations in the Trans-Pennine Upgrade Programme area.
- Consultation information on the Highways England website: including the consultation brochure and questionnaire and fly-through videos.

4.1.3 In addition, five public exhibition events were held on 18, 22, 24 and 25 March and on 1 April 2017, which were attended by over 800 members of the public.

4.1.4 As noted above, the 2017 consultation was a non-statutory consultation. This means that there was no statutory basis or requirement for the consultation, and consequently there were no rules or requirements under legislation that the consultation had to meet. Instead, in carrying out the consultation, Highways England was influenced by government guidance on consultation, best practice and lessons learned from other major consultations, and the principles for a lawful consultation that have been established by the courts.

4.2 Proposed Consultation

4.2.1 A Preliminary Environmental Information Report would be prepared in the first quarter of 2018. The Preliminary Environmental Information Report would subsequently be consulted upon as part of the statutory consultation required under Section 42 of the Planning Act 2008.

4.2.2 Under Section 42 of the Planning Act 2008, the applicant must consult:

- Statutory consultees (i.e. 'prescribed persons' listed in Schedule 1 to the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009;
- Local authorities prescribed in Section 43 of the Planning Act 2008; and
- The persons prescribed in Section 44 of the Planning Act 2008 including owners, lessees, tenants, and those with an interest in the land.

4.2.3 Following this, there would be ongoing non-statutory consultation with a range of organisations.

4.2.4 It is also intended that Statements of Common Ground would also be prepared in advance of submitting the application for development consent to confirm agreement with as many aspects of the ES as possible.

5 SCOPE OF THE ASSESSMENT

5.1 Introduction

EIA Methodology & Process

5.1.1 The proposed methodology to be used for each environmental topic is set out in Sections 5.2 to 5.11 below. The focus of the EIA methodology is to ensure a robust and proportionate approach.

5.1.2 To ensure compliance with EU Directive 2014/52/EU (the EIA Directive), which amends EU Directive 2011/92/EU, the following approach will be taken to environmental factors for which there is no consolidated methodology or practice within the current version of Volume 11 of DMRB.

Population and Health

5.1.3 An assessment of the significant effects on population will be considered as part of the 'People and Communities' assessment. An assessment of the significant effects on human health will be considered as part of the 'Air Quality', 'Noise and Vibration', 'Road Drainage and the Water Environment' and the 'People and Communities' assessments. However, it is considered that these assessments, conducted principally in isolation as is required by their methodologies, will not provide a sufficient analysis of the population and health effects of the Scheme. To enable such conclusions to be drawn, a qualitative assessment of information collated via the topic assessments listed above will be undertaken and presented within the 'Cumulative Effects' assessment.

5.1.4 No specific significance criteria will be applied to the assessment. Instead, significance criteria relevant to the topic assessments listed in paragraph 5.1.3 above will be applied.

Climate

5.1.5 In line with the Schedule 4 Part 5 of the EIA Regulations, a description of the likely significant effects of the Scheme on the environment, resulting from the vulnerability of the Scheme to climate change, will be provided and reported in a stand-alone chapter.

National Networks National Policy Statement (NN NPS)

5.1.6 The NN NPS sets out the policy which would be used by the Planning Inspectorate and the Secretary of State to make a decision on all major road and rail projects. Due regard would be afforded to this for the preparation of the ES. The NN NPS would also guide the design of the Scheme.

EIA Expertise

5.1.7 To ensure the completeness and quality of ESs, the EIA Regulations require projects to outline that they have been prepared by a competent expert(s). This information will be provided within the ES.

Risk of Major Accidents and/or Disasters

5.1.8 The ES will identify 'major' events that are relevant to and that could affect the Scheme, including both man-made and naturally occurring events. Where major events are identified, the ES would describe the potential for any change in the assessed significance of the Scheme on relevant environmental topics in

qualitative terms and report the conclusions of this assessment within the individual environmental topics. Mitigation measures would also be described.

Equalities Impact Assessment

5.1.9 In England and Wales, the Equality Act 2010 places a duty on Highways England to ensure that equality is considered as part of its service delivery. This means there are duties to ensure the Strategic Road Network (SRN) is accessible, and that economic and social opportunities are maximised for all users.

5.1.10 The Equality, Diversity and Inclusion sifting Tool, (EDIT) is a tool that has been used to help Highways England's project teams make an informed decision about the extent to which equality, diversity and inclusion (EDI) are relevant to the Scheme.

5.1.11 It is considered that EDI issues are likely to be a factor in the effective delivery of the Scheme. Therefore, an Equality Impact Assessment (EqIA) would be prepared in parallel to the ES.

5.1.12 Highways England currently uses EqIA to assess schemes considered likely to have a disproportionate impact on different sections of society. EqIA, when used in conjunction with EDIT, provides a good way of evidencing the decision-making processes to support compliance with the Equality Act 2010 and Public Sector Equality Duty.

Habitats Regulations Assessment

5.1.13 A Habitats Regulations Assessment Screening Report was prepared during PCF Stage 2 in September 2017, and was informed by discussions with Natural England. The purpose of the report was to determine likely significant effects on the following European designated sites as a result of the Trans-Pennine Upgrade Programme (as it was at PCF Stage 2).

- Peak District Moors (South Pennine Moors Phase 1) Special Protection Area (SPA); and
- South Pennine Moors Special Area of Conservation (SAC).

5.1.14 Only the A628 Climbing Lanes were considered relevant for further assessment. However, as stated in paragraph 1.2.2 above, the development of A628 Climbing Lanes has been postponed until a later date to allow further consideration of the benefits associated with them. Therefore, further consultation with Natural England is required to determine the need for the application for development consent to be supported by a Habitats Regulations Assessment.

5.2 Air Quality

Topic	Details
5.2.1 Study Area	**Construction** (1) The potential effects of construction dust will be assessed in accordance with DMRB HA 207/07. The study area is defined as the area within 200m of the construction site boundary. **Operation** (2) The study area will be defined by the changes in traffic flows on the local road network. The criteria outlined in paragraphs 3.12 to 3.16 of the DMRB HA 207/07 will be used to identify those roads likely to be affected, as follows: ▪ Road alignment will change by 5 metres or more; or ▪ Daily traffic flows will change by 1,000 Annual Average Daily Traffic (AADT) or more; or ▪ Heavy Duty Vehicle (HDV) flows will change by 200 AADT or more; or ▪ Daily average speeds will change by 10 kilometre/hour or more; or ▪ Peak hour speed will change by 20 kilometre/hour or more.
5.2.2 Baseline Conditions	(1) The Scheme is located within the administrative boundaries of Tameside Metropolitan Borough Council and High Peak Borough Council. (2) As required by the Environment Act 1995, Tameside Metropolitan Borough Council and High Peak Borough Council have undertaken Review and Assessment of air quality within their boroughs. This process has indicated that annual mean concentrations of nitrogen dioxide (NO_2) are above the Air Quality Strategy (AQS) objective for Tameside Metropolitan Borough Council. As such, Tameside Metropolitan Borough Council has declared an Air Quality Management Area (AQMA) for NO_2. The Scheme study area is located within the Tameside AQMA. (3) Tameside Metropolitan Borough Council undertakes automatic monitoring within the study area, see Figure 5.1 at Appendix B. NO_2 concentrations at Mottram Moor automatic station were recorded at 47.2µg/m^3 in 2015, exceeding the AQS objective of 40µg/m^3. Diffusion tube monitoring is also undertaken within the study area at 3 locations. The 2015 monitoring data identified 2 sites of exceedance along the A628 and A57, with concentrations of 61.1µg/m^3 and 53.4µg/m^3 respectively. (4) High Peak Borough Council undertakes diffusion tube monitoring at 11 locations within the study area. Exceedances of the AQS objective were recorded at the Pegasus Crossing along the A628 (the average for 2015 was 65.5µg/m^3) and at one location along Woodhead Road with a 2015 concentration of 51.8µg/m^3. The remaining locations were below the AQS objective for 2015. Whilst High Peak Borough Council hasn't declared an AQMA, one is proposed around the area of the identified exceedances. (5) Highways England completed additional monitoring at 82 locations in and around the Mottram area in 2016. Exceedances of the AQS objective for annual mean NO_2 concentrations have been identified along the A57

Topic	Details
	through Mottram and Glossop and the A628 through Hollingworth and Tintwistle. (6) Sensitive receptors potentially sensitive to changes in air quality were identified within the PCF Stage 2 air quality assessment. The location of these sensitive receptors is shown on Figure 5.3 at Appendix B.
5.2.3 Design, Mitigation and Enhancement Measures	**Construction** (1) In relation to construction dust, industry best practice mitigation measures would ensure that construction dust does not result in a significant impact. These measures would be included in and managed through the Construction Environmental Management Plan (CEMP). Mitigation measures could include positioning dust generating activities as far away as possible from sensitive receptors, seeding or covering long term stockpiles, or damping down surfaces. A stakeholder communication plan and regular inspections would assist in monitoring the success of any mitigation measures employed. (2) Measures to mitigate the potential air pollution impact from construction vehicles could include the use of less polluting construction vehicles such as Heavy Goods Vehicles (HGVs) that are Euro VI equivalent. **Operation** (3) Should the Scheme result in a significant impact on local air quality (in accordance with Interim Advice Note (IAN) 174/13) or pose a risk to the UK's reported compliance dates with the EU Limit Values (assessed in accordance with IAN 175/13), a Scheme Air Quality Action Plan (SAQAP) would be prepared (in accordance with IAN 175/13). SAQAP measures could include reducing the increase in traffic in areas where sensitive receptors are significantly affected.
5.2.4 Residual Effects	**Construction** (1) The residual impacts of the construction activities on local air quality are not anticipated to be significant. **Operation** (2) The Scheme has the potential to affect local air quality during operation in the following ways: ▪ Air quality could be affected (positively or negatively) by changes in vehicle activity (flows, speeds and composition). ▪ Air quality could also be affected by any changes to the distance between sources of emissions and air quality sensitive receptors, due to changes to the existing road network to accommodate the Scheme. (3) The Scheme would affect traffic on roads that are within AQMAs and there is the potential for the annual mean NO_2 AQS objective to be exceeded at some roadside receptors. The assessment will determine whether the Scheme has a significant impact on air quality in accordance with IAN 174/13. In addition, the impact of the Scheme in relation to compliance with the EU Ambient Air Quality Directive will be assessed in accordance with IAN 175/13.

Topic	Details
5.2.5 Assessment Methodology	(1) Potential effects on local air quality resulting from both the construction and operation of the Scheme would be assessed in accordance with the following guidance (or latest update available at the time of the assessment): ▪ DMRB HA 207/07; ▪ IAN 170/12 v3; ▪ IAN 174/13; ▪ IAN 175/13; ▪ IAN 185/15; and ▪ Defra's Local Air Quality Management Technical Guidance (LAQM.TG(16)), where appropriate. (2) DMRB requires the following assessments to be undertaken, which will be based on the most likely forecast traffic flows: **Construction Assessment** (3) A qualitative assessment of impacts on air quality from construction will be undertaken in accordance with the DMRB HA 207/07. The assessment will take into account the nature of any proposed construction activities that will have the potential to generate dust and the location of sensitive receptors within 200m of the Scheme construction works that could be at risk of being affected. **Operational Assessment** ***Local Air Quality Assessment*** (4) Given that AQS objectives could be exceeded at sensitive receptors, a detailed assessment as required by DMRB will be undertaken. The Atmospheric Dispersion Modelling System (ADMS-Roads) software will be used to determine the effect of Scheme. (5) The key scenarios to be modelled are: ▪ The existing base situation, which will be used for model verification purposes (2015); ▪ Do-Minimum Scenario, which assumes that the Scheme will not be in operation in the opening year but accounts for committed developments in the future (expected to be 2023); and ▪ Do-Something Scenario, which assumes that the Scheme will be in operation in the opening year and also accounts for committed developments in the future (expected to be 2023). (6) The future year modelled scenarios will be adjusted following the advice in IAN 170/12 v3, which is used to adjust modelled concentrations that are solely based on the Defra air quality modelling tools. The latest version of this advice will be used for the future baseline projections presented in the air quality assessment, ensuring that the modelling is not overly optimistic. (7) The local air quality assessment compares current and predicted air quality concentrations against the AQS objectives. To determine whether

Topic	Details
	the Scheme will have a significant impact on air quality, the local assessment results are utilised in accordance with IAN 174/13. (8) The local air quality results are also used to assess whether the Scheme represents a risk to the UK's reported ability to achieve compliance with the EU Ambient Air Quality Directive. The assessment utilises information published by Defra (namely their Pollution Climate Mapping (PCM) modelled data) to determine whether compliance with the EU Limit Values will be affected by the Scheme in accordance with IAN 175/13. ***Regional Assessment*** (9) The regional assessment is undertaken to determine the change in emissions as a result of the Scheme. The regional emissions of NOx are also used in the WebTAG appraisal to determine the economic value of changes in air quality as a result of the Scheme for the purposes of the Scheme's business case. (10) The assessment of the contribution of the Scheme to regional air quality is based on the total annual emission of pollutants over the road network. The pollutants considered are: ▪ NOx; ▪ PM_{10}; and ▪ Carbon Dioxide (CO_2). (11) The latest version of the Defra Emission Factor Toolkit (EFT) will be used in the regional assessment calculations which uses the traffic characteristics (flows, average vehicle speeds and percentage HDVs for each period) and road length for each affected road in the study area. **WebTAG appraisal (plan level)** (12) DMRB HA 207/07 states that the assessment of air quality in relation to highways schemes should also report the results of local air quality WebTAG appraisal (plan level), as completed in line with the guidance set out by the Air Quality Sub Objective, TAG Unit A3. (13) The plan level methodology within the WebTAG guidance aims to quantify the change in exposure at properties in the opening year as a result of schemes. This is done by calculating the change in concentrations at receptors adjacent to all roads included in the Affected Road Network as determined for the local air quality assessment. The methodology follows several steps including: ▪ Identification of the Affected Road Network (roads that trigger DMRB criteria), which is the same as the DMRB local air quality affected road network; and ▪ Calculation of an overall assessment score for NO_2 and PM_{10}. (14) The results of the WebTAG assessment are reported in the ES and used in the Scheme's Business Case. **NN NPS** (15) Air quality aspects of the NN NPS are presented in paragraphs 5.3 to 5.15. The methodology outlined in DMRB HA 207/07 and associated IANs

Topic	Details
	ensures that the assessment complies with the requirements of the NN NPS. It also provides the decision maker with the information required to determine whether a scheme leads to a significant impact on air quality or risks compliance with the EU Ambient Air Quality Directive. (16) Paragraphs 5.12 and 5.13 of the NN NPS provide the advice to the Secretary of State who is responsible for the decision as to whether the Scheme is consented.
5.2.6 Assessment Assumptions and Limitations	(1) Any air quality model has inherent areas of uncertainty, including: ▪ The traffic data used in the air quality model; ▪ The suitability of emissions data; ▪ Simplifications in model algorithms and empirical relationships that are used to simulate complex physical and chemical processes in the atmosphere; ▪ The suitability of background concentrations; and ▪ The suitability of meteorological data. (2) Uncertainty associated with traffic data for the Scheme will be minimised by using a validated traffic model. (3) Uncertainties associated with emissions data will be minimised by using the most up to date speed-band emission factors available, and by applying IAN 170/12 v3 for long term trends. (4) Uncertainties associated with model algorithms and empirical relationships will be minimised by using algorithms and relationships that have been independently validated and judged as fit for purpose. Another uncertainty is with using historical meteorological data to estimate future concentrations. The key limiting assumption is that conditions in the future will be the same as in the past; however, in reality no two years are the same. In line with best practice, the base year meteorology (as used in the model verification and adjustment process) will be used in future year modelling to allow any adjustments to be applied in future cases.

5.3 Cultural Heritage

Topic	Details
5.3.1 Study Area	(1) In accordance with DMRB HA 208/07, the study area will encompass an area extending 1km from the Scheme for designated heritage assets and 500m for non-designated heritage assets associated with potential archaeological remains.
5.3.2 Baseline Conditions	**Existing information** (1) The study area contains one Scheduled Monument (Melandra Castle Roman Fort) which dates to the Roman period (AD 43 to 410); two Grade II* listed buildings ('Church of St Michael and All Angels' and 'Cross') and 28 Grade II listed buildings (see Figure 5.4 at Appendix B). (2) The entire Mottram in Longdendale Conservation Area and a portion of the Hadfield Conservation Area lie within the 1km study area. In

Topic	Details
	addition to the two Grade II* listed buildings identified above, Mottram in Longdendale Conservation Area contains a further 18 Grade II listed buildings that have not been individually identified. The portion of the Hadfield Conservation Area that lies within the 1km study area does not contain any listed buildings. (3) The Greater Manchester and Derbyshire Historic Environment Record list 98 non-designated heritage assets relating to known or potential archaeological remains within the 500m study area. Of these heritage assets, a number date to the prehistoric period and demonstrate human activity within the study area from the Bronze Age (2500 to 700 BC) onwards. (4) In addition to the Melandra Castle Roman Fort, evidence of human activity and settlement within the study area during the Roman period (AD 43 to 410) is represented by a number of non-designated heritage assets, ranging from earthwork enclosures to possible evidence for human burials. (5) A number of the non-designated assets date to the early medieval and medieval periods (AD 410 to 1066 and AD 1066 to 1540 respectively) and represent an increase in known settlement activity within the study area. By far the greatest number of non-designated heritage assets date to the post-medieval and modern periods (AD 1540 to 1901 and AD 1901 to present respectively), particularly from around AD 1750 onwards. These assets relate to agricultural, domestic and industrial activity. (6) There is potential for currently unknown sub-surface archaeological remains to be present within the study area. These archaeological remains may date from the prehistoric periods to the post-medieval period. (7) In terms of historic landscape character, the study area contains areas of 20th century settlement, 20th century industry, 20th century communications, 20th century agricultural improvement, 19th century field systems, post-medieval settlement, post-medieval communications, and late post-medieval agricultural improvement. Whilst the historic landscape has a reasonably high degree of time depth, the presence of later landscape types has reduced its coherence. **Additional information required to inform the ES** (8) A heritage walkover survey will be undertaken within the study area.
5.3.3 Design, Mitigation and Enhancement Measures	(1) Mitigation measures would be developed as part of the design process and informed by on-site evaluation. Depending on the nature of heritage assets, it may not be possible to avoid or mitigate all impacts. However, mitigation measures may include: ▪ Amendment of designs to reduce impacts, where reasonably practicable; ▪ Recording of archaeological features; ▪ Screening of construction or operation activities to reduce visual intrusion, such as tree planting or the installation of earthwork barriers.

Topic	Details
	(2) Potential mitigation measures may also include intrusive and non-intrusive investigations. These could include, but not be restricted to, geophysics surveys, trial trenching and archaeological evaluation.
5.3.4 Residual Effects	(1) Impacts to the setting of Mottram in Longdendale Conservation Area and some of the Grade II listed buildings during construction and operation are predicted to be significant. (2) The nature and extent of any remains that may be present within the study area is currently unknown. However, the effect of direct physical impacts to potential archaeological remains associated with a number of non-designated heritage assets during construction could be significant. (3) The effect on the historic landscape character of the study area during construction and operation is not predicted to be significant.
5.3.5 Assessment Methodology	(1) DMRB HA 208/07 states that a detailed assessment for archaeological remains and undesignated assets should comprise a desk-based assessment (DBA) and site-based evaluation. (2) The DBA would comprise: ▪ Obtaining updated data from the relevant Historic Environment Records; ▪ Inspection of aerial photographs held by the Historic England Archive, and LIDAR sources; ▪ Inspection of additional sources held by relevant Historic Environment Records within the respective local administration bodies, such as reports on previous investigations, and local and regional cultural heritage literature held in further information files; ▪ Inspection of sources held by the respective Centres for Archives, including historic Ordnance Survey and pre-Ordnance Survey mapping, and local and regional cultural heritage literature; ▪ A walkover survey to 'ground truth' heritage asset record data, identify previously unrecorded heritage assets and identify areas where recent impacts may have compromised the survival of known and currently unknown heritage assets; and ▪ Consultation with appropriate heritage advisors to identify the need for, nature, scope and scale of site-based evaluation required in support of the application for development consent, to provide further information regarding the presence, nature and condition of known and currently unknown heritage assets and to allow the significance of effects arising from impacts associated with the Scheme to be adequately predicted. (3) Significance criteria to be used are presented at Appendix A.

Topic	Details
5.3.6 Assessment Assumptions and Limitations	(1) The assessment would be compiled using heritage asset data obtained from third party sources and the prediction of effects would then be based on the accuracy of the data received. (2) Due to the nature of archaeological remains, their identification and assessment necessarily requires an element of assumption. In particular, the nature, extent, survival, and even the precise location, of buried archaeological remains are often uncertain, as the majority of such sites have never been subject to archaeological investigation to modern standards. Assessment of the value of such sites (as part of the assessment process) is often, therefore, heavily reliant on informed extrapolation from limited data, comparison with similar assets in similar contexts and, ultimately, on professional judgment. (3) For the purposes of the ES, it is proposed that the two Grade II* listed buildings be scoped out of the assessment, as the Scheme would have no physical impact on these assets and would also pose no direct impact to either the assets themselves or their settings. Thus, the Scheme would present no detriment to their significance. This lack of impact has been determined due to the assets distance from the Scheme and the existing screening between the Scheme and the assets provided by the built form which surrounds the assets. (4) It is further proposed that historic landscape character be scoped out of the assessment, due to its overall modern character and the fragmentary nature of those areas of time depth which do survive.

5.4 Biodiversity

Topic	Details
5.4.1 Study Area	(1) In accordance with DMRB Volume 11, Section 3, Part 4, the study area would extend to 2km from the Scheme for statutory and non-statutory designated sites and up to 30km for (SACs) designated for bats. (2) An Extended Phase 1 Habitat Survey was undertaken during the PCF Stage 2 assessment to record habitat types and evidence of protected/notable species on land situated within the Scheme footprint and all accessible land within a 1km route corridor surrounding the Scheme (i.e. 500m either side of the Scheme). Refer to Figure 5.6 at Appendix B.
5.4.2 Baseline Conditions	**Statutory Designated Sites** (1) Dark Peak Site of Special Scientific Interest (SSSI) is situated approximately 2.25km north east of the Scheme, and is included in the Peak District Moors (South Pennine Moors Phase 1) SPA and the South Pennine Moors SAC (Figure 5.5 at Appendix B). (2) Two additional statutory sites lie within 2km of the Scheme:

Topic	Details
	▪ Hurst Clough Local Nature Reserve (LNR), approximately 600m south of the Scheme and potentially connected to the Scheme via Hurstclough Brook ▪ Great Wood LNR, which is an extension of Hurst Clough, situated approximately 1.6km to the south of the Scheme. **Non-Statutory Designated Sites** (3) There are 14 non-statutory designated sites within 2km of the Scheme, these being: • Melandra Castle and Railway Local Wildlife Site (LWS); • Westwood Clough & Longlands Hall Grade B Site of Biological Importance (SBI); • Hurst Clough Grade B SBI; • Dinting Nature Reserve LWS; • Clough at Hattersley Grade B SBI; • Dinting Lodge Grassland LWS; • Dinting Vale Reservoir & Brook LWS; • Banks Wood LWS; • Robin Wood LWS; • Hollingworth Hall Wood Grade B SBI; • Clough at Mattley Grade A SBI; • Gamesley Sidings & Railway LWS; • Dinting Pond Junction LWS; and • Godley Hill Heathland Grade B SBI. **Habitats and Species** (4) The main habitats within the study area are shown at an appropriate scale on Figure 5.6 at Appendix B. (5) Targeted surveys for great created newts, reptiles, breeding birds, badgers, water voles, otters, bats (roost and activity survey) and Phase 2 habitat surveys for woodlands and hedgerows were undertaken between April and October 2017.
5.4.3 Design, Mitigation and Enhancement Measures	(1) Construction related impacts would be controlled through strict adherence to the CEMP. The CEMP would be developed using good practice techniques, but also a suite of general control measures, such as: ▪ All site works would be carried out in accordance with good environmental working practices e.g. CIRIA publications. ▪ Spill kits would be available on site and potential polluting materials would not be stored within 50m of watercourses or areas of significant biodiversity value.

Topic	Details
	▪ Methods to minimise and prevent contamination of watercourses during the construction would be implemented to prevent damage or pollution to aquatic habitats. ▪ Works that disturb drainage features would include necessary mitigation or reinstatement to ensure the features retain their correct working function. ▪ The Scheme, and specific construction tasks, would aim to retain of as many trees as possible. Where tree surgery to the crown or roots is necessary, this would be undertaken in accordance with British Standard (BS) 3998:2010 Tree Work Recommendations and appropriate Arboricultural Association advice notes. Retained trees would be adequately protected during construction, with particular attention when adjacent to ancient woodland, in accordance with BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations, Arboricultural Association and Forestry Authority Advice Notes, and the Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees (National Joint Utilities Group, 2004). ▪ Timing construction activities to ensure avoidance of periods of particular sensitivity for range-protected and notable species found within the study area. ▪ All trenches and work excavations within sensitive areas would either be backfilled or covered overnight, fenced-off to prevent animals falling in, or battered with earth ramp(s) to allow animals a means of escape. ▪ Short term airborne pollution resulting from site vehicle emissions and dust would be controlled through good practice measures, such as wetting, if dictated by very dry weather conditions. ▪ Appropriate measures would be taken to avoid the spread of invasive and non-native plants. ▪ Pre-construction ecological checks/surveys would be carried out where required. ▪ Planting would aim to enhance the ecological value of the soft estate in the vicinity of the Scheme. Where possible, this would include reinstating and re-linking severed linear wildlife corridors with new planting. Consideration would be given to the inclusion of locally sourced native plant species within planting proposals and the application of sensitive management and monitoring regimes. (2) Other mitigation measures for consideration include minimising land-take/habitat loss and locating access tracks/haul roads and site compound/material storage areas outside of ecologically sensitive sites/habitats. Further, any valuable habitats lost as part of the Scheme (such as ponds, ditches, woodland and hedgerows) would be reinstated or adequately compensated to ensure a net increase in biodiversity as demonstrated by appropriate biodiversity offsetting calculations.
5.4.4 Residual Effects	(1) Adverse effects are anticipated during construction on Lowland Mixed Deciduous Woodland S41 Habitat, Rivers and Streams S41 Habitat,

Topic	Details
	ponds, fish and birds. Significant adverse effects are anticipated during operation on otters.
5.4.5 Assessment Methodology	(1) The assessment would be undertaken in accordance with DMRB Volume 11, Section 3, Part 4, incorporating the requirements of IAN 130/10. (2) The potential for significant effects as a result of the Scheme would be assessed using the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition (CIEEM, 2016), IAN 130/10 and the key principles that underpin Highways England's Biodiversity Plan. Significance criteria to be used are presented at Appendix A. (3) The Stage 2 Extended Phase 1 Habitat Survey included a desk study and a site walkover to establish baseline information. The desk study comprised: ▪ A review of the Multi-agency geographic information centre (MAGIC) – http://magic.defra.gov.uk/ – to determine the location of international/national nature conservation designated sites, habitats registered on the Priority Habitat Inventory and registered European Protected Species Licence applications ▪ A review of Ordnance Survey mapping and online aerial imagery ▪ A review of the Peak District National Park website to obtain information on notable species within the Peak District, along with species listed within the Dark Peak National Character Area ▪ Obtaining records from Derbyshire Bat Group; Derbyshire Wildlife Trust; Greater Manchester Local Record Centre; Derbyshire Ornithological Society; and the National Biodiversity Network Atlas ▪ Reviewing previous relevant ecological reports (4) Habitats within the survey area were classified to Phase 1 Habitat Survey standard. The survey followed the 'Preliminary Ecological Appraisal' methodology as set out in the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013) which is a development of the method described in the Handbook for Phase 1 Habitat Survey – a technique for environmental audit (JNCC, 2010).
5.4.6 Assessment Assumptions and Limitations	(1) Ecological surveys are limited by a variety of factors which affect the presence of flora and fauna (e.g. climatic variation, season and species behaviour). A lack of evidence of a protected species during a survey does not necessarily mean that the species is absent; hence the surveys undertaken have also recorded and assessed the ability of habitats to support such species. The surveys have been planned in such a way as to gain coverage of the key times of year that a species may be active, as set out in standard guidance. They remain, however, "snapshots" and cannot be seen as representing a comprehensive account of all activity by that species. (2) The assessment will incorporate third party data along with the assumptions and limitations of this data.

Topic	Details
	(3) Assessment results will be based on the red line boundary received at the time of undertaking the biodiversity assessment. (4) The species surveys have been undertaken during specified and appropriate survey seasons, this will be detailed within the technical survey reports of the ES. (5) The following receptors will be scoped in to the assessment: ▪ South Pennine Moors SAC ▪ The Dark Peak SSSI ▪ Deciduous Woodland Section 41 of the Natural Environment and Rural Communities Act 2006 (S41) Habitat ▪ 'Important Hedgerow' and Hedgerow S41 Habitat ▪ Purple Moor-Grass and Rush Pasture S41 Habitat ▪ Lowland Dry Acid Grassland S41 Habitat ▪ Rivers and Streams S41 Habitat ▪ Ephemeral drainage ditches ▪ Ponds ▪ Fish ▪ Breeding birds ▪ Bats ▪ Badger ▪ Otter ▪ Water vole (6) Based on data obtained to date through desk studies and targeted surveys, it is considered likely that the following species/species groups are absent from the study area and are therefore scoped out of further assessment: ▪ White-clawed crayfish: Due to the lack of records, unsuitability of the habitats within the study area and the nationally declining nature of this species. ▪ Aquatic invertebrates: No notable aquatic invertebrates were recorded during targeted surveys within the study area in 2000, and due to the lack of records and unsuitability of the habitats within the study area; which are likely to be of value only to common, widespread species. ▪ Terrestrial invertebrates: No notable terrestrial invertebrates were recorded during targeted surveys within the study area in 2001, and suitable habitats for terrestrial invertebrates within the study area are of limited extent and likely to only support an invertebrate assemblage typical of the region. ▪ Reptiles: No reptiles were recorded during the 2017 targeted surveys. ▪ Dormice: Due to the lack of records, geographical location and the nationally declining nature of this species. (7) The additional features below may be present within the study area; however, due to their local status and low value, or distance from the

Topic	Details
	Scheme, significant adverse effects are considered very unlikely. These features are therefore scoped out of further assessment: ▪ Peak District Moors (South Pennine Moors Phase 1) SPA, Hurst Clough LNR and Great Wood LNR - Situated sufficiently far from the Scheme and separated by natural and anthropogenic barriers. ▪ Non-statutory designated sites: Due to the nature of the designations, and because all of these sites are situated sufficiently far from the Scheme, it is not considered that there would be any direct impact pathways. Furthermore, habitat degradation as a result of increased air pollution can also be scoped out due to distance of all sites from the Scheme, and, with the exception of Hurst Clough SBI, none of the other sites appear to be hydrologically connected to the Scheme. ▪ Other S41 and non-S41 Habitats: Other S41 habitats identified within the study area (such as traditional orchard) are situated sufficiently far from the Scheme, and it is not considered that there would be any direct impact pathways. No non-S41 habitats of note were recorded within the study area, and were considered typical of the region. ▪ Protected and Notable Plants (including Fungi): The study area supports a restricted diversity and distribution of protected and notable plants (including fungi), limited to widespread presence of Bluebell within woodlands (recorded in 2007). ▪ Invasive flora: The study area supports a restricted diversity and distribution of invasive flora. Responsibilities relating to invasive flora would be managed through standard mitigation procedures. ▪ Amphibians: No great crested newts were recorded during the 2017 surveys. Common amphibians were found to be locally common and widespread and all ponds affected by the Scheme would be replaced by ponds of better quality. ▪ Other Mammals (Hedgehog, Polecat and Brown Hare): Habitats within the study area are broadly suitable for these species, and the Scheme will therefore result in the loss of a nominal proportion of the available habitat. However, the implementation of a CEMP and mitigation/compensation requirements for other species (and habitats) would minimise impacts to these species.

5.5 Landscape and Townscape Effects

Topic	Details
5.5.1 Study Area	(1) The study area for the assessment of the landscape, townscape, and visual impacts would be defined by a combination of desk studies and site survey along with professional judgement and consideration of the extent of the Zone of Visual Influence (ZVI) derived from the site survey. A computer-generated Zone of Theoretical Visibility (ZTV) would be produced to refine the extent of the ZVI. The study area would be

Topic	Details
	identified with reference to DMRB Volume 11 Section 3, Part 5 and IAN 135/10.
5.5.2 Baseline Conditions	**Existing information** (1) The existing baseline information collated to date is summarised as follows: ▪ Elements of the Scheme fall within the setting of the Peak District National Parks (Figure 5.7 at Appendix B). ▪ The Scheme passes through National Character Area 54 (NCA 54): Manchester Pennine Fringe. ▪ Two Conservation Areas fall within the study area (Figure 5.7 at Appendix B). ▪ Two Grade II* listed buildings fall within the study area (Figure 5.7 at Appendix B). ▪ Five Ancient Woodland features have been identified within the study area; Westwood Clough, Millbrook Bridge Wood, unnamed (lies east of Widowscroft Farm straddling the northern boundary of the study area), Robin Wood and Dinting Vale Wood (Figure 5.7 at Appendix B). ▪ The study area is crossed by the Trans-Pennine National Trail, National Cycle Route 62, and by a number of regional long-distance paths, together with a network of local public rights of way (Figure 5.7 at Appendix B). ▪ There are three Landscape Character Areas (LCAs) within the study area, LCA Dark Peak Western Fringe, LCA Dark Peak and LCA Dark Peak Yorkshire Fringe, see Figure 5.8 at Appendix B. ▪ Seven representative viewpoints were selected at the PCF Stage 2 assessment, these are shown on Figure 5.9 at Appendix B. **Additional information required to inform the ES** (2) Tree Preservation Order information will be collected. Consultation with relevant local planning authorities would be undertaken to discuss and agree representative viewpoints to be assessed in the ES. (3) Landscape, townscape and visual surveys and baseline photography would be undertaken during winter and summer to verify desk based data and to identify: ▪ The extent and conditions of existing landscape features; ▪ Character and tranquillity; ▪ The Zone of Visual Influence; ▪ Visual receptors; and ▪ Representative viewpoints and photomontages.
5.5.3 Design, Mitigation and Enhancement Measures	(1) Mitigation to be considered includes: ▪ Developing a sensitively routed and well-designed Scheme in line with DMRB Volume 10 to ensure good fit with the scale and character of the landscape and townscape resources;

Topic	Details
	▪ Consideration of opportunities for introducing earthworks, including false cuttings to help screen and limit visibility of the Scheme within the local landscape; ▪ Consideration of an appropriate planting strategy, which responds to the local character of the landscape and helps provide a visual screening element of the Scheme in local views. It is envisaged the planting strategy due to the locality would utilise a range of native species, including woodland groups, and hedgerows, with ornamental planting limited to the urban areas; ▪ Consideration of environmental noise barriers as part of the noise mitigation strategy would also help provide visual screening. The introduction of environmental barriers could however provide a further intrusive feature within the landscape and their form and materials along with adjacent planting or the use of earthworks as an alternative should be carefully considered; and ▪ Developing a street lighting design strategy to minimise light pollution and a sign strategy to minimise visual clutter. (2) Landscape and visual mitigation would be discussed with Highways England, key stakeholders and the design team to further inform the potential for identifying and agreeing mitigation measures during both operation and construction.
5.5.4 Residual Effects	(1) It is considered that there is potential for significant adverse effects to occur on landscape character and visual amenity as a result of the Scheme.
5.5.5 Assessment Methodology	(1) For the ES, a detailed landscape and visual assessment would be prepared in accordance with DMRB Volume 11 Section 3, Part 5, IAN 135/10, and Guidelines for Landscape and Visual Impact Assessment, Third Edition. Significance criteria to be used are presented at Appendix A. (2) The baseline review undertaken to date has included: ▪ A review of National Character Areas; ▪ A review of Regional and Local Landscape Character Areas/ Landscape Strategies; ▪ A review of local planning policy; ▪ A review of Historic Parks and Gardens, listed buildings and Conservation Areas ▪ Details of public rights of way and Open Access land.
5.5.6 Assessment Assumptions and Limitations	(1) No assessment assumptions or limitations have been identified at this stage for the Landscape and Townscape Effects assessment. (2) No areas are proposed to be scoped out. A detailed landscape and visual assessment is proposed for the ES.

5.6 People and Communities

Topic	Details
5.6.1 Study Area	(1) The extent of land that the Scheme construction and associated works would directly change would define the study area. A 10m buffer around the Scheme boundary would be used to identify assets that could be lost as a result of the Scheme. A 500m study area around the Scheme would be used for the following: ▪ Community facilities ▪ Community and private assets ▪ Employment land ▪ Development land ▪ Views from the road ▪ Driver stress ▪ Changes to amenity ▪ Health ▪ Journey length, local travel patterns (2) In addition to the above, there are other, less tangible study areas that would be used as a basis for assessment, for example in relation to severance. DMRB Volume 11, Section 3 Part 8 and Part 9 do not specify a defined distance to include in a study area. Although the assessment of severance would be based on data gathered at the site of the Scheme, a broad area has been identified to provide an indication of the distance within which people may be affected, using a 500m boundary.
5.6.2 Baseline Conditions	**Existing information** ***Community Facilities*** (1) Community facilities within the study area (for example education and healthcare facilities) are shown on Figure 5.11 at Appendix B. ***Private Assets*** (2) The Scheme is likely to affect 31 buildings, all assumed to be residential. There are no commercial or industrial assets located in close proximity to the Scheme. ***Access and Recreation*** (3) The following public rights of way are either severed by or pass in close proximity to the Scheme: ▪ One local public right of way runs from the A57 Hyde Road near the M67 Terminal Roundabout and travels in a north-easterly direction towards Old Mill Farm on the west of Mottram in Longdendale. This is also traversed by 2 other local public rights of way. These public rights of way are likely to be severed by the Scheme. ▪ Approximately 150m to the north of the Scheme, a Coach Road (path) runs in a north west south east direction from Mottram Old Hall towards the A57 Mottram Moor.

Topic	Details
	▪ Towards the south of the Scheme, there is a footpath which runs in a north east, south-west direction from the A57 Mottram Moor and meets with Market Street in Mottram in Longdendale approximately 290m to the south. This footpath provides a link between the A57 Mottram Moor and the south of Mottram in Longdendale. ▪ Approximately 380m to the south of the A57 Mottram Moor, a footpath runs in an east-westerly direction. This footpath provides a link between Hadfield in the east and Mottram in Longdendale in the west. ▪ The Pennine Bridleway (incorporating the Etherow Goyt Valley Way and Tameside Trail) crosses the A57(T) to A57 Link Road approximately 700m to the south of the A57 Mottram Moor to meet Woolley Lane on the east of Hadfield. This public right of way is likely to be severed by the Scheme. ***Development Land*** (4) Consultation with Tameside Metropolitan Borough Council has concluded that there is no development land allocated in the vicinity of the Scheme. ***Agricultural Land*** (5) The study area is generally lowland, in which the prevailing climate generally does not limit the agricultural use of the land. The Scheme falls within areas of agricultural land classified as Grade 4 (poor quality agricultural land, as it is land with severe limitations which significantly restrict the range of crops and/or level of yields). ***Employment*** (6) No strategic employment sites have been identified within the study area. There are no commercial enterprises which are affected by the Scheme. **Additional information required to inform the ES** (7) Traffic data will be obtained to inform the driver stress calculations.
5.6.3 Design, Mitigation and Enhancement Measures	**Construction** (1) Relevant construction phase mitigation measures would be outlined in the CEMP. These may include: ▪ Appropriate induction given to ensure contractors act considerately in relation to local residents, particularly for any works that may be programmed to take place at night. It is proposed that all main contractors would be required to sign up and adhere to the Considerate Constructors Scheme, which seeks to promote good practice on construction sites and reduce negative externalities to the surrounding environment. ▪ In order to minimise disruption to footways by severance, temporary diversions would be put in place together with new gates and signs. This would be carried out in full consultation with the local highways authority and other interested stakeholders. ▪ The Scheme would be developed to minimise temporary land-take, where possible. The right to compensation and methods and

Topic	Details
	procedures for assessing appropriate levels of such, would be identified in relation to the National Compensation Code. Where necessary, consultation with landowners, occupiers and agents would continue to manage and reduce the impact on day-today activities, as far as practicably possible. ▪ Pursuant to the CEMP, method statements and management plans would be prepared by the successful contractor(s), detailing their approach to construction. These would include appropriate controls of site activities, such as preventing surface water run-off during construction. **Operation** (2) Several footpaths would be permanently affected by the Scheme. Mitigation would be required in order to address this. These measures would be carried out in consultation with the local highways authority and other interested stakeholders.
5.6.4 Residual Effects	(1) Significant adverse effects are predicted at 2 high value receptors in relation to community facilities/land and private assets. Significant adverse effects are also predicted at 2 medium value receptors in relation agricultural land and access and recreation. However, significant beneficial effects are predicted at 5 high value receptors.
5.6.5 Assessment Methodology	(1) In accordance with IAN 125/15, the assessment will incorporate topics previously reported under the 'Community and Private Assets' and 'Travellers' headings. Therefore, the assessment will follow the approach set out in DMRB Volume 11 Section 3 Part 6, DMRB Volume 11 Section 3 Part 8 and DMRB Volume 11 Section 3 Part 9. (2) Significance criteria to be used are presented at Appendix A.
5.6.6 Assessment Assumptions and Limitations	(1) No assessment assumptions or limitations have been identified at this stage for the People and Communities assessment. (2) No strategic employment sites have been identified within the study area and no commercial enterprises which would be affected by the Scheme. It is therefore proposed to scope these out of the assessment.

5.7 Noise and Vibration

Topic	Details
5.7.1 Study Area	**Construction Noise Assessment** (1) In accordance with British Standard (BS) BS 5228-1:2009+A1:2014 and using professional judgement, sensitive receptors within a study area of up to 300m from the Scheme boundary would be considered. **Construction Vehicle Assessment** (2) Road traffic noise changes within 300m of any road/route identified as experiencing an increase in noise of greater than 1dB as a result of the Scheme during construction would be considered.

Topic	Details
	Operational Road Traffic Noise Assessment (3) The noise and vibration "calculation area" will be defined in accordance with DMRB HD 213/11. Outside of this area, consideration of noise changes along major traffic routes within the Trans Pennine Upgrade Programme Saturn Model Affected Road Network will be assessed using Basic Noise Level (BNL) predictions. **Operational Airborne Vibration Assessment** (4) Airborne vibration effects would be assessed in accordance with DMRB HD 213/11.
5.7.2 Baseline Conditions	**Existing information** (1) The dominant noise source in the area is road traffic noise. There are five Noise Important Areas of relevance to this assessment within the calculation area (Figures 5.12 at Appendix B). Across the calculation area there are also a number of other sensitive receptors including three schools and a number of community services. **Additional information required to inform the ES** (2) Baseline noise surveys will be undertaken at sensitive receptors which have the potential to be affected by the Scheme during either construction or operation. Monitoring locations would be representative of the land uses defined within Annex 1, paragraph A1.13 of DMRB HD 213/11 (where they occur within the study area). Locations and survey durations will be agreed with High Peak District Council and Tameside Metropolitan Borough Council prior to monitoring taking place.
5.7.3 Design, Mitigation and Enhancement Measures	**Construction** (1) Specific mitigation measures would be informed by the findings of the assessment. However, in accordance with the requirements of the NN NPS, measures to minimise noise and vibration during construction would include adopting Best Practicable Means (BPM) (as outlined in Section 72 of the Control of Pollution Act 1974) and the recommendations of good practice presented in BS 5228-1:2009+A1:2014. **Operation** (2) The following measures would be considered: ▪ Horizontal alignment – By moving a route away from sensitive receptors. ▪ Vertical alignment – Keeping a route low within the natural topography to exploit any natural screening and enhancing this by the use of cuttings and, in exceptional circumstances, sub-surface and surface tunnels. ▪ Environmental barriers – These can be in the form of earth mounding or acoustic fencing of various types, or a combination of the 2. Conventional environmental barriers are not effective in reducing ground borne vibration and may be only partially effective against airborne vibration. They should, therefore, be ignored in assessing vibration nuisance unless tests show benefits from the design

Topic	Details
	proposed. The use of reflective and absorptive barriers could also be considered. ▪ Low-noise surfaces – The principal benefit of low-noise surfaces is the reduction in mid and higher frequencies of noise generated by tyres at speeds in excess of 75 km/hr. They are less effective in reducing noise at low speeds where engine noise particularly from heavy vehicles is more dominant. These surfaces also create a relatively smooth-running surface that helps to eliminate ground borne vibration. ▪ Speed and volume restrictions – The effect of the speed of vehicles on noise level is one of the most fundamental in the noise prediction process. Above 40 km/hr, noise level increases with the speed of the vehicle and a reduction in speed will normally cause a reduction in noise level. In a similar way, the volume and composition of traffic has a direct influence on the noise level.
5.7.4 Residual Effects	**Construction** (1) There is potential for adverse noise effects during the construction phase from heavy plant and from HGV movements. Adverse vibration effects could also occur from percussive/vibratory piling activities. **Operation** (2) The Scheme has the potential to affect existing ambient noise, during operation in the following ways: ▪ Direct affects from an increase in road traffic noise level at sensitive receptors within close proximity (600m) to the Scheme alignment; and ▪ Indirect affects (positive or negative) by changes in vehicle flow, speed and composition on the existing road network as a result of the Scheme; (3) Increases in road traffic noise level were the resultant road traffic noise level would be in excess of a Significant Observed Adverse Effect Level (SOAEL) could have the potential to cause a significant adverse effect.
5.7.5 Assessment Methodology	**Construction Noise and Vibration Assessment** (1) Construction noise and vibration would be assessed using the guidance set out in BS 5228-1:2009+A1:2014 (Part 1 of which provides guidance on predicting and measuring construction noise and assessing its impact on the environment) and BS 5228-2:2009+A1:2014 (Part 2 of which provides recommendations for basic methods of vibration control and methods of assessing its effects on the environment relating to construction where work activities/operations generate significant vibration levels). **Operational Road Traffic Noise Assessment** (2) In accordance with DMRB HD 213/11 and paragraph 5.191 of the NN NPS, calculations would be undertaken in accordance with the methodology contained within the Department of the Environment and the Welsh Office guidance document Calculation of Road Traffic Noise (CRTN). The prediction of road traffic noise effects would be undertaken

Topic	Details
	using a proprietary and appropriately validated 3-dimensional noise mapping software package such as IMMI or SoundPLAN 7. (3) It is anticipated that a DMRB HD 213/11 'Detailed' assessment would be required. Therefore, the following comparisons would be made for road traffic noise levels to consider the impacts of the Scheme in both the short and longer terms: ▪ Do-Minimum scenario in the baseline year against Do-Minimum scenario in the future assessment year (long term). ▪ Do-Minimum scenario in the baseline year against Do-Something scenario in the baseline year (short-term). ▪ Do-Minimum scenario in the baseline year against Do-Something scenario in the future assessment year (long term). (4) For night-time noise impacts, in accordance with DMRB HD 213/11, only comparisons in the long term would be considered for receptors predicted to exceed an Lnight, outside of 55dB(A) or greater. The calculation of permanent traffic noise nuisance impacts would be undertaken for the following comparisons: ▪ Do-Minimum scenario in the baseline year against Do-Minimum scenario in the future assessment year (long term). ▪ Do-Minimum scenario in the baseline year against Do-Something scenario in the future assessment year (long term). (5) Significance criteria to be used are presented at Appendix A.
5.7.6 Assessment Assumptions and Limitations	(1) The noise model will be based on traffic data provided by the project's traffic engineers. It is assumed this data is suitably representative. (2) DMRB HD 213/11 states *"significant ground-borne vibrations may be generated by irregularities in the road surface. Such vibrations are unlikely to be important when considering disturbance from new roads and an assessment would only be necessary in exceptional circumstances".* (3) Given the advice that ground borne vibration should only be assessed in exceptional circumstances, the fact that the proposal is for a new road Scheme and that there are no suitable methods of prediction, impacts from ground borne road traffic induced vibration will not be considered within the assessment.

5.8 Road Drainage and the Water Environment

Topic	Details
5.8.1 Study Area	(1) The study area would include all land within a 1km buffer around the Scheme (500m either side). Where necessary, this study area will be extended to consider the potential for effects on hydraulically linked designated sites. The study areas will be determined in accordance with DMRB HD 45/09.

Topic	Details
5.8.2 Baseline Conditions	**Existing information** (1) The study area is underlain by one type of bedrock aquifer, 'Secondary A', defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases providing a source of base flow to rivers (Figure 5.13 at Appendix B). The bedrock is overlain by a range of 'Secondary' aquifer superficial deposits. There are no groundwater Source Protection Zones located within the study area. (2) The majority of the study area is designated as Flood Zone 1 (with a less than 1 in 1000 (0.1%) annual chance of flooding from rivers and the sea) and has a Very Low risk of surface water flooding (less than 1 in 1000 (0.1%) annual risk). There are some localised areas where fluvial flood risk is higher, such as local to the proposed crossing of the River Etherow (Figure 5.15 at Appendix B). (3) The quality of the River Etherow and a number of its tributaries within the study area are monitored under the Water Framework Directive (WFD). All these waterbodies achieve a WFD chemical status of 'Good', however the majority are failing to meet their WFD target status for Ecological quality (Good Status) (Figure 5.14 at Appendix B). (4) There is one large surface water abstraction within the study area, drawn from Hollingworth Brook, a minor tributary of the River Etherow, which is fed by the Arnfield Reservoir. The abstraction is located approximately 500m to the north east of the Scheme. There are also a number of abstractions that support unlicensed (private) water supplies within the study area. **Additional information required to inform the ES** (5) Additional information required to inform the ES: ▪ Hydrological and hydraulic modelling of the River Etherow and its key tributaries. The finding of the modelling study will be reported in a Flood Risk Assessment; ▪ A quantitative appraisal of the effects of road drainage discharges on the quality of receiving waterbodies will be carried out using the Water Risk Assessment Tool ("HAWRAT"), the results of which will be used to inform the design of discharge treatment measures; ▪ Three-dimensional numerical modelling assessment of the Mottram area, the findings of which will be reported in a Hydrogeological Risk Assessment (HRA); ▪ A Water Features Survey to inform the HRA; and ▪ Groundwater level monitoring will be completed at selected sites to inform the HRA.
5.8.3 Design, Mitigation and Enhancement Measures	**Construction** (1) Construction Design, Mitigation and Enhancement Measures: ▪ To ensure the quality of the water environment does not deteriorate during construction, a CEMP would document all construction phase mitigation measures, including those for pollution prevention, inclusive of an emergency

Topic	Details
	preparedness and response plan. Such measures are documents in CIRIA publications including Control of water pollution from construction sites: guidance for consultants and contractors (C532), Control of water pollution from linear construction projects. Technical guidance (C648), Control of water pollution from linear construction projects. Site guide (C649) and Site handbook for construction of SuDS (C698). ▪ Construction site drainage would be managed using suitable Sustainable Drainage Systems (SuDS), both to attenuate runoff rates and provide treatment to improve runoff quality. Any discharges of site drainage will be made in accordance with the condition of any necessary consents/environmental permits. ▪ If any water abstraction/groundwater control is required as part of the construction process, the Environment Agency would be contacted and the appropriate licences would be obtained where required. Any abstraction practices would be in accordance with the requirements of these licences. ▪ Water use efficiency measures would also be adopted. ▪ A surface/groundwater monitoring plan would be implemented, particularly in relation to works such as dewatering, which could affect groundwater aquifers and any groundwater dependent surface waterbodies, in terms of both water quality and quantity. **Operation** (2) Operation Design, Mitigation and Enhancement Measures: ▪ A key potential impact during the operational phase is the deterioration of the WFD status of waterbodies that would receive highway runoff. There is also potential to impact the integrity of public/private water supplies. The design of the Scheme would suitably mitigate these risks by incorporating suitable means of accidental spillage management and routine runoff treatment. ▪ There would also be an increase in impermeable area cover with potential for changes to existing patterns, rates and volumes of surface water runoff and flood risk from this source. Through the provision of attenuation and appropriate operational maintenance of drainage infrastructure, this impact would be mitigated. To ensure future resilience, an allowance for the predicted effects of climate change over the development lifetime, guided by the most recent Environment Agency Climate Change Advice, published in February 2016, would also be included. ▪ Where works are required within the floodplain (Flood Zone 3) associated with the River Etherow, mitigation to compensate for any loss of floodplain storage or impediment to existing floodplain flow paths as a result of this work would be provided. (3) All mitigation and enhancement measures would be discussed with Highways England, the Environment Agency, the Lead Local Flood Authority and the design team to further inform the potential for identifying and agreeing mitigation and enhancement measures during both operation and construction.

Topic	Details
5.8.4 Residual Effects	(1) In the absence of suitable embedded design and mitigation measures, the Scheme has the potential to result in detrimental effects on surface and groundwater, given that the route alignment encroaches onto the floodplain of the River Etherow and its tributaries as well as some sections of the route requiring deep cuttings, especially in the north-central region of the route. With suitable measures in place, no residual effects that would be deemed significant are anticipated.
5.8.5 Assessment Methodology	(1) The assessment would be undertaken in accordance with DMRB HD 45/09. Significance criteria to be used are presented at Appendix A. (2) Sources of baseline information have included: ▪ Environment Agency 'What's in Your Backyard?' interactive maps; ▪ UK Government Long term flood risk assessment mapping; ▪ Environment Agency Catchment Data Explorer; ▪ Flood Estimation Handbook Web Service - Centre for Ecology and Hydrology; and ▪ Ordnance Survey mapping.
5.8.6 Assessment Assumptions and Limitations	(1) Quantitative assessments reported in the ES would be based upon the accuracy and assumptions of data received from third parties. These assumptions and limitations would be reported within the ES. (2) The assessment would cover the construction phase only. It is proposed to scope out operational effects, subject to ensuring no derogation of licensed or private water supplies and agreeing design and mitigation measures with the Environment Agency and Lead Local Flood Authority.

5.9 Geology and Soils

Topic	Details
5.9.1 Study Area	(1) The study area would comprise a 250m buffer either side of the Scheme. This is considered appropriate as this is the distance which potentially contaminative sites could cause an impact on the Scheme e.g. migration of gases from a landfill site.
5.9.2 Baseline Conditions	**Existing information** (1) Baseline information collated to date includes the following which are shown on Figure 5.16 at Appendix B: ▪ Geology/aquifer status ▪ Geological faults ▪ Mining ▪ Mineral sites ▪ Cavities ▪ Landfill sites ▪ Risk from Unexploded Ordnance (UXO)

Topic	Details
	▪ Groundwater abstraction points ▪ Source Protection Zones (SPZ) ▪ Hydrology/surface water (in relation to contaminated land) ▪ Soilscape data ▪ Geodiversity heritage sites, SSSIs and Regionally Important Geological and Geomorphological sites (RIGs). ▪ Fuel stations/trade directories ▪ Historical development/potentially contaminative land uses. (2) Key considerations include a Secondary A aquifer (superficial and solid geology), the River Etherow (surface water receptor) in relation to impact from contaminated land, landfill sites and other potentially contaminative uses within the study area, mining and a geological fault. **Additional information required to inform the ES** (3) A Ground Investigation would be undertaken to inform the Scheme design. The investigation would be designed to assess the presence or confirm absence of chemical hazards (including ground gases) in areas identified as potentially contaminated land and to determine the ground and groundwater conditions to aid the design of the route/Scheme. The ground conditions in the area of the fault indicated in the location of the proposed Mottram Tunnel would be investigated.
5.9.3 Design, Mitigation and Enhancement Measures	**Construction** (1) Construction Design, Mitigation and Enhancement Measures ▪ A ground investigation would be undertaken prior to construction. This would highlight if contamination is present in areas tested. During construction, contamination could be encountered in areas not investigated directly by ground excavation or indirectly through temporary groundwater control (e.g. if dewatering during construction of foundations or culverts). This would be particularly relevant for the construction of the Mottram Tunnel. Where contamination exists, its constraint, if any, on the normal design and construction of the Scheme would be assessed. If necessary, changes would be made to facilitate risk mitigation and/or the contaminative source would be remediated. ▪ The ground investigation should include gas monitoring to determine if any gas is migrating from landfill sites that could impact the Scheme. If required, a monitoring programme should be prepared to determine the gas regime of the area, subsequent impact and risk mitigation in the Scheme design. ▪ Prior to any construction compound areas being prepared, a baseline survey would be undertaken to determine the current land quality in these areas. This would highlight any contamination present, which is likely to be localised. If deemed necessary such areas would be remediated prior to, or as part of, the soil stripping/enabling works. ▪ During stripping excavation/construction works, a watching brief would be adopted with site workers remaining vigilant so any visual or

Topic	Details
	olfactory signs of contamination are noted and that any contaminated soil is kept separate from other materials. ▪ Within the construction site compounds, specific areas would be designated for the storage of chemicals, waste oils and fuel and refuelling activities. These areas would be bunded and placed on hardstanding to prevent downward migration of contaminants. ▪ An Emergency Response/Spill Response plan would be produced by the Main Works Contractor, as part of the CEMP. ▪ During the construction phase, localised contamination may occur within the compound areas through spillages/leakages of fuel and therefore a repeat survey would be undertaken once construction has finished and the compound dismantled to demonstrate the area has been returned to its previous state. ▪ The CEMP would include soil handling measures to ensure the protection, conservation and reinstatement of soil material. The CEMP would also include environmental design measures to prevent pollution incidents to receptors during the construction phase. ▪ The relevant pollution prevention guidelines would be followed where appropriate. ▪ A Site Waste Management Plan (SWMP) and a Materials Management Plan (MMP) would be prepared. ▪ The sustainable re-use of the soil resource affected by Scheme would be undertaken in line with the Construction Code of Practice for the Sustainable Use of Soil on Construction Sites. **Operation** (2) Operation Design, Mitigation and Enhancement Measures: ▪ A geological fault is indicated running north to south through the line of Mottram Tunnel. Additional monitoring may be required after construction. The design of the Mottram Tunnel would incorporate any particular requirements to ensure that the integrity of the tunnel is not compromised. ▪ There is a risk to shallow soils and the water environment (surface water and groundwater) from road spray and pollution incidents associated with the road usage (e.g. fuel/oil spillages) and traffic accidents. These risks would be mitigated by the design of an appropriate drainage system. In the future, should any incidence overwhelm the mitigation applied, soils which are significantly affected by pollution incidents would be assessed and if necessary removed to reduce the risk of contamination migrating across a wider area and or entering controlled waters. (3) Mitigation would be discussed with Highways England, key stakeholders and the design team to further inform the potential for identifying and agreeing mitigation measures for both during operation and construction.
5.9.4 Residual Effects	(1) A potential adverse effect on human health during construction (for local residents) has been identified, due to potential inhalation, ingestion

Topic	Details
	or dermal contact with potential contaminants. However, this is considered unlikely to be significant. (2) The exposure of geology during the construction of the Mottram Tunnel could create a beneficial learning resource during the operation of the Scheme.
5.9.5 Assessment Methodology	(1) The assessment would be undertaken in accordance with DMRB Volume 11 Section 3 Part 11 and would comprise impact on/loss of geological resources and impact of existing land contamination (if any) on sensitive receptors. (2) Significance criteria to be used are presented at Appendix A. (3) With respect to existing land contamination, a source, pathway receptor approach would be applied to examine how the Scheme would influence baseline conditions. The general approach outlined within Environment Agency Model Procedures for the Management of Land Contamination (CLR11) and CIRIA C552 would be adopted for assessing risks that may be created or increased as a result of the Scheme.
5.9.6 Assessment Assumptions and Limitations	(1) Quantitative assessments reported in the ES would be based upon the accuracy and assumptions of data received from third parties. These assumptions and limitations would be reported within the ES. (2) No elements are proposed to be scoped out.

5.10 Materials

Topic	Details
5.10.1 Study Area	(1) A specific study area for the assessment has not been identified, as a whole market approach will be used to procure materials required for the Scheme. Efforts will be made to source material resources locally whenever possible. (2) Some material resources will originate onsite, such as excavated soil (that is reused onsite). Other material resources used within construction will be sourced off-site and their environmental impact will also be taken into account. (3) In respect of the assessment in relation to waste, the study area would encompass the local planning authority's area in which the Scheme is located (and expected to have an effect). As the Scheme is located on the border of Derbyshire County Council and Greater Manchester County Council, capacity in those authorities will be considered.
5.10.2 Baseline Conditions	(1) For the purposes of this EIA Scoping Report, materials are defined as comprising: ▪ The use of material resources; and ▪ The generation and management of waste. **Existing information** (2) The capacity of waste infrastructure sites that could potentially receive Construction, Demolition and Excavation (CD&E) waste arisings from the

Topic	Details
	Scheme has been assessed using data gained from the Environment Agency Environmental Permitting Regulations database. (3) A non-exhaustive list of facilities able to accept the key waste streams within 30 miles of the Scheme has been collated, see Figure 5.17 at Appendix B. (4) The sensitivity of the UK supply of the key materials identified for the Scheme is considered to be low, as there is low scarcity of these materials. **Additional information required to inform the ES** (5) If it is confirmed that a significant amount of secondary aggregates is required to facilitate the construction of the Scheme, the Derbyshire County Council Minerals Local Plan and Greater Manchester Minerals Plan would be reviewed. This would be used to ascertain if consistent baseline data for secondary aggregates could be obtained to form the basis of the quantitative assessment.
5.10.3 Design, Mitigation and Enhancement Measures	**Materials** (1) Materials Design, Mitigation and Enhancement Measures: ▪ Cut and cover balancing would be optimised in order to maximise the reuse of excavated materials for infilling and landscaping on the Scheme. ▪ Throughout the design process, “designing out waste” principles would be considered in order to minimise the quantity of material resources required for the Scheme. ▪ The choice of whether to use primary or secondary aggregates (or a combination of both) would be made taking into consideration a combination of factors including material resources source, specification, production and transport. These factors would inform the use of secondary or recycled aggregates over primary aggregates having regard to the environmental impact. ▪ Most material resources would be transported by road or rail, using the existing highway network. The transport of materials onto site would be reviewed by the appointed Contractor on an ongoing basis to ensure efficiency in delivery and to avoid undue pressure on the road network. **Waste** (2) Waste Design, Mitigation and Enhancement Measures ▪ Some demolition materials would be retained/re-used onsite (e.g. sections of the drainage are going to be retained and utilised within the current design). ▪ Metals would be sent off site for recycling. ▪ Over-ordering would be avoided and materials would be stored securely to minimise damage. ▪ Construction waste would be segregated to facilitate recycling and reuse of materials/wastes.

Topic	Details
	Materials and Waste (3) Materials and Waste Design, Mitigation and Enhancement Measures: ▪ A CEMP would be prepared for the Scheme, which would require the appointed Contractor(s) to: - Promote opportunities for the potential reuse and recycling of all material resources and waste; - Sort and segregate waste into different waste streams; and - Manage material use to maximise the environmental and Scheme benefits from the use of surplus materials. ▪ The CEMP would include several subsidiary management plans, which form part of the suite of mitigation measures of particular relevance to materials and waste. ▪ A SWMP would be prepared for the Scheme. This would be updated and maintained during works and will be used to record how waste would be reduced, reused, recycled and disposed of. ▪ Compliance with waste legislation would be monitored through the completion of Duty of Care audits at receiving waste sites and review of waste transfer documentation. (4) Mitigation would be discussed with Highways England, key stakeholders and the design team to further inform the potential for identifying and agreeing mitigation measures during construction.
5.10.4 Residual Effects	(1) The capacity of the waste management infrastructure within the study area for all waste arising from the Scheme is deemed adequate. In addition, the majority of waste generated by the Scheme would be predominantly segregated and sent for beneficial reuse, recycling or for further segregation and sorting at a materials recovery facility. (2) Effects on material resources and waste from CD&E activities are not considered to be significant. However, cumulative material effects (the cumulative use of resources in conjunction with other schemes) may be significant (worst case) due to the depletion of finite natural resources e.g. aggregate for construction resulting from the Scheme and other developments and the waste capacity.
5.10.5 Assessment Methodology	(1) A detailed assessment will be prepared in accordance with DMRB HA 205/08 and IAN 153/11. (2) The ES will set out the methodology recognising the requirements of the NN NPS, including how significance of effects are to be determined.
5.10.6 Assessment Assumptions and Limitations	(1) There are no published or formalised significance criteria relating to the materials assessment. Therefore, the assessment would be undertaken using the professional judgement of material resources and waste specialists. (2) The amount of waste produced during the construction phase would be affected by the types and methods of construction. (3) Total waste management capacity for inert and contaminated soils will not be presented due to a lack of available/consistent baseline datasets. Baseline information will be based on the capacity of Derbyshire and

Topic	Details
	Great Manchester waste management infrastructure, as this is the most complete information available. (4) It will be assumed that all waste will be sent to a transfer station or landfill. However, it is anticipated that, where possible, clean excavated material arising from the Scheme will be utilised for beneficial reuse. (5) With regard to materials, no effects are anticipated during the operation phase. Therefore, operational effects will be scoped out of the materials assessment.

5.11 Climate

Topic	Details
5.11.1 Study Area	(1) The study area for Greenhouse Gas emissions will comprise the network within the traffic model, as this is the extent to which greenhouse gas emissions can be estimated. (2) The study area for climate change adaptation will comprise the north west region.
5.11.2 Baseline Conditions	**Existing information** (1) To date, no baseline information has been obtained. **Additional information required to inform the ES** (2) Traffic data, from the traffic model, would be required to inform the assessment of greenhouse gas emissions in accordance with the Greenhouse Gases Sub Objective, TAG Unit A3. (3) The following information will also be obtained: ▪ Information on recent weather patterns and extreme events; ▪ Published historical regional weather data; and ▪ UK Climate Projections e.g. UKCP09 Met Office data.
5.11.3 Design, Mitigation and Enhancement Measures	(1) Mitigation and adaptation measures may include: ▪ Ensure designs and alignment are climate change resilient e.g. resilient to flooding; and ▪ Specifying landscape and ecological measures which take account of future climate change (e.g. they should be more drought resilient).
5.11.4 Residual Effects	**Construction** (1) The construction of the Scheme is unlikely to have a significant adverse effect on the climate, with general construction practices being a localised and small contributing factor to greenhouse gas emissions. Mitigation measures would be incorporated into the CEMP. **Operation** (2) It is considered that operation of the Scheme would result in a change to greenhouse gas emissions.

Topic	Details
5.11.5 Assessment Methodology	(1) The assessment will cover the following two aspects: ▪ Greenhouse gas impact assessment – effects on climate change of greenhouse gas emissions arising from the Scheme, including how the Scheme will affect the ability of Government to meet its carbon reduction plan targets (in accordance with paragraph 5.17 of the NN NPS); ▪ Climate change resilience assessment – the resilience of the Scheme to climate change impacts, including how the Scheme will take account of the projected impacts of climate change (in accordance with paragraph 4.40 of the NN NPS and the EIA Regulations). (2) The assessment will be prepared in accordance with Greenhouse Gases Sub Objective, TAG Unit A3 and PAS 2080:2016 Carbon management in infrastructure. (3) In accordance with the NN NPS, significance of impacts will be assessed by comparing estimated greenhouse gas emissions arising from the Scheme with UK carbon budgets, and the associated reduction targets. (4) In accordance with the EIA Regulations, a description of the likely significant effects of the Scheme on the environment, resulting from the vulnerability of the project to climate change, will be provided.
5.11.6 Assessment Assumptions and Limitations	(1) The climate assessment is inherently uncertain in relation to climate change projections and the variation of information availability in relation to different climate hazards. (2) The Greenhouse Gas emissions assessment will be based on a number of assumptions for material resources, waste, energy, workers commute and water consumption. For example, construction site carbon emissions relating to fuel and energy use would consider carbon emissions associated with machinery and plant used. (3) No elements are proposed to be scoped out.

6 ASSESSMENT OF CUMULATIVE EFFECTS

6.1 Cumulative Assessment Methodology

6.1.1 Two types of cumulative effects would be considered:

- Intra-scheme effects – The combined action of a number of different environmental topic specific effects upon a single resource/receptor; and
- Inter-scheme effects – The combined action of a number of different projects, in combination with the project being assessed, on a single resource/receptor.

Intra-Scheme Cumulative Effects

6.1.2 Intra-scheme effects would be presented for receptors which could be affected by more than one ES topic. Where a receptor has been identified as only experiencing one effect or where only one topic has identified effects on that receptor, there is no potential for intra-scheme effects to occur.

6.1.3 Intra-scheme cumulative effects would therefore only be identified where more than one ES chapter has identified a residual effect on an individual or group of receptors.

6.1.4 An assessment of intra-Scheme effects on human health will be considered as part of the 'Air Quality', 'Noise and Vibration', 'Road Drainage and the Water Environment' and the 'People and Communities' assessments.

Inter-Scheme Cumulative Effects

6.1.5 Inter-scheme effects arising from the Scheme in combination with 'other development' schemes during the construction and operational phases would be assessed. The Planning Inspectorate's Advice Note 17: Cumulative Effects Assessment sets out an assessment process involving 4 'stages'. These 4 'stages' are outlined below.

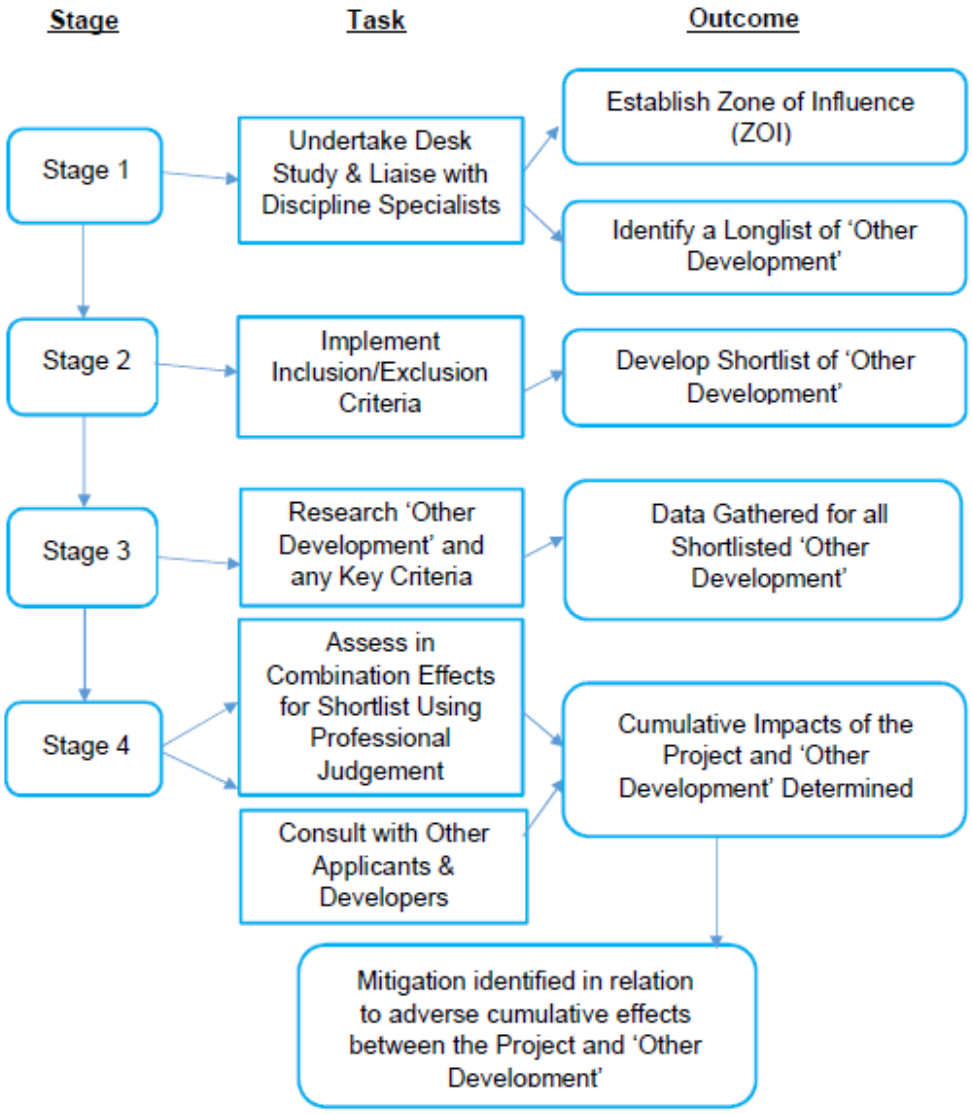
6.1.6 Stage 1 of the process involves establishing an appropriate 'Zone of Influence' (ZOI) to help identify 'other development' relevant to the assessment. Through liaison with technical specialists for each individual ES topic, ZOIs have been established using professional judgement (see Table 6-1). A 1km ZOI addresses localised cumulative effects from topic areas, while a larger ZOI addresses the potential for cumulative effects associated with Air Quality and Noise and Vibration.

6.1.7 The ES will set out the assessment methodology, recognising the requirements of the NN NPS and advice on development of threshold criteria in the Planning Inspectorate's Advice Note 17: Cumulative Effects Assessment, giving particular regard to the size and spatial influence of developments on the Scheme.

Table 6-1: The Established ZOIs for Environmental Topics

Environmental Topic	Zone of Influence
Air Quality	Dependent on the traffic study area
Cultural Heritage	1km
Landscape	1km

Environmental Topic	Zone of Influence
Biodiversity	2km
Geology and Soils	1km
Noise and Vibration	Dependent on the traffic study area
People and Communities	500m
Road Drainage and the Water Environment	500m
Climate	Dependent on the traffic study area
Health	As per 'Air Quality', 'Noise and Vibration', 'Road Drainage and the Water Environment' and 'People and Communities'.



6.2 Assessment of Combined Effects

6.2.1 The in-combination assessment undertaken at PCF Stage 2 indicated a potential for cumulative impacts on residual effects for humans (residential) receptors for noise, air quality and visual landscape.

6.2.2 The study area for the in-combination effects is defined by the study areas of each of the individual environmental topic assessments, which are discussed in the relevant topic chapters.

6.2.3 The receptors considered in this assessment are sub-divided into 6 groups:

- Humans (residential receptors);
- Ecological features;
- Built heritage features;
- Water bodies;
- All travellers; and
- Community assets and businesses.

6.2.4 The potential effects acting upon these receptors are changes in noise, air quality, visual intrusion, water quality, traffic and land take.

6.2.5 The assessment will consider significant adverse residual effects, after mitigation has been taken into account. Assessing the significance of in-combination effects is necessarily a qualitative process, based on professional judgment. The significance of the in-combination effects will be determined using the criteria taken from DMRB HA 205/08, considering the following factors:

- Which receptors/resources are affected?
- How will the activity(-ies) affect the condition of the receptor/resource?
- What are the probabilities of such effects occurring?
- What ability does the receptor/resource have to absorb further effects before change becomes irreversible?

6.3 Assessment of Cumulative Effects

6.3.1 Following the establishment of the ZOIs for each topic, a desk study was undertaken to search for ‘other development’. This used the furthest ZOI as the maximum extent of the study area in which the ‘other development’ was searched for to create a ‘long list’. A review of this list would be undertaken for the ES.

6.3.2 A tiered approach was applied to consider the level of certainty of ‘other development’ being carried out that falls within the ZOI.

6.3.3 The tiers assigned were as follows:

- Tier 1 (a): Under construction;
- Tier 1 (b): permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented;
- Tier 1 (c): submitted application(s) whether under the Planning Act 2008 or other regimes but not yet determined;

- Tier 2: schemes on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted;
- Tier 3 (a): scheme on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted;
- Tier 3 (b): identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals would be limited; and
- Tier 3 (c): identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

6.3.4 It was then deemed appropriate to apply threshold criteria to exclude or include 'other development' from the 'long list' to develop a 'short list'.

6.3.5 This was undertaken to keep the assessment proportionate and focused so that 'other development' is only taken through to further assessment stages if it has potential to give rise to significant cumulative effects by overlaps in temporal scope; and due to the scale and nature of the 'other development'.

6.3.6 A process of shortlisting was then undertaken regarding planning applications, relevant development plans and other relevant sources, to identify which developments within the ZOIs fall within the 'other developments' that are relevant to the assessment of potential cumulative effects.

6.3.7 The resulting list is presented in Table 6-2 below. These 'other developments' are also mapped on Figure 6.1 at Appendix B. This list and map reflects the temporal scope and scale and nature of the 'other development', in line with Stage 2 of the Planning Inspectorate's Advice Note 17: Cumulative Effects Assessment.

Table 6-2: Cumulative Developments

Figure Ref	Type of Development	Development Details	Development Status	Timescales	Approx. Distance from the Scheme
Nationally Significant Infrastructure Projects					
N/A	None	N/A	N/A	N/A	N/A
Submitted Applications (pending decision)					
1	Residential	HPK/2015/0692 Proposed Outline Planning Permission with some Matters Reserved for Residential Development for up to 113 Dwellings.	Pending Decision	Unknown	1.8km south east

Figure Ref	Type of Development	Development Details	Development Status	Timescales	Approx. Distance from the Scheme
Approved Applications (not under construction)					
2	Residential	HPK/2014/0067 Proposed laying out of access from Graphite Way & erection of up to 44no dwellings with Trans-Pennine trail improvements, community open spaces, garages, gardens & landscaping.	Approved 15/05/14	Unknown	430m south east
Under Construction					
3	Mixed Use	2015/1118 Formation of access roadway and associated infrastructure (Full). Outline planning application for a phased, mixed-use development comprising employment uses (B1bc/B8 with ancillary office B1a), hotel (C1) and/or car showroom/garage (sui generis/B2) and food & drink (A3, A4, A5) with associated infrastructure.	Approved 10/09/15	Due to be complete September 2016	500m north east

6.3.8 Following agreement from the Planning Inspectorate and statutory consultees, more detailed information would be gathered for the ES on the 'other developments'. Following this, the assessment would be undertaken (Stage 4) in accordance with the Planning Inspectorate's Advice Note 17: Cumulative Effects Assessment. Throughout the assessment process, the 'other development' identified would be reviewed periodically to ensure that the most up to date information is used at key points during the evolution of the ES. This includes reviewing the status of 'other development' and any new applications which may be registered within the ZOI.

7 SUMMARY

7.1 Summary of Assessment Scope

7.1.1 In accordance with the EIA Regulations, the ES would be based on the scoping opinion received. However, Table 7-1 provides a summary of the environmental topics that are proposed to be scoped into the assessment, including the level of assessment.

Table 7-1: Environmental Topics Scoped in and the Level of Assessment

Environmental Topic Scoped In	Construction/Operation Phases to be assessed	Level of DMRB assessment Proposed
Air Quality	Construction & Operation	Detailed
Cultural Heritage	Construction & Operation	Detailed
Biodiversity	Construction & Operation	Detailed
Landscape and Townscape Effects	Construction & Operation	Detailed
People and Communities	Construction & Operation	Detailed
Noise and Vibration	Construction & Operation	Detailed
Road Drainage and the Water Environment	Construction only	Detailed
Geology and Soils	Construction & Operation	Detailed
Materials	Construction only	Detailed
Climate	Construction & Operation	Detailed

7.1.2 Table 7-2 provides a summary of the environmental topics proposed to be scoped out of the ES and a summary of the justification/evidence to support this; this will include agreement with relevant bodies.

Table 7-2: Environmental Topics Scoped out with Justification

Environmental Topic Scoped Out	Phases Scoped Out	Summary of Justification/Evidence to Support this
Road Drainage and the Water Environment	Operation	The residual effects for the operational phase are not expected to be significant. As a result, it is proposed to scope out the assessment of operational effects, subject to ensuring no derogation of licensed or private water supplies and agreeing design and mitigation measures with the Environment Agency and Lead Local Flood Authority.
Materials	Operation	No significant effects are anticipated during the operation phase.

7.1.3 Table 7-3 provides a summary of the environmental topic elements proposed to be scoped out of the ES and a summary of the justification/evidence to support this; this will include agreement with relevant bodies.

Table 7-3: Environmental Topic Elements Scoped out with Justification

Environmental Topic	Elements Scoped Out	Summary of Justification/Evidence to Support this
Cultural Heritage	Two Grade II* Listed Buildings	Given the distance from the Scheme and the existing screening between the Scheme and the assets provided by the built form which surrounds the assets, it is considered that the Scheme would have no physical impact on these assets and would also pose no direct impact to either the assets themselves or their settings.
	Historic landscape character	Due to its overall modern character and the fragmentary nature of those areas of time depth which do survive it is proposed that historic landscape character would be scoped out.
Biodiversity	Selected species	**White-clawed crayfish:** Due to the lack of records, unsuitability of the habitats within the study area and the nationally declining nature of this species. **Aquatic invertebrates:** No notable aquatic invertebrates were recorded during targeted surveys within the study area in 2000, and due to the lack of records and unsuitability of the habitats within the study area; which are likely to be of value only to common, widespread species. **Terrestrial invertebrates:** No notable terrestrial invertebrates were recorded during targeted surveys within the study area in 2001, and suitable habitats for terrestrial invertebrates within the study area are of limited extent and likely to only support an invertebrate assemblage typical of the region. **Reptiles:** No reptiles were recorded during the 2017 targeted surveys. **Dormice:** Due to the lack of records, geographical location and the nationally declining nature of this species.
	Peak District Moors (South Pennine Moors Phase 1)	Situated sufficiently far from the Scheme and separated by natural and anthropogenic barriers.

Environmental Topic	Elements Scoped Out	Summary of Justification/Evidence to Support this
	SPA, Hurst Clough LNR and Great Wood LNR	
	Non-statutory designated sites	Due to the nature of the designations, and because all of these sites are situated sufficiently far from the Scheme, it is not considered that there would be any direct impact pathways. Furthermore, habitat degradation as a result of increased air pollution can also be scoped out due to distance of all sites from the Scheme, and, with the exception of Hurst Clough SBI, none of the other sites appear to be hydrologically connected to the Scheme.
	Other S41 and non-S41 Habitats	Other S41 habitats identified within the study area (such as traditional orchard) are situated sufficiently far from the Scheme, and it is not considered that there would be any direct impact pathways. No non-S41 habitats of note were recorded within the study area, and were considered typical of the region.
	Protected and Notable Plants (including Fungi)	The study area supports a restricted diversity and distribution of protected and notable plants (including fungi), limited to widespread presence of Bluebell within woodlands (recorded in 2007)
	Invasive flora	The study area supports a restricted diversity and distribution of invasive flora. Responsibilities relating to invasive flora will be managed through standard mitigation procedures.
	Amphibians	No great crested newts were recorded during the 2017 surveys. Common amphibians were found to be locally common and widespread and all ponds affected by the Scheme will be replaced by ponds of better quality.
	Other mammals	(Hedgehog, Polecat and Brown Hare): Habitats within the study area are broadly suitable for these species, and the Scheme will therefore result in the loss of a nominal proportion of the available habitat. However, the implementation of a CEMP and mitigation/compensation requirements for

Environmental Topic	Elements Scoped Out	Summary of Justification/Evidence to Support this
		other species (and habitats) will minimise impacts to these species.
People and Communities	Development Land	Consultation with Tameside Metropolitan Borough Council has concluded that there is no development land allocated in the vicinity of the Scheme, therefore none would be affected by the Scheme.
	Employment Land	No strategic employment sites have been identified within the study area. There are no commercial enterprises which are affected by the Scheme therefore these sites are proposed to be scoped out.
Noise and Vibration	Ground borne vibrations	DMRB HD 213/11 states *"significant ground-borne vibrations may be generated by irregularities in the road surface. Such vibrations are unlikely to be important when considering disturbance from new roads and an assessment would only be necessary in exceptional circumstances"*. Given the advice that ground borne vibration should only be assessed in exceptional circumstances, the fact that the proposal is for a new road Scheme and that there are no suitable methods of prediction, impacts from ground borne road traffic induced vibration will not be considered within the assessment.

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Term	Meaning
Abstraction	Removal of water for public supply or irrigation.
Agricultural Land Classification (ALC)	A relative measure of agricultural land quality in England and Wales. In practice, the ALC grades are defined by reference to the land's physical characteristics. The most productive and flexible land falls into Grades 1 & 2 and Subgrade, 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.
Aquifer	An underground rock formation containing water, often used as a water source.
Attenuation	Reduction. The term used in drainage design to indicate a reduction in the rate of flow or flooding risk, for example, by means of a pond to hold back water.
Biodiversity	Biological diversity: The variety of life forms in a given area, includes all species of plants and animals, their genetic variation and the complex ecosystems of which they are part.
Cumulative impact	The combined residual impact of a proposed scheme over the entirety of the scheme, as opposed to residual impact for individual sections of the scheme; also the combined impact with other schemes.
Cutting	A section of road where the surrounding land is at a higher level and the ground has been dug away to put in the road.
Decibel (dB)	Measurement of noise on a logarithmic scale. The range of audible sound pressures is approximately 0 dB to 140 dB. A single dB figure is unhelpful as it describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.
dBA	The measurement of noise usually used, by subtracting an appropriate correction from the dB figure, to relate better to the loudness of sound heard.
Design Year	In the case of this scheme, 15 years after assumed opening.
Do-Minimum	Future situation assuming no scheme is provided, but that maintenance is on-going.
Do-Something	Future situation with the scheme provided.
Earthworks	The process of excavating or increasing level of soil.

Term	Meaning
Floodplain	Area of land prone to flooding and protected against development. The indicative floodplain is the flood risk area based on a 1 in 100 year storm.
Greenhouse Gas	A gas that helps contribute towards global warming by trapping heat given off from the earth's surface. Under the UN's Kyoto Protocol, the 6 greenhouse gases are carbon dioxide, methane, nitrous oxide, perfluorocarbons, hyrdofluorocarbons and sulphur hexafluoride.
Listed Building	Building or structure listed by the Secretary of State as being of 'special architectural or historic interest'.
Opening Year	In the case of this scheme, assumed to be 2023.
Receptor	Environmental feature that has the potential to be adversely or beneficially affected by an impact of the proposed scheme, e.g., local residents, wildlife and water bodies.
Remediation	Clean up or other methods used to remove or contain hazardous materials from site.
Residual impact	Effects on the environment that occur after mitigation of potential impacts has been implemented.
Source Protection Zone (SPZ)	Area of groundwater protected by the Environment Agency.
Stakeholder	An organisation or individual with a particular interest in the project.
Statutory consultees	Individuals or groups which are contacted and requested to provide information or comment on a scheme, legally recognised under statute.
Study Area	The spatial area within which environmental effects are assessed i.e. extending a distance from the project footprint in which significant environmental effects could occur (this may vary between the topic areas).
Water Framework Directive	The Water Framework Directive (2000/60/EC) (WFD) is a wide-ranging piece of European environmental legislation for the protection of water resources that is being transposed into UK Law.

9 LOCATION AND DESIGN PLANS

9.1 Location and Constraints Map(s)

9.1.1 Table 9-1 below lists the figures included within Appendix B, which comprise the following:

- Geographical location of the Scheme;
- Scheme red line boundary;
- Permanent and temporary land take;
- Historic options considered;
- Topic specific environmental constraints; and
- Cumulative developments.

Table 9-1: Figures Presented at Appendix B

Figure Number	Title	Figure Reference
1.1	Geographical Location of Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-ZZZ-DR-LE-3068
1.2	Red Line Boundary Plan: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3069
1.3	Mottram Moor Link Road and A57(T) to A57 Link Road Permanent and Temporary Land Take	HE551473-ARC-HGN-A57-DR-LE-3070
3.1	Options at Mottram Moor	HE551473-ARC-HGN-A57-DR-LE-3090
3.2	Options at Gun Inn	HE551473-ARC-HGN-A57-DR-LE-3091
3.3	Extended Brief Options	HE551473-ARC-HGN-A57-DR-LE-3092
3.4	DfT Low Cost Option 1 with A57 Link (Glossop Spur) General Arrangement	HE551473-ARC-HGN-A57-DR-LE-3093
5.1	AQMA and Local Authority Monitoring Locations: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3071
5.2	Highways England Air Quality Monitoring Diffusion Tube Locations: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3072
5.3	Sensitive Air Quality Receptor Locations: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3073

Figure Number	Title	Figure Reference
5.4	Heritage Asset Plan: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3074
5.5	Statutory and Non-Statutory Designated Sites for Nature Conservation: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3075
5.6	Phase 1 Habitat Survey: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3076
5.7	Landscape Designations, Public Rights of Way and Viewpoint Locations: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3077
5.8	Local Level Landscape Character Areas: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3078
5.9	Scheme Landscape Character Areas: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3079
5.10	Representative Viewpoints: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3080
5.11	Community Facilities and Commercial Assets: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3081
5.12	Noise Important Areas: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3082
5.13	Bedrock and Superficial Aquifers: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3083
5.14	Water Framework Directive Surface Waterbodies: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3084
5.15	Waterbodies and Flood Zones: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3085
5.16	Environmental Features Associated with Geology and Soils: Mottram Moor Link Road and A57(T) to A57 Link Road	HE551473-ARC-HGN-A57-DR-LE-3086
5.17	Location of Landfill and Waste Management Facilities	HE551473-ARC-HGN-A57-DR-LE-3087
6.1	Cumulative Developments	HE551473-ARC-HGN-A57-DR-LE-3088

10 OUTLINE OF THE STRUCTURE OF THE PROPOSED ES

10.1.1 The ES would comprise three volumes:

- Volume 1A – Main Environmental Statement Text;
- Volume 1B – Environmental Statement Figures; and
- Volume 2 – Environmental Statement Appendices.

10.1.2 A Non-Technical Summary would also be produced.

10.1.3 The ES would reflect the new requirements of the EIA Directive transposed into the UK EIA Regulations in May 2017.

10.1.4 Volume 1A of the ES is currently anticipated to be structured as below in Table 10-1, subject to further discussion with the statutory environmental bodies and the scoping opinion received.

Table 10-1: Outline Structure of Proposed ES

1. **Introduction**
1.1 Purpose of the Report
1.2 Overview of the Project
1.3 Legislative and Policy Framework
1.4 Competent Expert Evidence
2. **The Project**
2.1. Need for the Project
2.2 Project Objectives
2.3 Project Location
2.4 Baseline Scenario
2.5 Project Description
2.6 Construction, Operation and Long Term Management
2.7 Demolition (Phase)
3. **Assessment of Alternatives**
3.1 Assessment Methodology
3.2 Reasonable Alternatives Studied
3.3 Justification for Chosen Option
4. **Environmental Assessment Methodology**
4.1 Environmental Scoping
4.2 Surveys and Predictive Techniques and Methods
4.3 General Assessment Assumptions and Limitations

4.4 Significance criteria
4.5 Duplication of Assessment
5. **Assessments (for each environmental topic scoped into the assessment)**
5.1 Competent Expert evidence
5.2 Legislative and Policy Framework
5.3 Study Area
5.4 Baseline Conditions
5.5 Assessment Methodology
5.6 Assessment Assumptions and Limitations
5.7 Design, Mitigation and Enhancement Measures
5.8 Assessment of Effects
5.9 Monitoring
6. **Assessment of Cumulative Effects**
6.1 Cumulative Assessment Methodology
6.2 Assessment of Combined Effects
6.3 Assessment of Cumulative Effects
6.4 Monitoring
7. **Summary**
8. **References and Glossary**
9. **Location and Design Plans**
Location and Constraints Map(s)
Any other appendices and plans required.

10.1.5 A number of plans would be produced that would support the preparation of the ES and the results presented therein and would also be a mechanism for securing the required mitigation. These are likely to include:

- A Construction Environmental Management Plan including a Pollution Prevention Plan; and
- Environmental Masterplan.

APPENDIX A – SIGNIFICANCE CRITERIA

Air Quality

11.1.1 IAN 174/13 will be used to determine whether the Scheme impacts are considered significant. It is noted that there are other guidance documents in relation to the evaluation of significance in air quality assessments, namely the Institute of Air Quality Management (IAQM) Land-Use Planning and Development Control: Planning for Air Quality January 2017. The IAQM guidance makes clear, however, that it is not appropriate to follow this methodology in the context of road schemes. Paragraph 6.3 of the IAQM guidance states:

"As set out in the introduction in Chapter 1, this guidance document is not intended to replace guidance that exists for certain types of development, notably:

- *Industrial developments that require a Permit;*
- *Highway schemes promoted by Highways England; or*
- *Activities associated with sources of dust (e.g. mineral extraction, waste handling, construction) or odours.*

Separate guidance is available for these sources. Clearly, where new developments are located in the vicinity of such sources, the potential impacts of their operation on the proposed development will need to be considered."

11.1.2 Paragraph 6.4 of the IAQM guidance then states:

"The guidance provided by the Environment Agency and Highways England has a formal status, reflecting the connections these organisations have with Government departments. This EPUK/IAQM guidance has no such status and is not intended as a substitute for the formal guidance."

11.1.3 IAN 174/13 was prepared in order to determine the significance of air quality effects and establish whether a significant impact is triggered for the purposes of paragraph 5.12 of the NN NPS.

11.1.4 Receptors which are predicted to exceed AQS Objectives in the Opening Year, either with or without the Scheme are used to inform the evaluation of significance. The change in air pollutant concentrations predicted at these receptors (either an improvement or deterioration), is used to determine whether the Scheme impacts are significant.

11.1.5 Table 2.1 in IAN 174/13 presents the magnitude of change criteria to be applied to annual average NO_2 and PM_{10} concentrations.

11.1.6 Following DMRB methodology, there remain residual uncertainties as to the impact of the Scheme on air quality, referred to in IAN 174/13 as the Measure of Uncertainty (MoU). This is due to the inherent uncertainty in air quality monitoring, modelling and in the modelled traffic data used in the air quality assessment.

11.1.7 Where the differences in concentrations are less than 1% of the air quality threshold (e.g. less than or equal to 0.4µg/m³ for annual average NO_2), the changes at these receptors are considered to be imperceptible as defined in the IAN 174/13, and are

scoped out of the evaluation on significance. These changes are still reported in the air quality assessment.

11.1.8 Any changes in concentrations above the threshold of imperceptibility are assigned to one of the six categories presented in Table 2.1 of IAN 174/13. The total number of receptors are then aggregated, in order to calculate the number of receptors in each of the six categories.

11.1.9 IAN 174/13 provides guidelines on the number of receptors for each of the magnitude of change categories that might result in a significant effect, as presented in Table 11-1. These are guideline values only, and are to be used to inform professional judgement in determining whether the Scheme would generate significant air quality effects.

Table 11-1: Air Quality – Guideline to Number of Properties Constituting a Significant Effect (Highways England IAN 174/13)

	Number of Receptors with:	
Magnitude of Change in Annual Average NO2 or PM10 (µg/m³)	**Worsening of air quality objective already above objective or creation of a new exceedance**	**Improvement of an air quality objective already above objective or the removal of an existing exceedance**
Large (>4)	1 to 10	1 to 10
Medium (>2)	10 to 30	10 to 30
Small (>0.4)	30 to 60	30 to 60

11.1.10 Where the number of receptors fall below the lower guideline bands to inform significance, the Scheme is deemed not to have a significant impact. Schemes which affect receptors within the guideline bands require justification based on professional judgement to determine whether the impact is significant.

11.1.11 For ecological receptors, IAN 174/13 and Annex F of DMRB HA 207/07 are used to for the air quality assessment of ecologically designated sites and determination of significant effects.

Cultural Heritage

11.1.12 The significance and value of assets will be assessed in line with Historic England guidance Conservation Principles, Policies, and Guidance (Historic England, 2014) and the guidance laid out in DMRB HA 208/07.

11.1.13 Table 11-2 presents the values that will be assigned to archaeological assets.

Table 11-2: Cultural Heritage – Criteria for Determining the Value of Archaeological Assets

Value	Example
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) Non-designated assets of Schedulable quality and importance Assets that can contribute significantly to acknowledged national research objectives
Medium	Designated or non-designated assets that contribute to regional research objectives
Low	Designated and non-designated 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

11.1.14 Table 11-3 presents the values that will be assigned to built heritage assets.

Table 11-3: Cultural Heritage – Criteria for Determining the Value of Built Heritage Assets

Value	Example
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 and Grade II* Listed Buildings Other Listed Buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade Conservation Areas containing very important buildings Undesignated structures of clear national importance

Value	Example
Medium	Grade II Listed Buildings 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 its historic character Historic townscape 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 townscape 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 intrusive character
Unknown	Buildings with some hidden (i.e. inaccessible) potential for historic significance

11.1.15 As identified in Section 5.3, the current intention for the Cultural Heritage assessment is to scope out historic landscape character due to its overall modern character and the fragmentary nature of those areas of time depth which do survive. However, if agreement cannot be reached to scope out historic landscape character, the values related to historic landscapes in Table 11-4 would be used.

Table 11-4: Cultural Heritage – Criteria for Determining the Value of Historic Landscape Assets

Value	Example
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	Undesignated historic landscapes of outstanding interest Undesignated historic 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)

Value	Example
Medium	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 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

11.1.16 The determination of magnitude of impact upon a heritage asset has been based on the vulnerability of the study area, the current state of survival/condition and the nature of the impact upon it. The survival and extent of archaeological deposits is often uncertain and consequently, the magnitude of impact can be difficult to predict with any certainty. Table 11-5 presents the magnitude of impact criteria related to archaeological assets.

Table 11-5: Cultural Heritage – Criteria for Determining the Magnitude of Impact on Archaeological Assets

Magnitude of Impact	Example
Major	Change to most or all key archaeological materials, such that the resource is totally altered Comprehensive changes to setting
Moderate	Changes to many key archaeological materials, such that the resource is clearly modified Considerable changes to setting that affect the character and significance of the asset
Minor	Changes to key archaeological materials, such that the asset is slightly altered Slight change to setting that affects its significance
Negligible	Very minor changes to archaeological materials, or setting
No Change	No change

11.1.17 Table 11-6 presents the magnitude of impact criteria related to historic buildings.

Table 11-6: Cultural Heritage – Criteria for Determining the Magnitude of Impact on Built Heritage Assets

Magnitude of Impact	Example
Major	Change to key historic building elements, such that the resource is totally altered Comprehensive changes to the setting
Moderate	Change to many key historic building elements, such that the resource is significantly modified Changes to the setting of an historic building, such that it is significantly modified and its significance is affected
Minor	Change to key historic building elements, such that the asset is slightly different Change to setting of an historic building, such that it is noticeably changed and its significance is affected
Negligible	Slight changes to historic building elements or setting that hardly affect it
No Change	No change to fabric or setting

11.1.18 As identified in Section 5.3, the current intention for the Cultural Heritage assessment is to scope out historic landscape character due to its overall modern character and the fragmentary nature of those areas of time depth which do survive. However, if agreement cannot be reached to scope out historic landscape character, the magnitude of impact criteria related to historic landscapes in Table 11-7 would be used.

Table 11-7: Cultural Heritage – Criteria for Determining the Magnitude of Impact on the Historic Landscape

Magnitude of Impact	Example
Major	Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.
Moderate	Changes to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable changes to use or access; resulting in moderate changes to historic landscape character.
Minor	Changes to few key historic landscape elements, parcels or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound

Magnitude of Impact	Example
	quality; slight changes to use or access: resulting in limited changes to historic landscape character.
Negligible	Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.
No Change	No change to elements, parcels or components; no visual or audible changes; no changes arising from in amenity or community factors.

11.1.19 Table 11-8 illustrates how information on the value of the asset and the magnitude of impact would be combined to arrive at an assessment of the significance of effect. However, the matrix is not intended to 'mechanise' judgement of the significance of effect but to act as a check to ensure that judgements regarding value, magnitude of impact and significance of effect are reasonable and balanced. In order to allow for professional judgement, in some cases the matrix allows a choice of significance of effect when a magnitude of impact and a value are combined. In these cases the individual attributes of a specific asset, along with any relevant site specific factors and consideration of other influencing elements, would be taken into account when considering which the most appropriate significance of effect is.

Table 11-8: Cultural Heritage – Criteria for Determining the Significance of Effects

		Magnitude of Impact				
		No Change	Negligible	Minor	Moderate	Major
Value	Very High	Neutral	Slight	Moderate/ Large	Large/ Very Large	Very Large
	High	Neutral	Slight	Moderate/ Slight	Moderate/ Large	Large/ Very Large
	Medium	Neutral	Neutral/ Slight	Slight	Moderate	Moderate/ Large
	Low	Neutral	Neutral/ Slight	Neutral/ Slight	Slight	Slight/ Moderate
	Negligible	Neutral	Neutral	Neutral/ Slight	Neutral/ Slight	Slight

Biodiversity

11.1.20 The potential for significant effects of the Scheme on the identified important ecological features will be assessed primarily using the CIEEM Guidelines, (CIEEM

2016).

11.1.21 The CIEEM Guidelines define a significant effect as *"an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general"*.

11.1.22 Where a significant effect is identified, the importance of the ecological feature is used to help determine the geographical scale at which the effect is significant.

11.1.23 If significant adverse effects are considered likely, the assessment would present mitigation measures that may be required to avoid or minimise a significant adverse effect. The detail of such mitigation would be in agreement with statutory consultees. If, after implementation of mitigation measures, a residual effect is anticipated, potential compensation measures may be required. The approach to determining the importance of ecological features and the significance of effects described above is in accordance with the CIEEM Guidelines. Table 11-9 provides a comparison of the approach for ecology in accordance with IAN 130/10 when defining significance of impacts on Important Ecological Features.

Table 11-9: Biodiversity - CIEEM Guidelines Significance, Compared to IAN 130/10 (Highways England, 2010)

Significance Following CIEEM Guidance	IAN 130/10 (HE, 2010) Significance category
Significant at the international level	Very large
Significant at the national level	
Significant at the regional level	Large
Significant at the county level	Moderate
Significant at the local level	Slight
Not significant	Neutral

Landscape and Townscape Effects

11.1.24 The guidance in IAN 135/10 or any subsequent update of this document will be used to determine whether the Scheme impacts are considered significant.

11.1.25 For effects on the landscape and townscape resource, the assessment of their significance is determined by considering the magnitude of impact arising from the Scheme on each of the features and elements that make up the character of the resource, bearing in mind the value of the landscape (and/or of specific features and elements), and the ability of the landscape to accommodate change of the type proposed (i.e. its sensitivity).

11.1.26 For effects on visual amenity, the assessment of their significance is determined by considering the sensitivity of the visual receptor to the magnitude of impact on visual amenity arising from the Scheme.

11.1.27 The magnitude of impact on the landscape and townscape resource and visual amenity is the degree of change that would arise if the Scheme were to be completed (i.e. 'Do Something'), as compared with a 'Do Minimum' situation. Factors to consider are the scale of the impact, the nature of the impact, whether it is an adverse or beneficial change, and the timescale involved (i.e. temporary, short, medium or long term/permanent).

11.1.28 Indicative criteria guidance in IAN 135/10 for the landscape and townscape resource and for visual amenity are provided in Tables 11-10 and Table 11-11 respectively. IAN 135/10 makes it clear that they are not prescriptive and in making judgements the landscape, professional needs to be able to demonstrate to others a consistent and justifiable argument.

Table 11-10: Landscape and Townscape Resource - Magnitude and Nature of Impact and Typical Descriptors

Magnitude of Impact	Typical Criteria Descriptor
Major Adverse	Total loss or large scale damage to existing character or distinctive features and elements, and/or the addition of new but uncharacteristic conspicuous features and elements.
Moderate Adverse	Partial loss or noticeable damage to existing character or distinctive features and elements, and/or the addition of new but uncharacteristic noticeable features and elements.
Minor Adverse	Slight loss or damage to existing character or features and elements, and/or the addition of new but uncharacteristic features and elements.
Negligible Adverse	Barely noticeable loss or damage to existing character or features and elements, and/or the addition of new but uncharacteristic features and elements.
No Change	No noticeable loss, damage or alteration to character or features or elements.
Negligible Beneficial	Barely noticeable improvement of character by the restoration of existing features and elements, and/or the removal of uncharacteristic features and elements, or by the addition of new characteristic elements.
Minor Beneficial	Slight improvement of character by the restoration of existing features and elements, and/or the removal of uncharacteristic features and elements, or by the addition of new characteristic elements.
Moderate Beneficial	Partial or noticeable improvement of character by the restoration of existing features and elements, and/or the removal of uncharacteristic and noticeable features and elements, or by the addition of new characteristic features.
Major Beneficial	Large scale improvement of character by the restoration of features and elements, and/or the removal of uncharacteristic and conspicuous features and elements, or by the addition of new distinctive features

Table 11-11: Visual Amenity - Magnitude and Nature of Impact and Typical Descriptors

Magnitude of Impact	Typical Criteria Descriptor
Major	The Scheme, or a part of it, would become the dominant feature or focal point of the view.
Moderate	The Scheme, or a part of it, would form a noticeable feature or element of the view which is readily apparent to the receptor.
Minor	The Scheme, or a part of it, would be perceptible but not alter the overall balance of features and elements that comprise the existing view
Negligible	Only a very small part of the Scheme would be discernible, or it is at such a distance that it would form a barely noticeable feature or element of the view
No Change	No part of the Scheme, or work or activity associated with it, is discernible.

11.1.29 Landscape sensitivity will depend on the character of the receiving landscape, the nature of the Scheme and the type of change. Visual sensitivity is categorised by the sensitivity of the visual receptor, and will include people in their homes, users of public rights of way and other areas of open space or recreational landscapes, people at work and people travelling along roads or railway lines. Indicative sensitivity criteria guidance for the landscape and townscape resource and for visual amenity set out in IAN 135/10 are provided in Table 11-12 and Table 11-13 respectively. As with the determination of magnitude of impact, these are not prescriptive and in making judgements the landscape professional needs to be able to demonstrate to others a consistent and justifiable argument.

Table 11-12: Landscape and Townscape Resource – Sensitivity and Typical Descriptor and Examples

Sensitivity	Typical Descriptor and Example
High	Landscapes which by nature of their character would be unable to accommodate change of the type proposed. Typically, these would be; • Of high quality with distinctive elements and features making a positive contribution to character and sense of place. • Likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale. • Areas of special recognised value through use, perception or historic and cultural associations. Likely to contain features and elements that are rare and could not be replaced.

Sensitivity	Typical Descriptor and Example
Moderate	Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically, these would be; • Comprised of commonplace elements and features creating generally unremarkable character but with some sense of place, locally designated, or their value may be expressed through non-statutory local publications. • Containing some features of value through use, perception or historic and cultural associations. Likely to contain some features and elements that could not be replaced.
Low	Landscapes which by nature of their character would be able to accommodate change of the type proposed. Typically, these would be; • Comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place. • Not designated. • Containing few, if any, features of value through use, perception or historic and cultural associations. Likely to contain few, if any, features and elements that could not be replaced.

Table 11-13: Visual Amenity – Sensitivity and Typical Descriptor and Examples

Sensitivity	Typical Descriptor and example
High	• Residential properties. • Users of public rights of way or other recreational trails (e.g. National Trails, footpaths, bridleways etc.). • Users of recreational facilities where the purpose of that recreation is enjoyment of the countryside (e.g. Country Parks, National Trust or other access land etc.).
Moderate	• Outdoor workers • Users of scenic roads, railways or waterways or users of designated tourist routes. • Schools and other institutional buildings, and their outdoor areas.
Low	• Indoor workers

Sensitivity	Typical Descriptor and example
	• Users of main roads (e.g. trunk roads) or passengers in public transport on main arterial routes. • Users of recreational facilities where the purpose of that recreation is not related to the view (e.g. sports facilities).

11.1.30 In terms of the significance of the effect, IAN 135/10 indicates:

- A major magnitude of change on a highly sensitive receptor will produce an effect of high significance;
- A minor magnitude of change on a less sensitive receptor will produce an effect of low or negligible significance; and
- Major changes for less sensitive receptors and minor changes for more sensitive receptors could also produce significant levels of effect.

11.1.31 IAN 135/10 notes:

"that it is not possible to set out a precise formula for the determination of the significance of effect as every case is different, and it is therefore important that the significance level determined is supported by reasoned justification in the form of a written explanation (supported by photographs and other illustrations as appropriate), so that the basis for the assessment is clear. This is particularly important where a highly sensitive receptor experiences a moderate magnitude of impact, justification for the assessment of either a moderate or large degree of significance should be given".

People and Communities

11.1.32 Unless otherwise specified, the definitions of magnitude of impact and significance of effect will be developed using professional judgement from those presented in DMRB. Table 11-14 sets out how the magnitude of impacts will be assessed for the Land Use assessment.

Table 11-14: People and Communities – Magnitude of Impacts – Land Use

Score	Definition
Major Adverse	Loss of resource or severe damage to resource. For example: • The demolition of buildings or significant loss of land (>50% of total footprint) • Complete severance of access to private or commercial asset • Permanent loss or degradation of over 20ha of best and most versatile land (BMVL), or entire regional resource of BMVL (ALC Grades 1, 2, 3a). • Existing land-use would not be able to continue
Moderate Adverse	Where the extent of effects may be moderate. For example: • Moderate loss of land (between 25% to 50% of total footprint)

Score	Definition
	• Major severance of access to private or commercial asset • Permanent loss or degradation of 5-20ha of BMVL, or large proportion of regional resource of BMVL. • Existing land-use would be able to continue but with major changes such as loss of yield, additional land management or increased use of fertilisers and herbicides.
Minor Adverse	Where the extent of effects are considered to be minor. For example: • Minor loss of land (<25% of total footprint) • Some partial or temporary severance of access to private or commercial asset • Permanent loss or degradation of <5ha of BMVL, or small proportion of regional resource of BMVL. • Existing land-use would be able to continue but with some changes such as loss of yield, additional land management or increased use of fertilisers and herbicides.
Negligible Adverse	• Very minor detrimental alteration to the characteristics of one or more receptor(s) • Permanent loss or degradation of non-BMVL BMVL. • Short term impacts to receptors with no impact on integrity. No material change to existing land-use
No change	• No observable impact in either direction, positive or negative
Negligible Beneficial	• Very minor benefit, or positive addition to the characteristics of one or more receptor(s)
Minor Beneficial	• Some measurable positive change for example in employment levels,
Moderate Beneficial	• Where there may be moderate beneficial effects (for example improved access to local services and facilities)
Major Beneficial	• Large scale or major improvement of resource; extensive enhancement (for example significant employment creation)

11.1.33 Table 11-15 sets out how assessments of significance would be made.

Table 11-15: People and Communities – Determination of the Significance of Effects

Magnitude of Impact (Change)	Value/sensitivity of Receptor/Resource		
	High	Medium	Low
Major	Major	Major	Moderate
Moderate	Major	Moderate	Minor
Minor	Moderate	Minor	Minor
Negligible	Minor	Minor	Negligible

Noise and Vibration

11.1.34 The methodology used will be as set out in DMRB HD 213/11.

11.1.35 A change in road traffic noise of 1dB(A) in the short term is considered within DMRB HD 213/11 as the smallest perceptible change and classified as the short-term threshold criteria. The magnitude of road traffic noise impact from the Scheme will therefore be classified in accordance with DMRB HD 213/11, as detailed in Table 11-16.

Table 11-16: Noise and Vibration – Classification of Magnitude of Noise Impact (Short Term)

Noise Change Band $L_{A10(18\ hour)}$ dB	Magnitude of Impact
0	No change
0.1 to 0.9	Negligible
1 to 2.9	Minor
3 to 4.9	Moderate
5 or more	Major

11.1.36 In the long term, DMRB HD 213/11 classifies a 3dB(A) change in operational road traffic noise as the smallest change perceptible due to the change in noise level being gradual over time, and therefore specifies this as the long term threshold criteria.

11.1.37 However, consideration also needs to be given to National Policy with regards to noise and levels of Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL). Planning Practice Guidance on noise published by the Department for Communities and Local Government to support National Planning Policies states "*In cases where existing noise sensitive locations already experience high noise levels, a development that is expected to cause even a small increase in the overall noise level may result in a significant adverse effect occurring even though little to no change in behavior would be likely to occur*".

11.1.38 To account for this at locations where long term road traffic noise levels are

predicted to be above SOAEL, the change in road traffic noise will assessed against the short term criteria of DMRB HD 213/11 as this is based upon the smallest perceptible change in road traffic noise.

11.1.39 Therefore, consideration of the magnitude of change to be used at receptors predicted to be either above or below SOAEL in the long term is presented in Table 11-17.

Table 11-17: Noise and Vibration – Classification of Magnitude of Noise Impacts (Long Term)

Magnitude of Impact for Receptors Above SOAEL		Magnitude of Impact for Receptors Below SOAEL and Other Sensitive Receptors	
Noise change, dB(A)	Magnitude of Impact	Noise change, dB(A)	Magnitude of Impact
0	No Change	0	No Change
0.1 to 0.9	Negligible	0.1 to 2.9	Negligible
1 to 2.9	Minor	3 to 4.9	Minor
3 to 4.9	Moderate	5 to 9.9	Moderate
>5	Major	>10	Major

11.1.40 In terms of road traffic noise, a methodology has not yet been developed to assign a significance according to both the value of a resources and the magnitude of an impact; therefore, operational road traffic noise significance will be defined based upon professional judgement with consideration given to:

- The resultant predicted road traffic noise level;
- The magnitude of change; and
- Numbers of dwellings adversely and beneficially effected.

Road Drainage and the Water Environment

11.1.41 The first stage of the adopted assessment methodology, from DMRB HD 45/09, requires the assignment of environmental importance to identified receptors. This judgement is made based on quality, scale, rarity and substitutability. The categories of importance of each resource is assessed using the criteria in Table A4.3 of DMRB HD 45/09 (Estimating the Importance of Water Environment Attributes), provided in Table 11-18 below.

Table 11-18: Road Drainage and the Water Environment – Estimating the Value of Water Environment Attributes

Value	Construction /Operation	Potential Effects	
Very High	Attribute has a high quality and rarity on a regional or national scale.	Surface Water	EC Designated Salmonid/Cyprinid Fishery WFD Class 'High' Site protected/designated under European Commission (EC) or United Kingdom (UK) habitat legislation (SAC, SPA, SSSI, Water Protection Zone (WPZ), Ramsar site, salmonid water) or species protected by EC legislation.
		Groundwater	Principal aquifer providing a regionally important resource or supporting site protected under EC and UK habitat legislation. Source Protection Zone (SPZ) 1.
		Flood Risk	Floodplain or defence protecting more than 100 residential properties from flooding.
High	Attribute has a high quality and rarity on local scale.	Surface Water	WFD Class 'Good' Major Cyprinid Fishery Species protected under EC or UK habitat legislation.
		Groundwater	Principal aquifer providing locally important resource or supporting river ecosystem SPZ2.
		Flood Risk	Floodplain or defence protecting between 1 and 100 residential properties or industrial premises from flooding.
Medium	Attribute has a medium quality and rarity on local scale.	Surface Water	WFD Class 'Moderate'.
		Groundwater	Aquifer providing water for agricultural or industrial use with limited connection to surface water

Value	Construction /Operation	Potential Effects	
			SPZ3.
		Flood Risk	Floodplain or defence protecting 10 or fewer industrial premises from flooding.
Low	Attribute has a low quality and rarity on a local scale.	Surface Water	WFD Class 'Poor'.
		Groundwater	Unproductive strata.
		Flood Risk:	Floodplain with limited constraints and a low probability of flooding of residential and industrial premises.

11.1.42 The magnitude of each impact (change) on the baseline conditions is assessed based on the expected scale/extent of the change, the nature and the duration of the impact. Impacts may be either beneficial (positive) or adverse (negative), which will be highlighted when assessing the magnitude of impacts using the criteria provided in Table A4.4 of DMRB HD 45/09 (Estimating the Magnitude of an Impact on Attribute), provided in Table 11-19 below.

Table 11-19: Road Drainage and the Water Environment – Estimating the Magnitude of Impact

Magnitude	Criteria	Typical Examples	
Major Adverse	Results in loss of attribute and/or quality and integrity of the attribute.	Surface Water	Failure of both soluble and sediment-bound pollutants in HAWRAT (Method A, Annex I) and compliance failure with EQS values (Method B) Calculated risk of pollution from a spillage >2% annually (Spillage Risk Assessment, Method D, Annex I) Loss or extensive change to a fishery Loss or extensive change to a designated Nature Conservation Site
		Groundwater	Loss of, or extensive change to, an aquifer Potential high risk of pollution to groundwater from routine runoff –

Magnitude	Criteria	Typical Examples	
			risk score >250 (Groundwater Assessment, Method C, Annex I) Calculated risk of pollution from spillages >2% annually (Spillage Risk Assessment, Method D, Annex I) Loss of, or extensive change to, groundwater supported designated wetlands
		Flood Risk	Increase in peak flood level (1% annual probability) >100 mm (Hydrological Assessment of Design Floods and Hydraulic Assessment, Methods E and F, Annex I)
Moderate Adverse	Results in effect on integrity of attribute, or loss of part of attribute.	Surface Water	Failure of both soluble and sediment-bound pollutants in HAWRAT (Method A, Annex I) but compliance with EQS values (Method B) Calculated risk of pollution from spillages >1% annually and <2% annually Partial loss in productivity of a fishery
		Groundwater	Partial loss or change to an aquifer Potential medium risk of pollution to groundwater from routine runoff – risk score 150-250 Calculated risk of pollution from spillages >1% annually and <2% annually Partial loss of the integrity of groundwater supported designated wetlands
		Flood Risk	Increase in peak flood level (1% annual probability) >50 mm
Minor Adverse	Results in some measurable	Surface Water	Failure of either soluble or sediment-bound pollutants in HAWRAT

Magnitude	Criteria	Typical Examples	
	change in attribute quality or vulnerability.		Calculated risk of pollution from spillages >0.5% annually and <1% annually
		Groundwater	Potential low risk of pollution to groundwater from routine runoff – risk score <150 Calculated risk of pollution from spillages >0.5% annually and <1% annually Minor effects on groundwater supported wetlands
		Flood Risk	Increase in peak flood level (1% annual probability) >10mm
Negligible	Results in effect on attribute, but of insufficient magnitude to affect the use or integrity	The proposed scheme is unlikely to affect the integrity of the water environment.	
		Surface Water	No risk identified by HAWRAT (Pass both soluble and sediment-bound pollutants) Risk of pollution from spillages <0.5%
		Groundwater	No measurable impact upon an aquifer and risk of pollution from spillages <0.5%
		Flood Risk	Negligible change in peak flood level (1% annual probability) <+/- 10 mm
Minor Beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring.	Surface Water	HAWRAT assessment of either soluble or sediment-bound pollutants becomes Pass from an existing site where the baseline was a Fail condition Calculated reduction in existing spillage risk by 50% or more (when existing spillage risk is <1% annually)
		Groundwater	Calculated reduction in existing spillage risk by 50% or more to an aquifer (when existing spillage risk <1% annually)

Magnitude	Criteria	Typical Examples	
		Flood Risk	Reduction in peak flood level (1% annual probability) >10 mm
Moderate Beneficial	Results in moderate improvement of attribute quality.	Surface Water	HAWRAT assessment of both soluble and sediment-bound pollutants becomes Pass from an existing site where the baseline was a Fail condition Calculated reduction in existing spillage by 50% or more (when existing spillage risk >1% annually)
		Groundwater	Calculated reduction in existing spillage risk by 50% or more (when existing spillage risk is >1% annually)
		Flood Risk	Reduction in peak flood level (1% annual probability) >50 mm
Major Beneficial	Results in major improvement of attribute quality.	Surface Water	Removal of existing polluting discharge, or removing the likelihood of polluting discharges occurring to a watercourse
		Groundwater:	Removal of existing polluting discharge to an aquifer or removing the likelihood of polluting discharges occurring Recharge of an aquifer
		Flood Risk:	Reduction in peak flood level (1% annual probability) >100 mm

11.1.43 The overall significance of effects on hydrology, flood risk, surface and groundwater receptors is then calculated by combining the value (sensitivity) of the receptor with the magnitude of the impact (change), as shown in Table A4.5 of DMRB HD 45/09 (Estimating the Significance of Potential Effects), provided in Table 11-20 below.

Table 11-20: Road Drainage and the Water Environment – Estimating the Significance of Effects

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

11.1.44 Where more than one significance outcome is possible, professional judgement will be used to determine which is most appropriate on a case-by-case basis and ensuring regard to the precautionary principle.

11.1.45 Significant effects may be either beneficial (positive) or adverse (negative) and this will be highlighted when assessing residual effects.

Geology and Soils

11.1.46 For determination of significance criteria for the assessment of effects on the receptors/resource, guidance will be sought from CLR11, CIRIA C552 and professional judgement.

11.1.47 The value of the identified receptors/resources will be assessed against the criteria shown in Table 11-21 below. This has been based on the guidance provided in DMRB HA 205/08.

Table 11-21: Geology and Soils – Value (or Sensitivity) and Typical Descriptors

Sensitivity/Value	Description of Resource (Receptor)
Very High	• **Geology** - Very rare and/or of very high national and regional geological/geomorphological importance with no potential for replacement • **Hydrogeology** - Principal groundwater aquifers (Source Protection Zone 1) or contaminated land with highly mobile contaminants) • **Hydrology** – EC Designated Salmonid/Cyprinid Fishery, WFD Class 'High, designated sites such as SAC, SPA, SSSI, WPZ, Ramsar site, salmonid water • **Human Health**[2] – Current/future users of residential

[2] ***Duration of exposure to contamination and number of pathways of exposure to contamination increases from

Sensitivity/Value	Description of Resource (Receptor)
	properties with private gardens
High	• **Geology** - Medium national and/or high regional geological/geomorphological importance with limited potential for replacement • **Hydrogeology** - Principal groundwater aquifers (Source Protection Zone 2) or contaminated land with mobile contaminants) • **Hydrology** –WFD Class 'Good', Major Cyprinid Fishery, Species protected under EC or UK habitat legislation. • **Human Health*** – Current/future users of allotments/public open space and nearby residents
Medium	• **Geology** - Low regional and/or high local geological/geomorphological importance with some potential for replacement • **Hydrogeology** - Secondary groundwater aquifers (Source Protection Zone 3) or contaminated land with contaminants of low mobility) • **Hydrology** – WFD Class 'Moderate'. • **Human Health*** – Current/future users of residential properties without private gardens
Low	• **Geology** - Local geological/geomorphological importance with potential for replacement • **Hydrogeology** - Secondary groundwater aquifers or contaminated land with immobile contaminants • **Hydrology** – WFD Class 'Poor'. • **Human Health*** – Current/future users of the completed highway and associated landscaping
Negligible	• **Geology** - Little local geological/geomorphological interest • **Hydrogeology** - Non-aquifers and brownfield land with negligible contamination • **Hydrology** – WFD Class 'Poor'. • **Human Health*** – Current/future users of commercial/ industrial properties

11.1.48 The magnitude of impacts on receptors/resources will be described using the criteria outlined in Table 11-22.

commercial/industrial (minimum) to residential with private garden (maximum) land uses. Therefore, future users of industrial sites are considered to be of negligible importance as they would have minimal contact with underlying soils, whilst residential ends users are likely to be in contact with underlying soils on a more regular basis and are therefore of very high value.

Table 11-22: Geology and Soils – Criteria for Determining the Magnitude of Impact

Magnitude of Impact	Definition
Major adverse	• **Geology -** The Scheme is very damaging to the geological environment/soils resource of the study area; may result in loss of or damage to areas designated as being of regional or national geodiversity value; and the effects cannot be mitigated. • **Human Health** - Significant harm to a designated receptor (e.g. human health) is likely to arise from an identified hazard at the site without appropriate remedial action. • **Hydrogeology** - Loss of, or extensive change to an aquifer used for potable supply, potential high risk of pollution of groundwater. • **Hydrology** - Loss or extensive change to a fishery, Loss or extensive change to a designated Nature Conservation Site
Moderate adverse	• **Geology -** The Scheme may result in the loss of or damage to areas designated as being of national and/or regional geodiversity value within the study area. Some mitigation may be possible but would not prevent damage to the geological environment, as some features of interest would be lost or partly destroyed. • **Human Health** It is possible that without appropriate remedial action, significant harm to a designated receptor (e.g. human health) could arise to a designated receptor but it is relatively unlikely that any such harm would be severe and if any harm were to occur, it is likely that such harm would be relatively mild. • **Hydrogeology** - Partial loss or change to an aquifer, potential medium risk of groundwater pollution. Partial loss of the integrity of groundwater supported designated wetlands. • **Hydrology -** Partial loss in productivity of a fishery
Minor adverse	• **Geology -** The Scheme would not affect areas with regional or national geodiversity value but may result in the loss of or damage to areas of local geodiversity value. The effects cannot be completely mitigated but opportunities exist for local enhancement of geodiversity value. • **Human Health** - It is possible that harm could arise to a designated receptor (e.g. human health) from an identified hazard but it is likely that at worst this harm if realised would normally be mild. • **Hydrogeology** - No significant change to an aquifer, potential low risk of pollution to groundwater Minor effects on groundwater supported wetlands • **Hydrology** – Slight decrease in water quality
Negligible adverse	• **Geology -** The Scheme would result in very minor loss of geodiversity value of local areas of geological interest/soils resource such that mitigation is not considered practical.

Magnitude of Impact	Definition
	• **Human Health** There is a low possibility that harm could arise to a designated receptor. In the event of such harm being realised, it is likely to be mild or minor. • **Hydrogeology** The Development is unlikely to affect the integrity of the water environment. • **Hydrology –** Negligible decrease in water quality
No change	No observable effect either adversely or beneficially.
Negligible beneficial	The Scheme would be of minor benefit to geodiversity value by potentially providing greater exposure and/or protection. The Scheme may resolve slight impact from existing land or water contamination.
Minor beneficial	The Scheme may result in the exposure of geological formations that may become of significant local interest. The Scheme may resolve minor impact from existing land or water contamination.
Moderate beneficial	There is benefit to the geodiversity value of the geological/soils resource of the area as a result of the Scheme. The Scheme may result in the exposure of geological formations that may become of significant regional interest. The Scheme may resolve moderate impact arising from existing land or water contamination
Major beneficial	The Scheme is very beneficial to the geodiversity value of the geological/soils resource of the area. The Scheme may result in the exposure of geological formations that may become of significant regional and/or national interest. The Scheme may resolve major impact arising from existing land or water contamination.

11.1.49 The determination of significance of the impact is a factor of the value/sensitivity of the feature/resource (receptor) and the magnitude of the impact (change) as described above. Table 11-23 shows how the significance of effect is derived. Where more than one significance outcome is possible, professional judgement will be used to determine which is most appropriate on a case-by-case basis.

Table 11-23: Geology and Soils – Criteria for Determining the Significance of Effects

Magnitude of Impact (Change)	Value/sensitivity of Receptor/Resource				
	Very high	**High**	**Medium**	**Low**	**Negligible**
Major	Very large	Large/very large	Moderate/large	Moderate	Slight
Moderate	Large/very large	Moderate/large	Moderate	Slight	Neutral
Minor	Moderate/large	Moderate	Slight	Neutral	Neutral
Negligible	Slight	Slight	Neutral	Neutral	Neutral
No change	Neutral	Neutral	Neutral	Neutral	Neutral

Materials

11.1.50 Environmental value of resource is not covered by IAN 153/11 and there are no accepted criteria for determining the value of material resources and waste (including waste infrastructure). In the absence of such guidance, the materials assessment would be undertaken using the professional judgement of material resources and waste specialists. The assessment criteria that would be used for assessing environmental value and typical resources is presented in Table 11-24 below.

Table 11-24: Materials – Criteria for Determining the Value of Resource

Value of Resource	Criteria
Very High	▪ Very high scarcity of required material resource ▪ There is no available waste management infrastructure capacity within the study area for any waste arisings from the Scheme ▪ Very high importance and rarity, national scale. Very limited materials reuse, recycling and or recovery ▪ No capacity of existing highways network to accommodate any increases in lorry movements resulting from the flow of material resources and wastes to and from the Scheme
High	▪ High scarcity of required material resource ▪ There is limited waste management infrastructure capacity within the study area in relation to the forecast waste arisings from the Scheme ▪ High importance and rarity, regional scale. Limited materials reuse, recycling and or recovery ▪ Low capacity of existing highways network to accommodate any increases in lorry movements resulting from the flow of material resources and wastes to and from the Scheme
Medium	▪ Medium scarcity of required material resource. ▪ There is adequate waste management infrastructure capacity within the study area for the majority of waste arisings from the Scheme ▪ High or medium importance and rarity, regional scale. Moderate materials reuse, recycling and or recovery ▪ Medium capacity of existing highways network to accommodate any increases in lorry movements resulting from the flow of material resources and wastes to and from the Scheme
Low	▪ Low scarcity of required material resource

Value of Resource	Criteria
	▪ There is adequate available waste management infrastructure capacity within the study area for all waste arising from the Scheme ▪ Low or medium importance and rarity, local scale. High materials reuse, recycling and or recovery ▪ High capacity of existing highways network to accommodate any increases in lorry movements resulting from the flow of material resources and wastes to and from the Scheme
Negligible	▪ Negligible scarcity of required material resource ▪ There is waste management infrastructure capacity within the study area for all waste arisings from the Scheme ▪ Negligible importance and rarity, local scale. Very high materials reuse, recycling and or recovery ▪ Very high capacity of existing highways network to accommodate any increases in lorry movements resulting from the flow of material resources and wastes to and from the Scheme

11.1.51 The magnitude of each impact will be assessed using the criteria provided in Table 11-25 below.

Table 11-25: Materials – Criteria for Determining the Magnitude of Impact

Magnitude of impact	Criteria
Major	• Loss of natural resources and or quality and integrity of natural resources; severe damage to key characteristics, features or elements • Waste arisings from the Project are predominantly disposed of to landfill or to incineration without energy recovery with little or no prior segregation • Generation of large quantities of hazardous and inert waste which are managed for disposal using methods lower down the waste hierarchy (e.g. landfill or incineration with energy recovery)
Moderate	• Loss of natural resources, but not adversely affecting the integrity; partial loss of or damage to key characteristics, features or elements • Waste arisings from the Project are predominantly disposed of by incineration with energy recovery • Generation of moderate quantities of hazardous and inert waste which are managed for disposal using methods lower down the

Magnitude of impact	Criteria
	Waste Hierarchy (e.g. landfill or incineration with energy recovery)
Minor	• Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements • Waste arisings from the Project are predominantly segregated and sent for composting, recycling or for further segregation and sorting at a materials recovery facility • Generation of small quantities of hazardous and inert waste which is managed for disposal using methods lower down the Waste Hierarchy (e.g. landfill or incineration with energy recovery)
Negligible	• Very minor loss or detrimental alteration to one or more characteristics, features or elements • Waste arisings from the Project are predominantly reused on site or at an appropriately licensed or registered exempt site elsewhere • Generation of negligible quantities of hazardous and inert waste which are managed for disposal using methods lower down the Waste Hierarchy (e.g. landfill or incineration with energy recovery)
No Change	• No loss or alteration of characteristics, features or elements; no observable impact in either direction • All waste arisings from the Project are reused on site or at an appropriately licensed or registered exempt site elsewhere • No generation of hazardous waste. All inert materials reused onsite

11.1.52 The definition of significance will be defined as detailed in Table 11-26 below.

Table 11-26: Materials – Criteria for Determining the Significance of Effect

Significance	Criteria
Very Large	• Significant change in environmental conditions. Impacts are likely to be of a very high magnitude and frequency and will impact on the existing strategy to deal with material resources and waste • Impact likely to be on a permanent basis
Large	• Considerable change in environmental conditions. Impacts are

Significance	Criteria
	likely to be of a high magnitude and frequency and will have an effect on the existing strategy to deal with material resources and waste • Impact likely to be on a permanent basis
Moderate	• Noticeable change in environmental conditions. Impacts are likely to be of a high magnitude and frequency and will have an effect on the existing strategy to deal with material resources and waste • Impact likely to be on a permanent basis
Slight	• Barely perceptible change in environmental conditions. Impacts are likely to be of a low magnitude and frequency and will have an effect on the existing strategy to deal with material resources and waste • Impact likely to be on a temporary basis
Neutral	• No discernible change in environmental conditions. Impacts are likely to be of a negligible magnitude and frequency and will not have an effect on the existing strategy to deal with material resources and waste • No impact

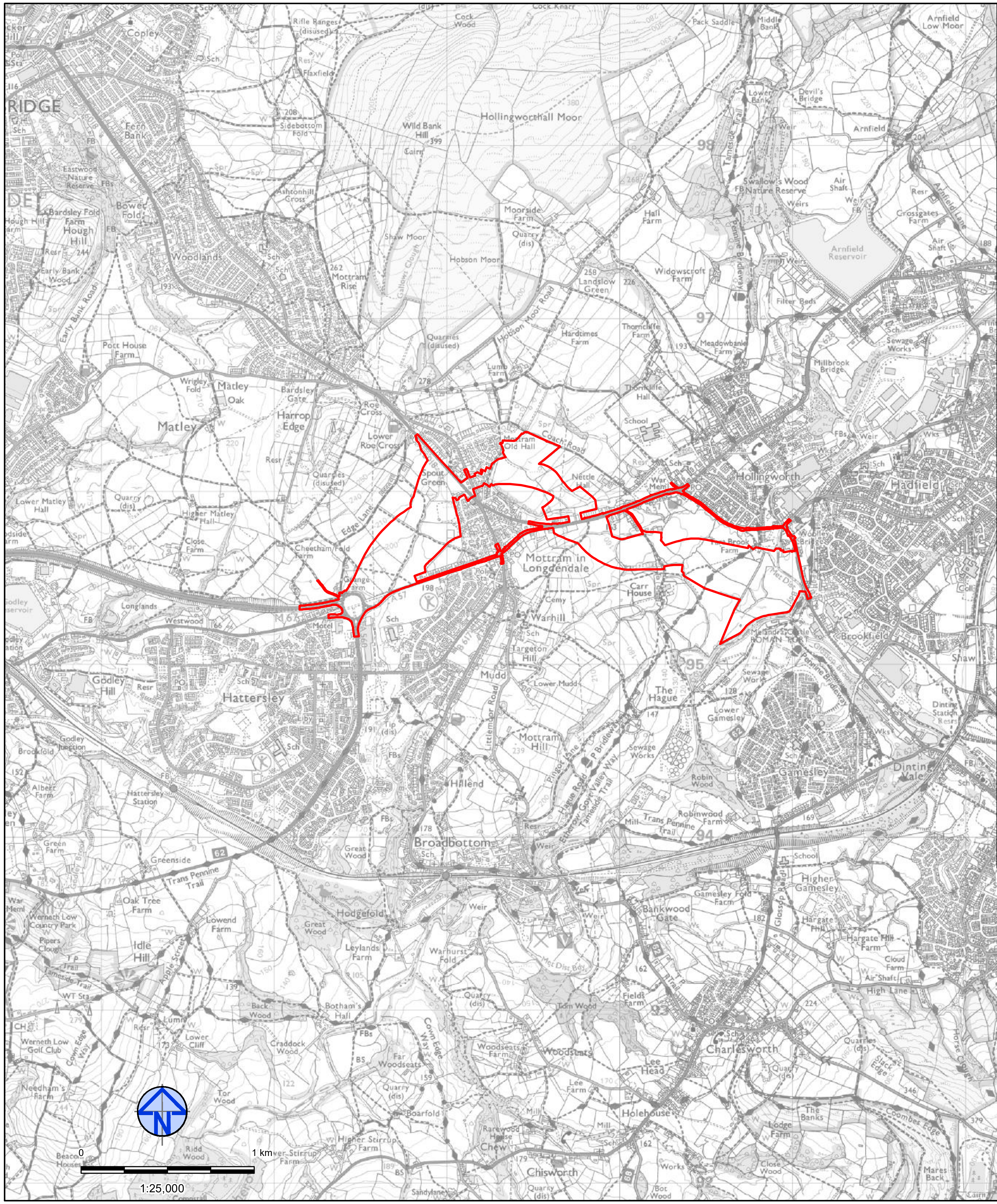
11.1.53 The significance of each effect will be assessed using the matrix provided in Table 2.4 of DMRB HA 205/08, by cross referencing the value of the receptor with the magnitude of impact.

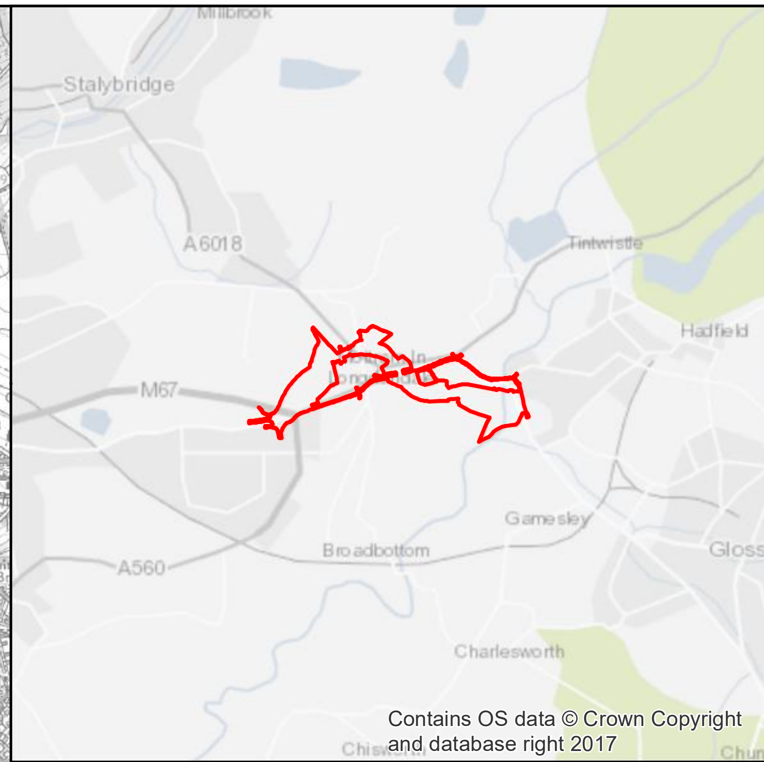
Climate

11.1.54 As noted in Section 5.10, appropriate adaptation measures will be incorporated into the Scheme design during both construction and operation to reduce the vulnerability of the Scheme to climate change. These measures would then be assessed as required in other relevant environmental topic chapters. The risk assessment undertaken to understand the Schemes' vulnerability to climate change will be reported in the climate chapter. Therefore, there are no specific significance criteria for the assessment of climate change adaptation effects.

11.1.55 With regards to Greenhouse Gas emissions, there are no recognised significance criteria and the information presented will demonstrate the levels of emissions predicted during construction and operation.

APPENDIX B – SUPPORTING FIGURES





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Legend

Red Line Boundary

Issue	Description	Date
01	Draft	06/11/17

Status: PRELIMINARY/CONFIDENTIAL

		Current Issue Signatures
Scale	1:25,000	Drawn R.MILLMAN
Original Size	A3	Checked M.MUTALE
Height Datum	NEWLYN	Approved A.SAUNDERS
Projection	O.S	© Copyright reserved

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: A57/A628 TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 1.1 GEOGRAPHICAL LOCATION OF MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD

Drawing No. HE551473-ARC-HGN-A57-DR-LE-3068

Date: 06/11/2017 16:38:21 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\1_1_HE551473-ARC-HGN-A57-DR-LE-3068_Geographical Location of Mottram Moor link Road and A57 to A57 Link Road.mxd

Legend

- Mottram Moor Link Road and A57 (T) to A57 Link Road
- Red Line Boundary

Issue	Description	Date
01	Draft	03/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:10,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S		

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 1.2 RED LINE BOUNDARY PLAN: MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3069

0 200 400 600 Metres

1:10,000

50mm on Original

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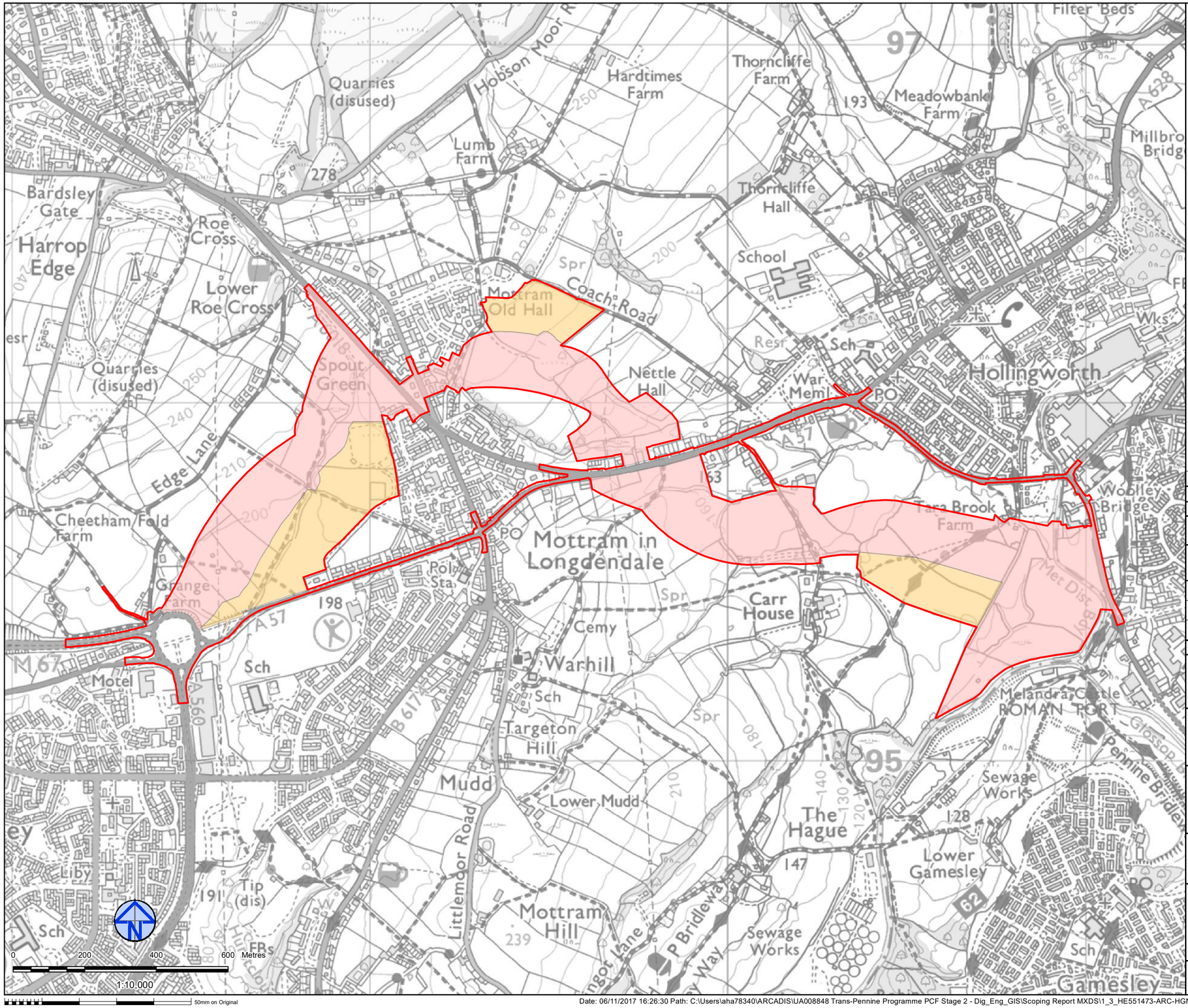

01	Draft	06/11/17
Issue	Description	Date

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:10,000	Current Issue Signatures	
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Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 1.3 PERMANENT AND TEMPORARY LAND TAKE MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3070

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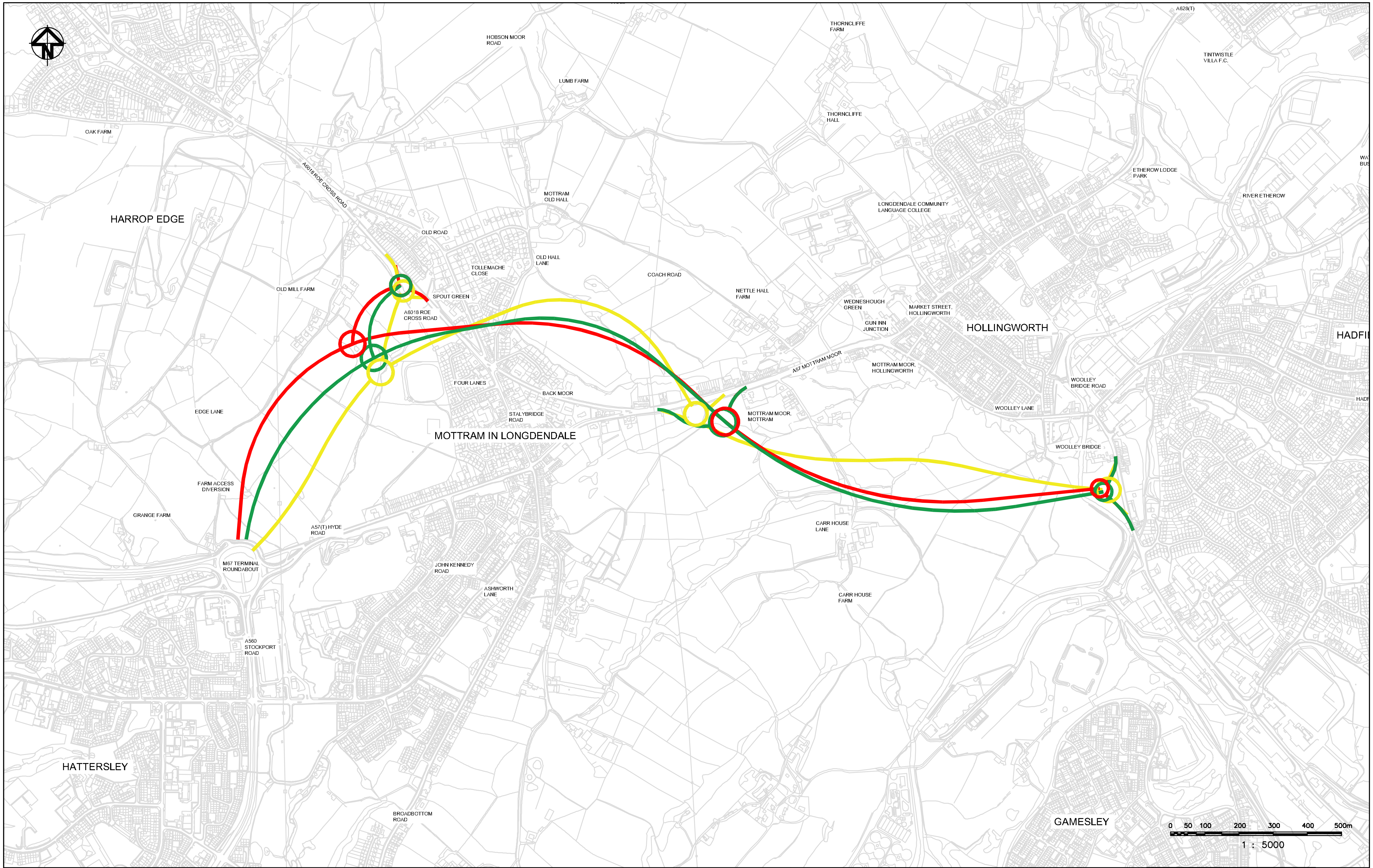

KEY:

- OPTION 0
- OPTION 3
- OPTION 4

Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

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Coordinating office: 5th Floor, 401 Faraday Street, Birchwood, Warrington, WA3 6GA, Tel: 44 (0)1925 800700

Project: TRANS-PENNINE UPGRADE PROGRAMME

Drawing title: FIGURE 3.1 OPTIONS AT MOTTRAM MOOR

Status	CONCEPT
Revision	
Scale	1:5000
Date	10-08-2015
Drawn By	N.Clements
Checked By	C.Burgham-Malin
Approved By	N.Westwood
Project No.	UA008848
Original Size	A3
Drawing number	HE551473-ARC-HGN-A57-DR-LE-3090
Revision	P01

100mm on Original

Print Date: 2017-11-02 15:47:16

File Path: C:\Users\msa77862\AppData\Local\Packages\Microsoft.MicrosoftEdge_8wekyb3d8bbwe\TempState\Downloads\HE551473-ARC-HGN-A57-DR-LE-3090 - Options at Mottram Moor.dwg

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HOBSON MOOR ROAD
THORNCLIFFE FARM
A628(T)
TINTWISTLE VILLA F.C.
LUMB FARM
THORNCLIFFE HALL
OAK FARM
A6018 ROE CROSS ROAD
ETHEROW LODGE PARK
MOTTRAM OLD HALL
RIVER ETHEROW
LONGDENDALE COMMUNITY LANGUAGE COLLEGE
HARROP EDGE
OLD ROAD
OLD HALL LANE
TOLLEMACHE CLOSE
COACH ROAD
NETTLE HALL FARM
OLD MILL FARM
SPOUT GREEN
WEDNESHOUGH GREEN
MARKET STREET, HOLLINGWORTH
A6018 ROE CROSS ROAD
GUN INN JUNCTION
HOLLINGWORTH
MOTTRAM MOOR, HOLLINGWORTH
FOUR LANES
BACK MOOR
A57 MOTTRAM MOOR
WOOLLEY BRIDGE ROAD
EDGE LANE
STALYBRIDGE ROAD
MOTTRAM MOOR, MOTTRAM
WOOLLEY LANE
MOTTRAM IN LONGDENDALE
WOOLLEY BRIDGE
FARM ACCESS DIVERSION
GRANGE FARM
A57(T) HYDE ROAD
CARR HOUSE LANE
M67 TERMINAL ROUNDABOUT
JOHN KENNEDY ROAD
ASHWORTH LANE
CARR HOUSE FARM
A560 STOCKPORT ROAD
HATTERSLEY
BROADBOTTOM ROAD
GAMESLEY

0 50 100 200 300 400 500m
1 : 5000

KEY:
OPTION 1
OPTION 2
OPTION 5

Rev	Status	Rev. Date	Purpose of revision	Drawn	Ck'd	Appr'd

100mm on Original

Client: highways england

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Registered office: Arcadis House, 34 York Way, London, N1 9AB
Coordinating office: 6th Floor, 401 Faraday Street, Birchwood, Warrington, WA3 6GA, Tel: 44 (0)1925 800700

Project: TRANS-PENNINE UPGRADE PROGRAMME

Drawing title: FIGURE 3.2 OPTIONS AT GUN INN

Status	CONCEPT
Revision	
Scale	1:5000
Date -	10-08-2015
Drawn By	N.Clements
Checked By	C.Burgham-Malin
Approved By	N.Westwood
Project No.	UA008848
HE PIN / Originator	
Original Size	A3
Drawing number	HE551473-ARC-HGN-A57-DR-LE-3091 P01
Volume / Location / Type / Role / Number	

Print Date: 2017-11-02 15:50:14

File Path: C:\Users\msa77862\AppData\Local\Packages\Microsoft.MicrosoftEdge_8wekyb3d8bbwe\TempState\Downloads\HE551473-ARC-HGN-A57-DR-LE-3091 - Options at Gun Inn.dwg

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Blue Route
Brown Route
Red Route

Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Apprv'd

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Registered office: Arcadis House 34 York Way London N1 9AB

Coordinating office: 5th Floor, 401 Faraday Street Birchwood Warrington, WA3 6GA Tel: 44 (0)1925 800700

Project: TRANS-PENNINE UPGRADE PROGRAMME

Drawing title: FIGURE 3.3 EXTENDED BRIEF OPTIONS

Status	CONCEPT
Revision	
Scale	1:10000
Date	10-08-2015
Drawn By	N.Clements
Checked By	C.Burgham-Malin
Approved By	N.Westwood
Project No.	UA008848
HE PIN / Originator	
Original Size	A3
Drawing number	HE551473-ARC-HGN-A57-DR-LE-3092
Volume / Location / Type / Role / Number	P01

100mm on Original

Print Date: 2017-11-02 15:51:30

File Path: C:\Users\msa77862\AppData\Local\Packages\Microsoft.MicrosoftEdge_8wekyb3d8bbwe\TempState\Downloads\HE551473-ARC-HGN-A57-DR-LE-3092 - Extended Brief Options.dwg

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Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Appr'd

100mm on Original

Client: highways england

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Registered office: Arcadis House, 34 York Way, London, N1 9AB
Coordinating office: 5th Floor, 401 Faraday Street, Birchwood, Warrington, WA3 6GA
Tel: 44 (0)1925 800700

Project: TRANS-PENNINE UPGRADE PROGRAMME

Drawing title: FIGURE 3.4 DFT - LOW COST OPTION 1 WITH A57 LINK (GLOSSOP SPUR) GENERAL ARRANGEMENT

Status	CONCEPT
Revision	
Scale	1:10000
Date	18-02-2016
Drawn By	N.Clements
Checked By	C.Burgham-Malin
Approved By	N.Westwood
Project No.	UA008848
HE	
PIN	
Originator	
Original Size	A3
Drawing number	HE551473-ARC-HGN-A57-DR-LE-3093 01
Volume | Location | Type | Role | Number	

Print Date: 2017-11-02 15:52:59

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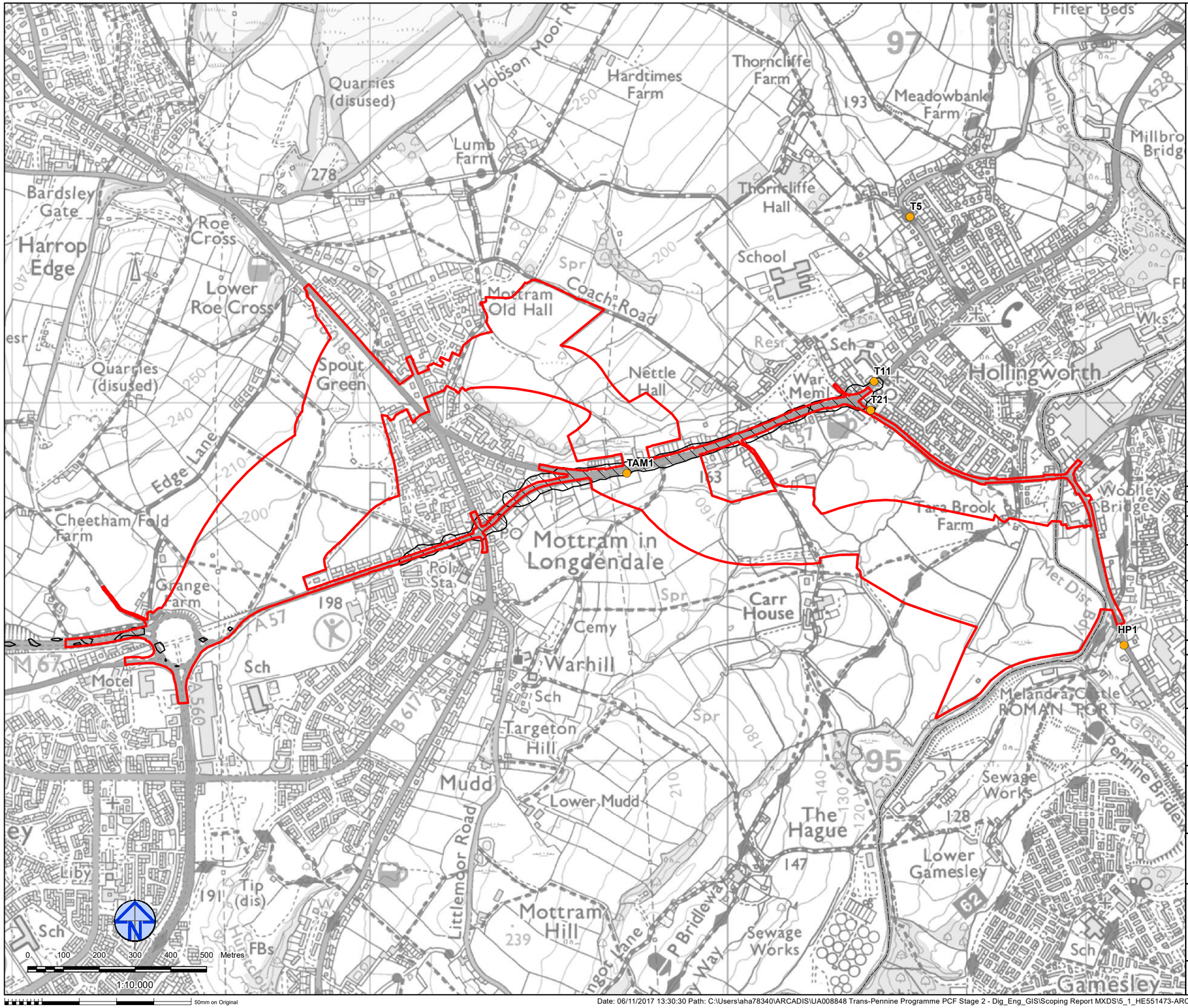
Legend
Monitoring Locations
Red Line Boundary
Local Authority Boundary
Air Quality Management Area
T5
T11
T21
TAM1
HP1
Hobson Moor R
Quarries (disused)
Hardtimes Farm
Thorncliffe Farm
Meadowbank Farm
Filter Beds
Millbro Bridg
Lumb Farm
Thorncliffe Hall
Bardsley Gate
Harrop Edge
Roe Cross
Lower Roe Cross
Mottram Old Hall
Spr
Coach Road
School
Resr
Sch
Wks
Quarries (disused)
Spout Green
Nettle Hall
War Meml
Hollingworth
Edge Lane
Cheetham Fold Farm
Mottram in Longdendale
Pol Sta
Tara Brook Farm
Wobley Bridge
Grange Farm
Carr House
Met Dist
M67
Motel
Sch
Cemy
Warhill
Sch
Melandra Castle ROMAN FORT
Pennine Bridleway
Targeton Hill
Mudd
Lower Mudd
Littlemoor Road
The Hague
Sewage Works
Lower Gamesley
Tip (dis)
Sch
FBs
Mottram Hill
Sewage Works
Gamesley
Sch
P Bridleway
0 100 200 300 400 500 Metres
1:10,000
50mm on Original
Issue | Description | Date
01 | Draft | 06/11/17
Status: PRELIMINARY/CONFIDENTIAL
Scale: 1:10,000
Original Size: A3
Height Datum: NEWLYN
Projection: O.S
Current Issue Signatures
Drawn R.MILLMAN
Checked M.MUTALE
Approved A.SAUNDERS
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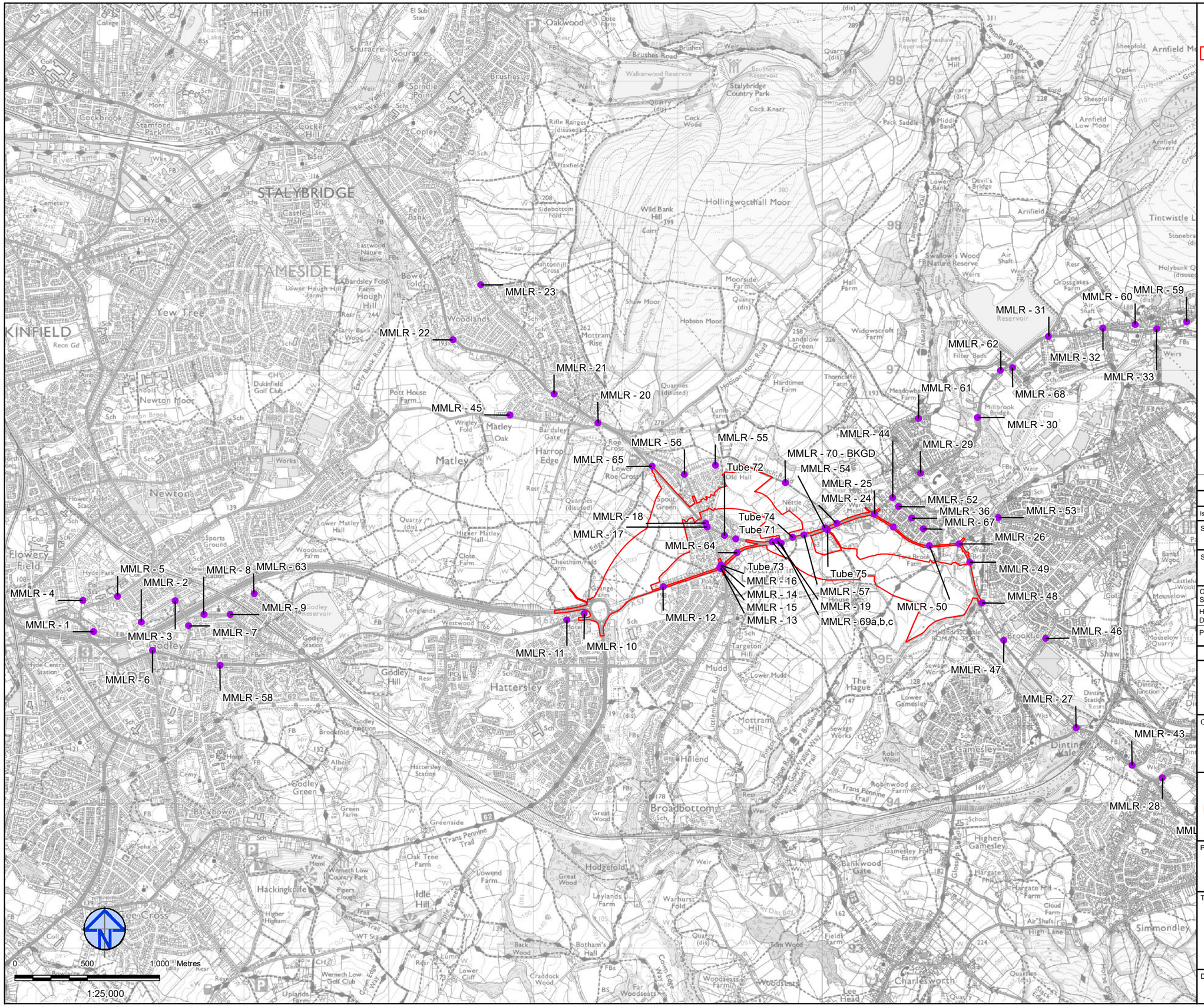
Client: highways england
ARCADIS Design & Consultancy for natural and built assets
Project: TRANS-PENNINE UPGRADE PROGRAMME
Title: FIGURE 5.1 AQMA AND LOCAL AUTHORITY MONITORING LOCATIONS MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD
Drawing No. HE551473-ARC-HGN-A57-DR-LE-3071
Date: 06/11/2017 13:30:30 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_1_HE551473-ARC-HGN-A57-DR-LE-3071_AQMA and Monitoring Locations.mxd



Legend

- Highways England Monitoring Tube
- Red Line Boundary

Issue	Description	Date
01	Draft	07/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:25,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S	©Copyright reserved	

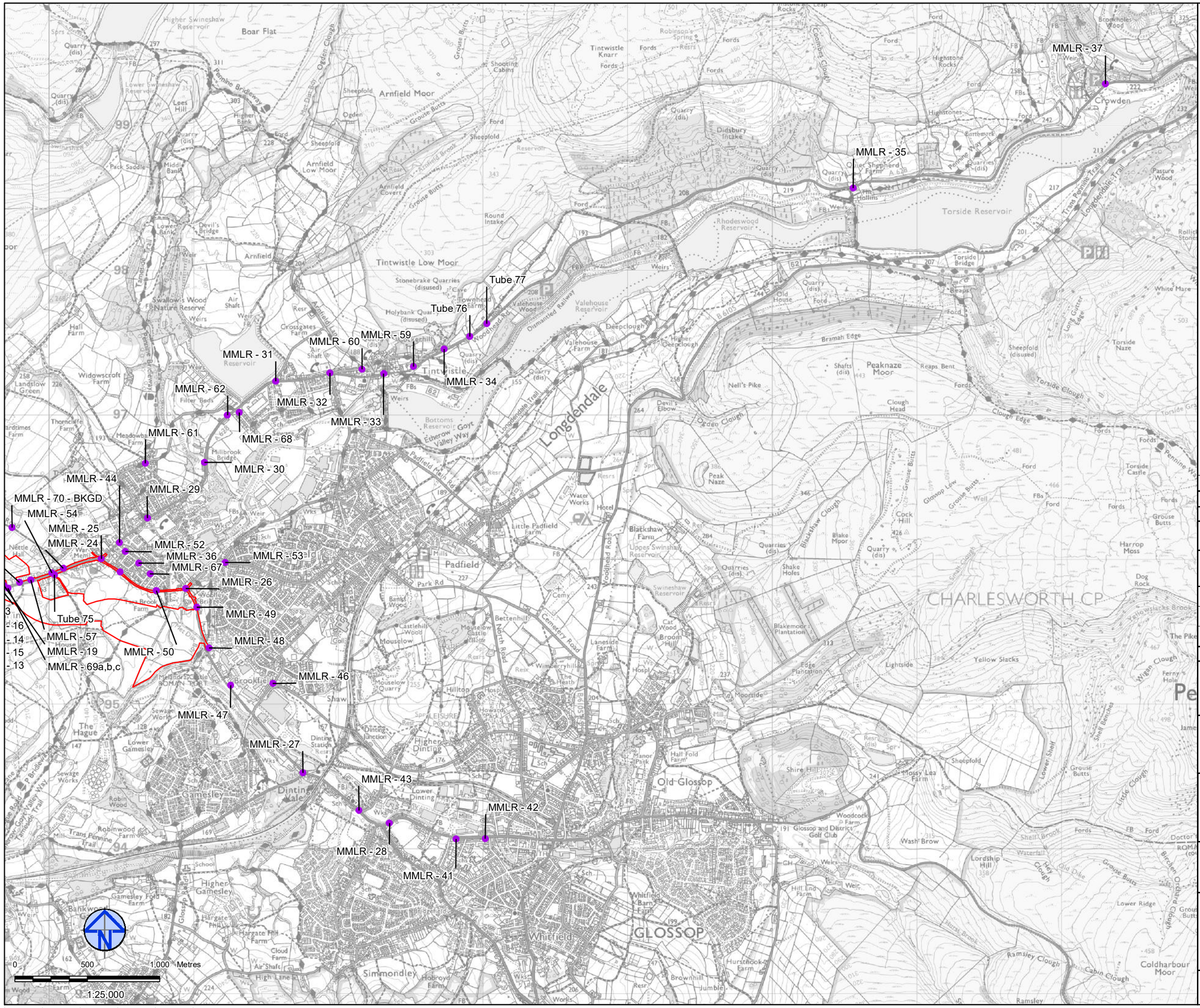
Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.2 HIGHWAYS ENGLAND MONITORING TUBE LOCATIONS MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD SHEET 1 of 2

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3072



Legend

- Highways England Monitoring Tube
- Red Line Boundary

Issue	Description	Date
01	Draft	07/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:25,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S	©Copyright reserved	

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.2 HIGHWAYS ENGLAND MONITORING TUBE LOCATIONS MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD SHEET 2 of 2

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3072

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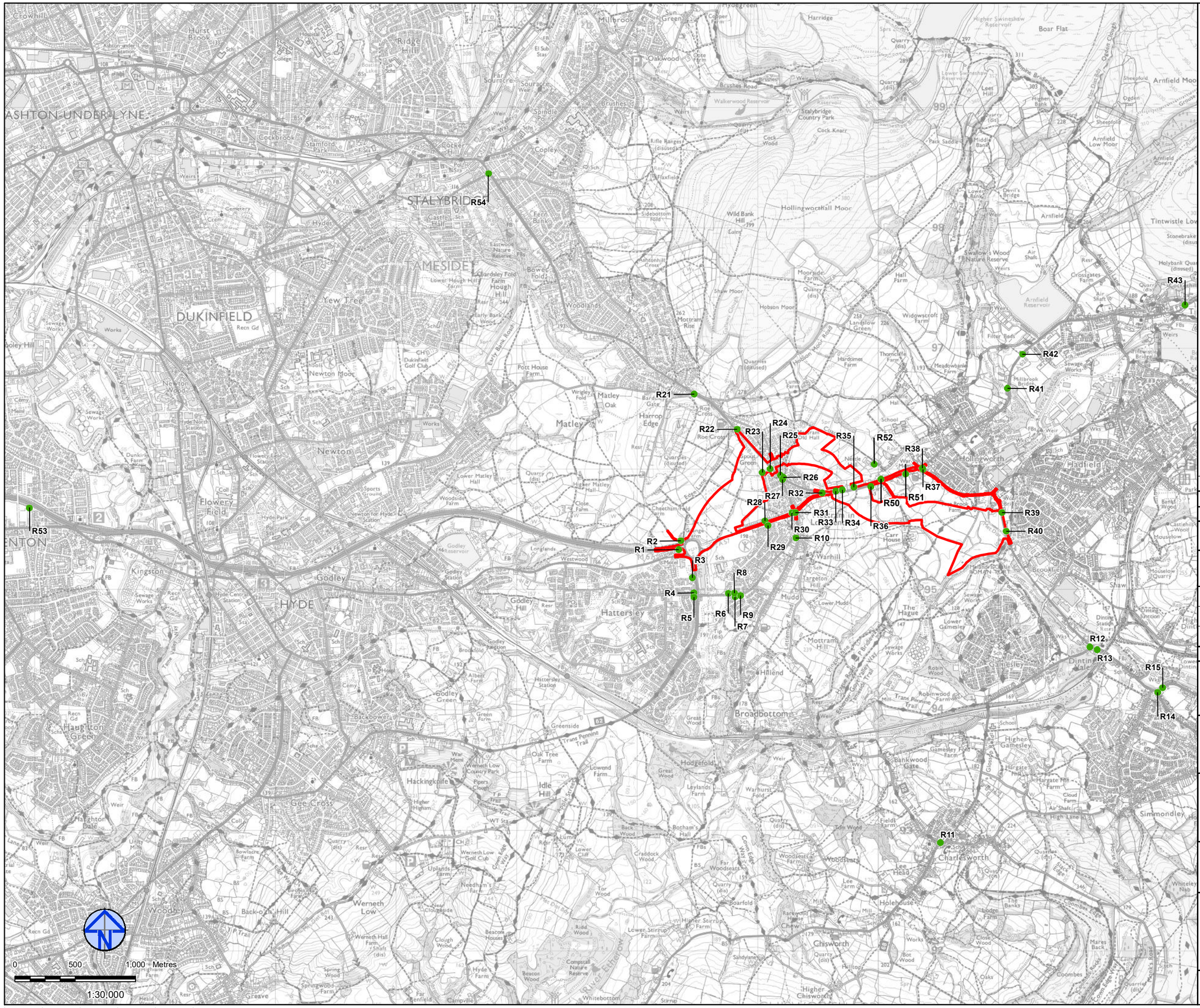
Date: 07/11/2017 14:02:34 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_2_HE551473-ARC-HGN-A57-DR-LE-3072_Highways England Tube Locations_Sheet 2.mxd



Legend

- Sensitive Receptors
- Red Line Boundary

Issue	Description	Date
01	DRAFT	07/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:30,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S		

Client: highways england

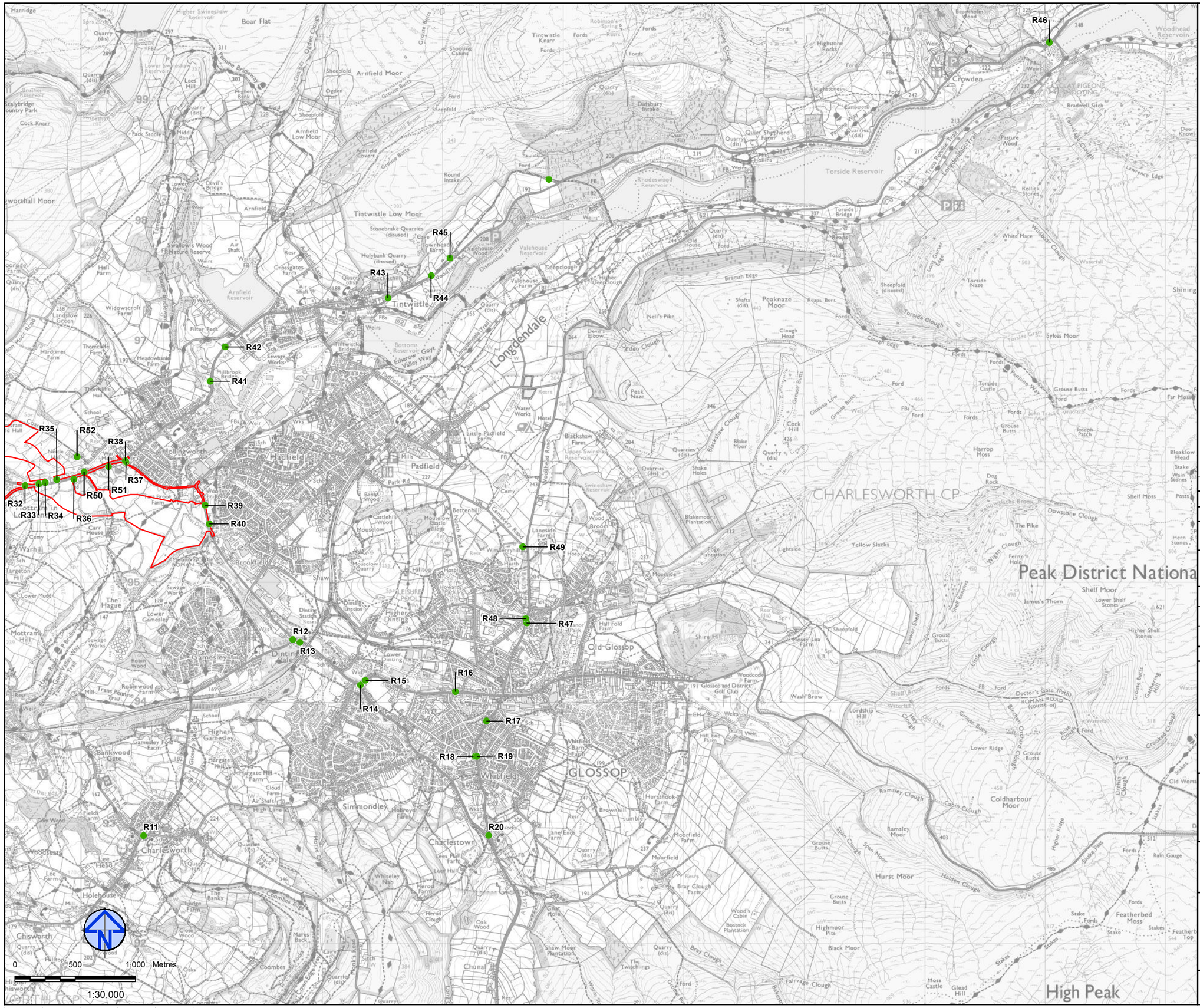
ARCADIS — Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.3 SENSITIVE RECEPTOR LOCATIONS MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD SHEET 1 OF 2

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3073

Date: 07/11/2017 08:51:47 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_3_HE551473-ARC-HGN-A57-DR-LE-3073_Sensitive Receptor Locations-Sheet_1.mxd



Legend

- Sensitive Receptors
- Red Line Boundary

Issue	Description	Date
01	DRAFT	06/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:30,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S		

Client: highways england

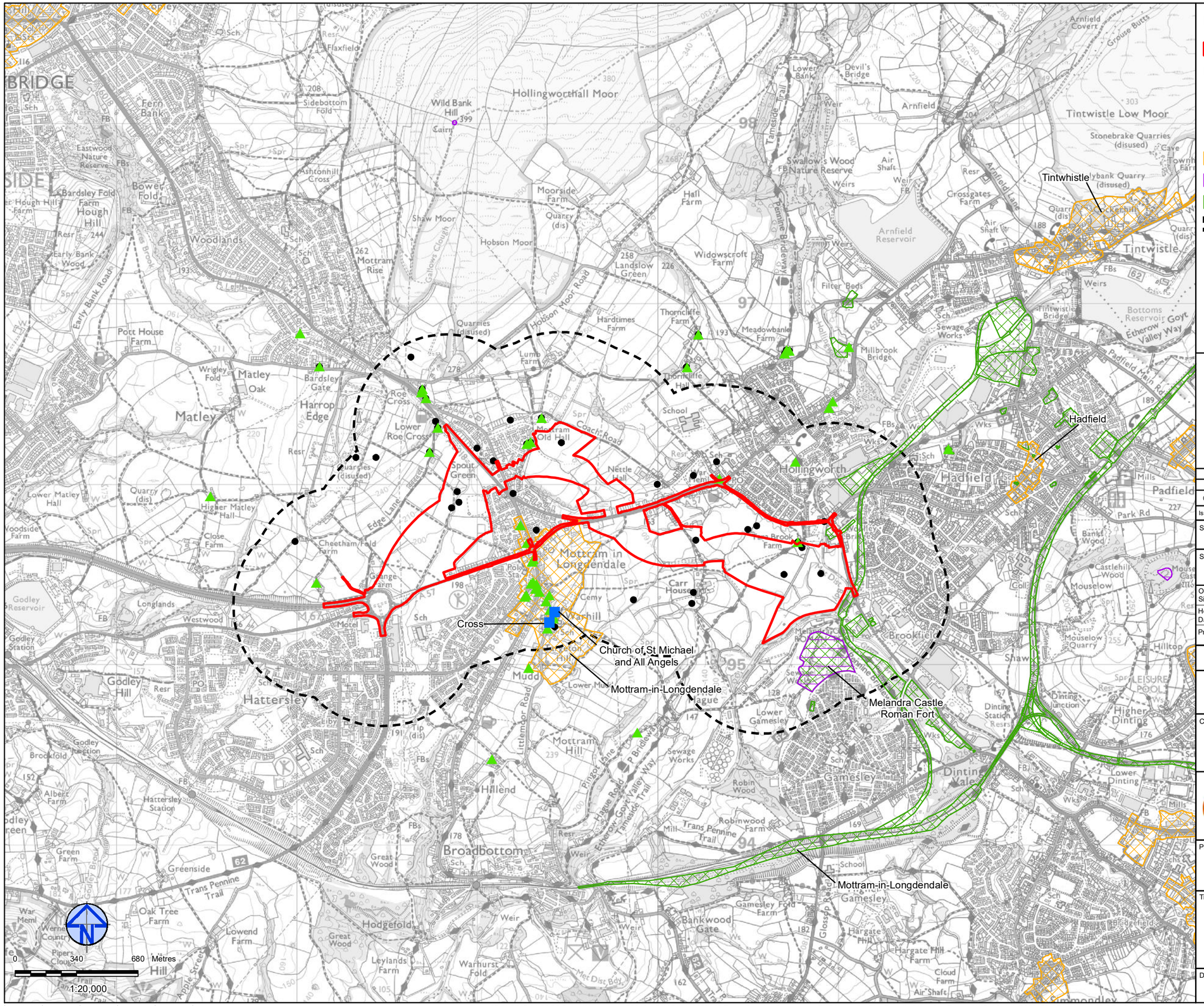
ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.3 SENSITIVE RECEPTOR LOCATIONS MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD SHEET 2 OF 2

Drawing No. HE551473-ARC-HGN-A57-DR-LE-3073

Date: 06/11/2017 13:34:24 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_3_HE551473-ARC-HGN-A57-DR-LE-3073_Sensitive Receptor Locations-Sheet_2.mxd



Legend

- Red Line Boundary

Listed Building

- Grade II*
- Grade II
- Non-Designated Heritage Asset
- Conservation Areas
- Scheduled Monument
- Non-Designated Heritage Asset
- Study Area Boundary - 500m

Issue	Description	Date
01	DRAFT	07/11/17

Status: PRELIMINARY/CONFIDENTIAL

		Current Issue Signatures	
Scale	1:20,000	Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
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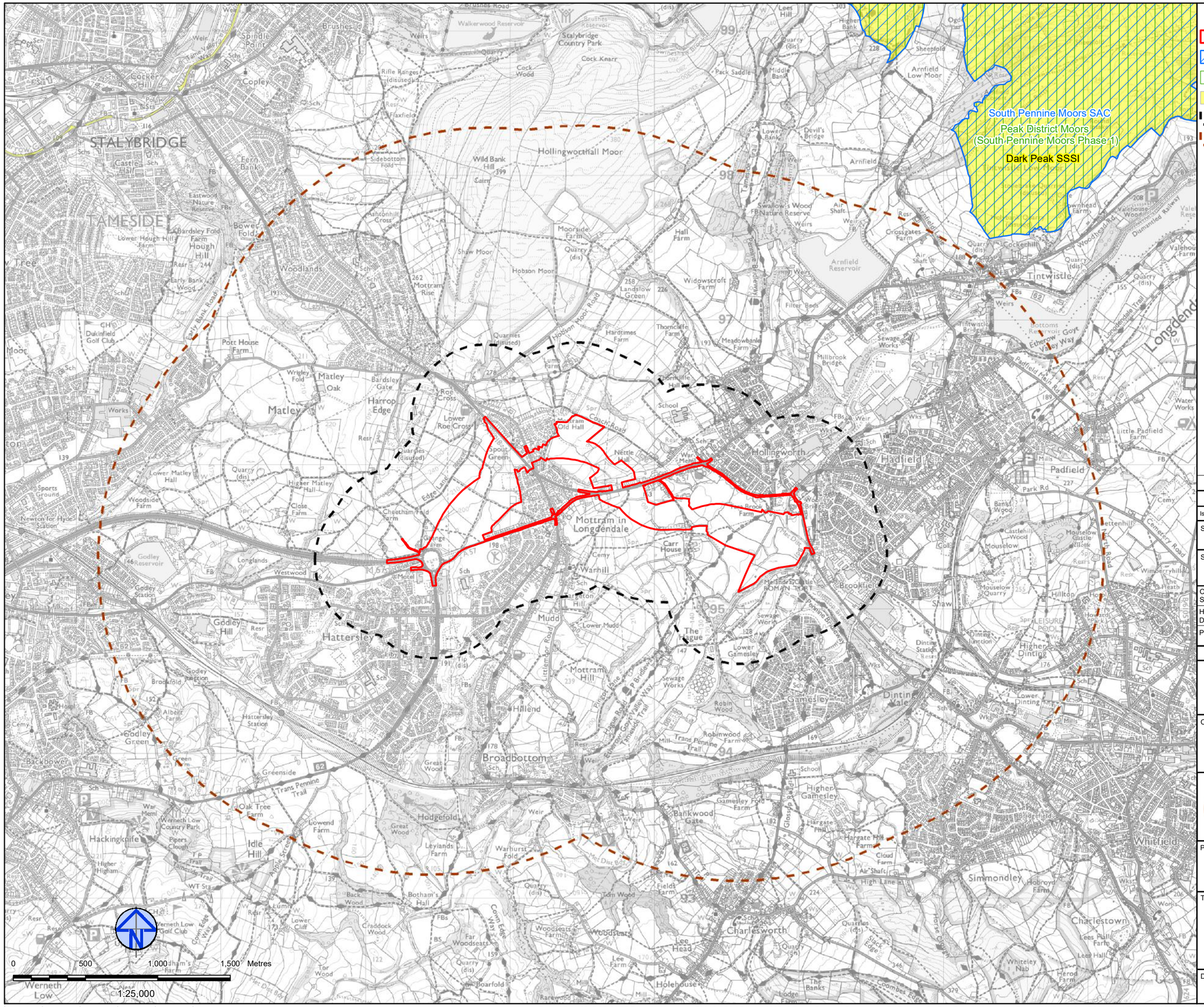
Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.4 MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD HERITAGE ASSET PLAN

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3074

50mm on Original

Date: 07/11/2017 14:06:23 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_4_HE551473-ARC-HGN-A57-DR-LE-3074_Mottram_Moor_Link_Road_and_A57_Link_Road_Heritage_Asset_Plan.mxd



Legend

- Red Line Boundary
- Special Area of Conservation
- Special Protection Areas
- Site of Special Scientific Interest
- 500m Study Area
- 2km Study Area

Issue	Description	Date
01	Draft	07/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:25,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S		

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.5 STATUTORY DESIGNATED SITES FOR NATURE CONSERVATION

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3075

50mm on Original

Date: 07/11/2017 08:54:07 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_5_HE551473-ARC-HGN-A57-DR-LE-3075_Statutory Designated Sites for Nature Conservation.mxd

Legend

- Target Notes
- Broad-Leaved Tree
- Scattered Scrub
- Water
- Species-Poor Intact Hedge
- Species-Poor Defunct Hedge
- Dry Ditch
- Red Line Boundary
- 500m Buffer
- Broad-Leaved Semi-Natural Woodland
- Broad-Leaved Plantation
- Coniferous Plantation
- Mixed Plantation
- Dense Scrub
- Broad-Leaved Scattered Trees
- Unimproved Acid Grassland
- Semi-Improved Acid Grassland
- Unimproved Neutral Grassland
- Semi-Improved Neutral Grassland
- Improved Grassland
- Poor Semi-Improved Grassland
- Tall Ruderal
- Dry Heath/Acid Grassland Mosaic
- Water
- Amenity Grassland

Issue	Description	Date
01	DRAFT	06/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:15,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S	© Copyright reserved	

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.6 EXTENDED PHASE 1 HABITAT SURVEY: MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3076

0 500 1,000 Metres

1:15,000

50mm on Original

Date: 06/11/2017 13:45:37 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_6_HE551473-ARC-HGN-A57-DR-LE-3076_Phase_1_Habitat_Survey.mxd

UNAMED ANCIENT SEMI NATURAL WOODLAND

MILLBROOK BRIDGE WOOD

WESTBROOK CLOUGH

DINTING VALE WOOD

ROBIN WOOD

HURST CLOUGH LNR

0 400 800m

1 : 20 000

50mm on Original

Print Date: 2017-11-03 11:58:23

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NOTES:

Legend:

- RED LINE BOUNDARY
- STUDY AREA (1KM)
- LOCAL NATURE RESERVE
- PUBLIC RIGHT OF WAY (PRoW)
- LISTED BUILDINGS
- NATIONAL CYCLE ROUTE 62 - TRANS PENNINE TRAIL
- NATIONAL TRAIL
- CONSERVATION AREA
- ANCIENT WOODLAND
- NATIONAL PARK
- VIEWPOINT LOCATIONS

Rev	Date	Description	Drawn	Check	Approv
P2	03.11.17	SCOPING - RED LINE UPDATE	AC	RK	DH
P1	20.10.17	SCOPING ISSUE	AC	RK	DH

Client

HIGHWAYS ENGLAND

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

Site

Mottram Moor Link Road

Client

Highways England
Piccadilly Gate
Store Street
Manchester M1 2WD
Phone +44 (0)3 300 123 5000
Fax +44 (0)3 300 123 5000
client@internet.com
www.client.com

ARCADIS Design & Consultancy for natural and built assets

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Warrington, WA3 6GA
Tel: 44 (0)1925 800700

www.arcadis.com

TITLE:

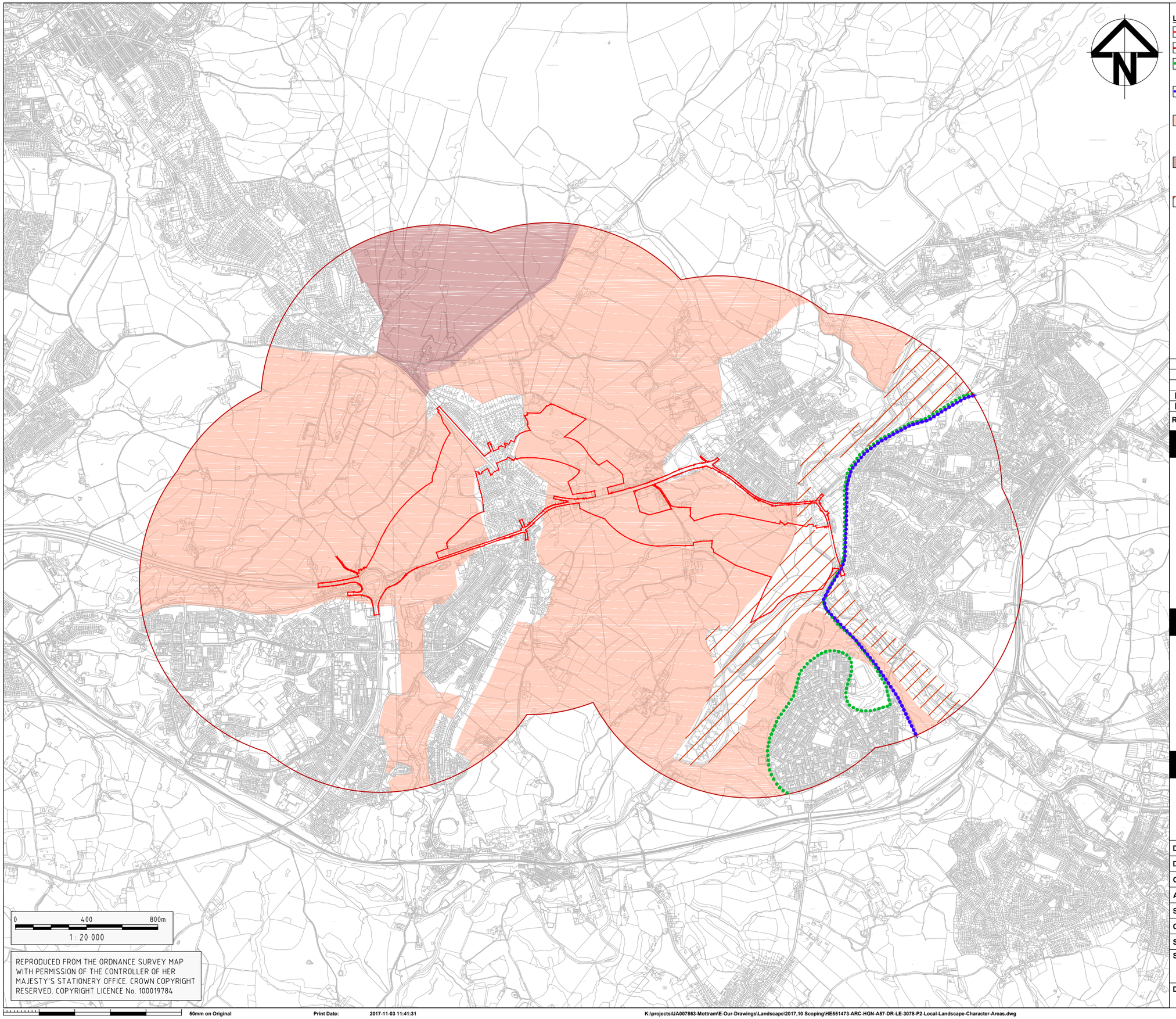
FIGURE 5.7 LANDSCAPE DESIGNATIONS, PUBLIC RIGHTS OF WAY, & VIEWPOINT LOCATIONS

Designed	A.CHESTER	Date 20OCT17	Signed
Drawn	J.NORMAN	Date 20OCT17	Signed
Checked	R.KITCH	Date 20OCT17	Signed
Approved	D.HOARE	Date 20OCT17	Signed
Scale:	1:20 000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

Suitability Description:
FOR INFORMATION

Drawing Number: HE551473-ARC-HGN-A57-DR-LE-3077

Revision: P2



Legend:

- RED LINE BOUNDARY
- STUDY AREA (1KM)
- NATIONAL CYCLE ROUTE 62 - TRANS PENNINE TRAIL
- NATIONAL TRIAL PENNINE BRIDLEWAY
- PEAK DISTRICT, DARK PEAK WESTERN FRINGE VALLEY PASTURES WITH INDUSTRY LCT
- PEAK DISTRICT, DARK PEAK & DARK PEAK WESTERN FRINGE MOORLAND SLOPES & CLOUGHS LCT
- PEAK DISTRICT, DARK PEAK WESTERN FRINGE, RIVERSIDE MEADOWS LCT

Rev	Date	Description	Drawn	Check	Approv
P2	03.11.17	SCOPING - RED LINE UPDATE	AC	RK	DH
P1	20.10.17	SCOPING ISSUE	AC	RK	DH

Client

HIGHWAYS ENGLAND

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

Site

Mottram Moor Link Road

Client

Highways England
Piccadilly Gate
Store Street
Manchester M1 2WD
Phone +44 (0)3 300 123 5000
Fax +44 (0)3 300 123 5000
client@internet.com
www.client.com

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Warrington, WA3 6GA
Tel: 44 (0)1925 800700

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TITLE:

FIGURE 5.8 LOCAL LANDSCAPE CHARACTER AREAS

Designed	A.CHESTER	Date 20OCT17	Signed
Drawn	J.NORMAN	Date 20OCT17	Signed
Checked	R.KITCH	Date 20OCT17	Signed
Approved	D.HOARE	Date 20OCT17	Signed
Scale:	1:20 000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

Suitability Description:

FOR INFORMATION

Drawing Number: HE551473-ARC-HGN-A57-DR-LE-3078

Revision: P2

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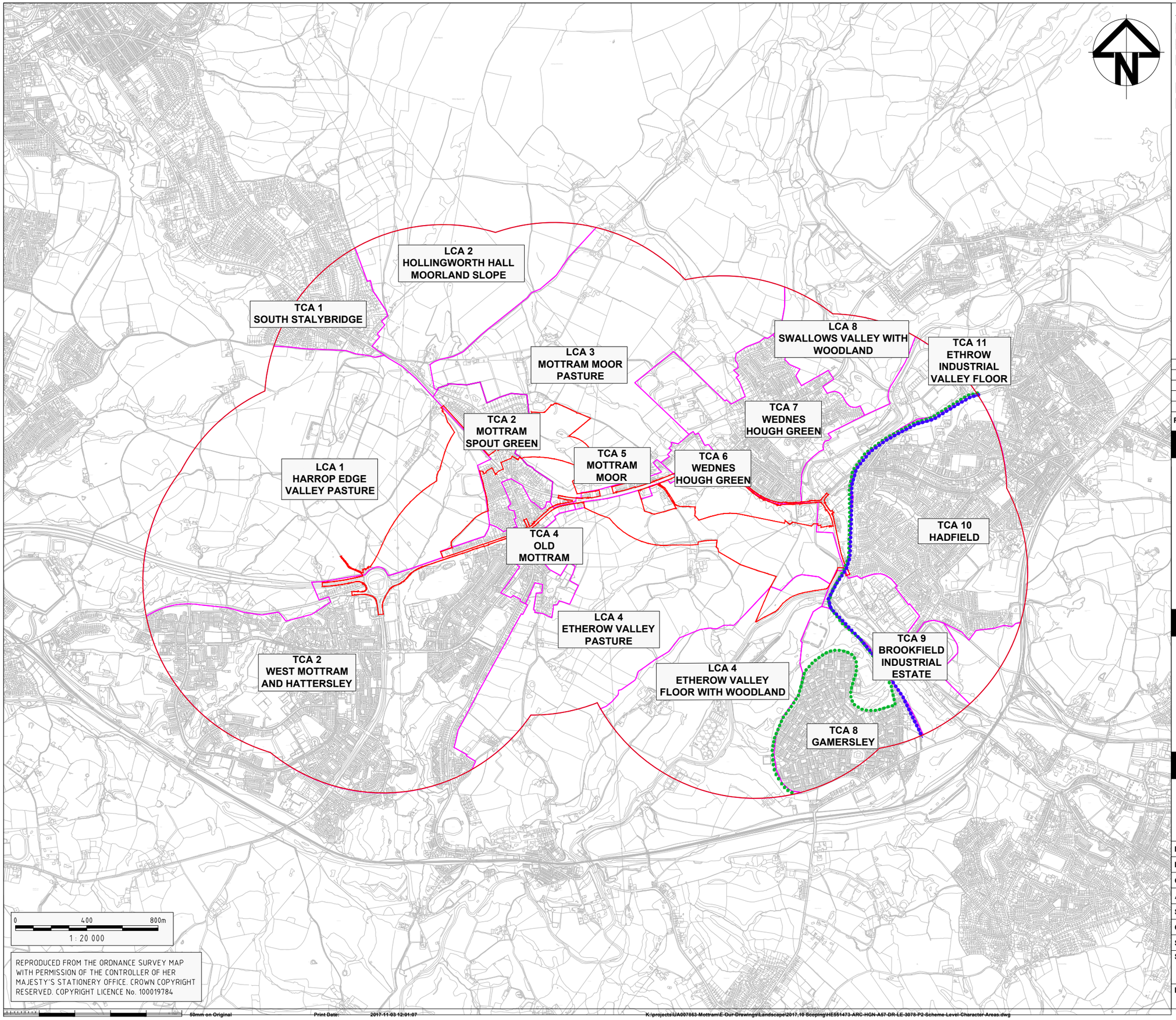

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Legend:

- RED LINE BOUNDARY
- STUDY AREA (1KM)
- NATIONAL CYCLE ROUTE 62 - TRANS PENNINE TRAIL
- NATIONAL TRAIL PENNINE BRIDLEWAY
- SCHEME CHARACTER AREAS

Rev	Date	Description	Drawn	Check	Approv
P2	03.11.17	SCOPING - RED LINE UPDATE	AC	RK	DH
P1	20.10.17	SCOPING ISSUE	AC	RK	DH

Client

HIGHWAYS ENGLAND

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

Site

Mottram Moor Link Road

Client

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client@internet.com
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Tel: 44 (0)1925 800700

www.arcadis.com

TITLE:

FIGURE 5.9 SCHEME LEVEL LANDSCAPE CHARACTER AREAS

Designed	A.CHESTER	Date 20OCT17	Signed
Drawn	J.NORMAN	Date 20OCT17	Signed
Checked	R.KITCH	Date 20OCT17	Signed
Approved	D.HOARE	Date 20OCT17	Signed
Scale:	1:20 000	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

Suitability Description:

FOR INFORMATION

Drawing Number: **HE551473-ARC-HGN-A57-DR-LE-3079**

Revision: **P2**

VIEWPOINT 1; 90 DEGREE VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM LOCAL PROW ON HARROP EDGE RD, LOOKING SOUTH EAST

90 DEGREES VIEW

VIEWPOINT 1; FULL PANORAMIC VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM LOCAL PROW ON HARROP EDGE RD, LOOKING SOUTH EAST

Rev	Date	Description	Drawn	Check	Approv
P1	20.10.17	ISSUED FOR SCOPING REPORT	AC	RK	DH

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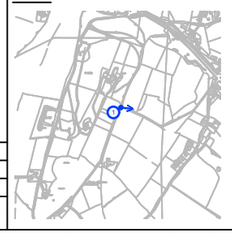

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Client

highways england

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Designed	A.CHESTER	Date 20 OCT 17	Signed
Drawn	J.NORMAN	Date 20 OCT 17	Signed
Checked	R.KITCH	Date 20 OCT 17	Signed
Approved	D.HOARE	Date 20 OCT 17	Signed
Scale:	NTS	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

TITLE:

FIGURE 5.10
REPRESENTATIVE VIEWPOINT 1
SHEET 1 OF 7

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Drawing Number: HE551473-ARC-HGN-A57-DR-LE-3080

Revision: P1

VIEWPOINT 2; 90 DEGREES VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW PROW NEAR ST MICHAELS AND ALL ANGELS CHURCH

90 DEGREES VIEW

VIEWPOINT 2; FULL PANORAMIC VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW PROW NEAR ST MICHAELS AND ALL ANGELS CHURCH

Rev	Date	Description	Drawn	Check	Approv
P1	20.10.17	ISSUED FOR SCOPING REPORT	AC	RK	DH

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NOTES:

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Suitability Description:

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Checked	R.KITCH	Date 20 OCT 17	Signed
Approved	D.HOARE	Date 20 OCT 17	Signed
Scale:	NTS	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

TITLE:

FIGURE 5.10
REPRESENTATIVE VIEWPOINT 2
SHEET 2 OF 7

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Drawing Number: HE551473-ARC-HGN-A57-DR-LE-3080

Revision: P1

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VIEWPOINT 3; 90 DEGREES VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, THE BYPASS (MOTTRAM), VIEW FROM THE A6018 MOTTRAM ROAD, LOOKING SOUTH WEST

90 DEGREES VIEW

VIEWPOINT 3; FULL PANORAMIC VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, THE BYPASS (MOTTRAM), VIEW FROM THE A6018 MOTTRAM ROAD, LOOKING SOUTH WEST

Rev	Date	Description	Drawn	Check	Approv
P1	20.10.17	ISSUED FOR SCOPING REPORT	AC	RK	DH

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NOTES:

Print Date: 2017-10-20 15:29:35

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Client

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Checked	R.KITCH	Date 20 OCT 17	Signed
Approved	D.HOARE	Date 20 OCT 17	Signed
Scale:	NTS	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

TITLE:

FIGURE 5.10
REPRESENTATIVE VIEWPOINT 3
SHEET 3 OF 7

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Revision: P1

VIEWPOINT 4; 90 DEGREES VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM A57, LOOKING NORTH EAST

90 DEGREES VIEW

VIEWPOINT 4; FULL PANORAMIC VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM A57, LOOKING NORTH EAST

Rev	Date	Description	Drawn	Check	Approv
P1	20.10.17	ISSUED FOR SCOPING REPORT	AC	RK	DH

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Client

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Checked	R.KITCH	Date 20 OCT 17	Signed
Approved	D.HOARE	Date 20 OCT 17	Signed
Scale:	NTS	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

TITLE:

FIGURE 5.10
REPRESENTATIVE VIEWPOINT 4
SHEET 4 OF 7

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Revision: P1

VIEWPOINT 5; 90 DEGREES VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM A57 MOTTRAM MOOR, LOOKING WEST

90 DEGREES VIEW

VIEWPOINT 5; FULL PANORAMIC VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM A57 MOTTRAM MOOR, LOOKING WEST

Rev	Date	Description	Drawn	Check	Approv
P1	20.10.17	ISSUED FOR SCOPING REPORT	AC	RK	DH

NOTES:

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Approved	D.HOARE	Date 20 OCT 17	Signed
Scale:	NTS	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

TITLE:

FIGURE 5.10
REPRESENTATIVE VIEWPOINT 5
SHEET 5 OF 7

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Revision: P1

VIEWPOINT 6; 90 DEGREES VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM LOCAL PROW NEAR CARRHOUSE, LOOKING NORTH EAST

90 DEGREES VIEW

VIEWPOINT 6; FULL PANORAMIC VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM LOCAL PROW NEAR CARRHOUSE, LOOKING NORTH EAST

Rev	Date	Description	Drawn	Check	Approv
P1	20.10.17	ISSUED FOR SCOPING REPORT	AC	RK	DH

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Approved	D.HOARE	Date 20 OCT 17	Signed
Scale:	NTS	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

TITLE:

FIGURE 5.10
REPRESENTATIVE VIEWPOINT 6
SHEET 6 OF 7

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Drawing Number: HE551473-ARC-HGN-A57-DR-LE-3080

Revision: P1

VIEWPOINT 7; 90 DEGREES VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM TRANS PENNINE TRAIL PROW, LOOKING NORTH WEST

90 DEGREES VIEW

VIEWPOINT 7; FULL PANORAMIC VIEW - MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD, VIEW FROM TRANS PENNINE TRAIL PROW, LOOKING NORTH WEST

Rev	Date	Description	Drawn	Check	Approv
P1	20.10.17	ISSUED FOR SCOPING REPORT	AC	RK	DH

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Client

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Checked	R.KITCH	Date 20 OCT 17	Signed
Approved	D.HOARE	Date 20 OCT 17	Signed
Scale:	NTS	Datum:	AOD
Original Size:	A3	Grid:	OS
Suitability Code:	S2	Project Number:	UA008848

PROJECT:

MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

TITLE:

FIGURE 5.10
REPRESENTATIVE VIEWPOINT 7
SHEET 7 OF 7

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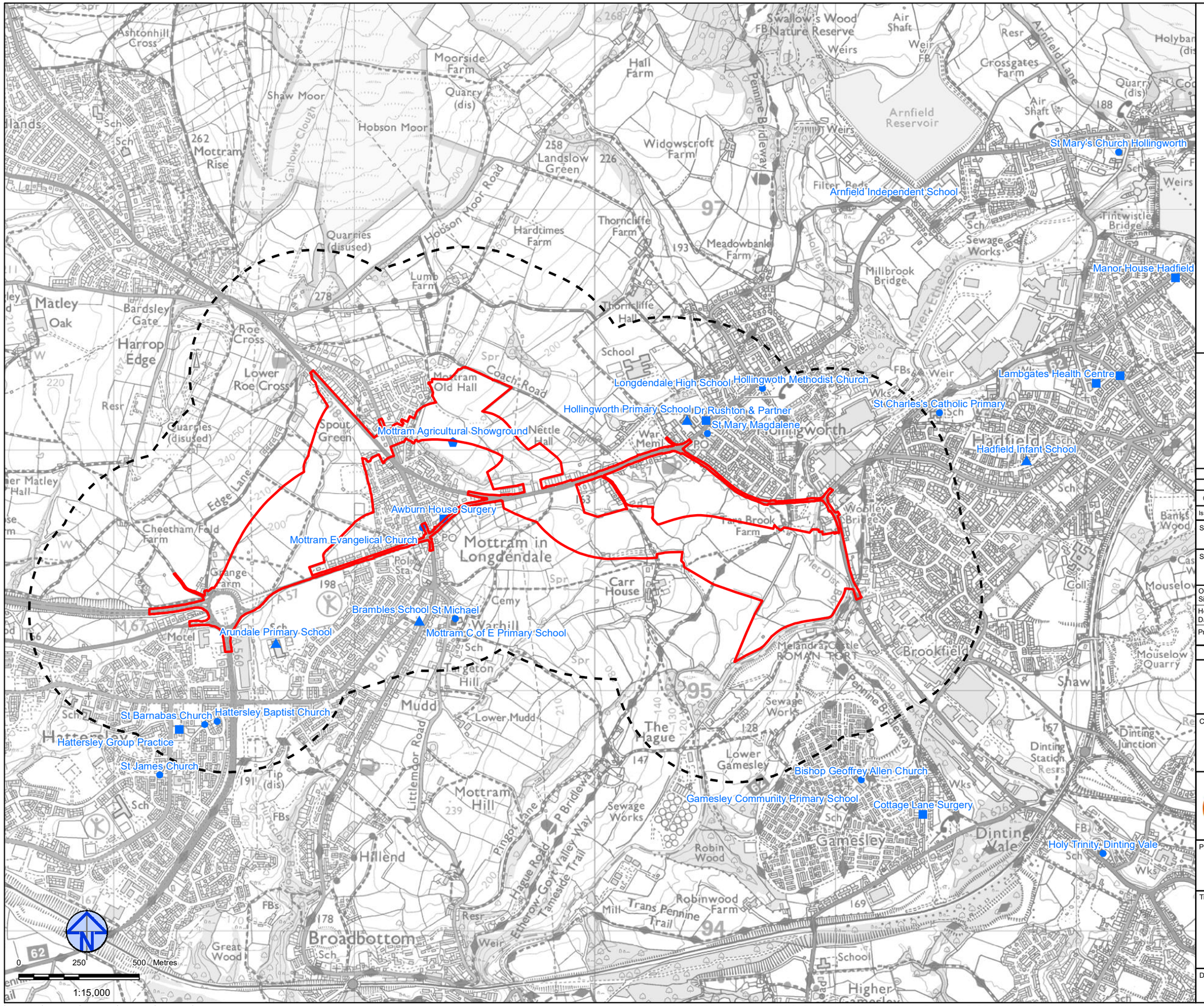
Drawing Number: HE551473-ARC-HGN-A57-DR-LE-3080

Revision: P1



Legend

- Red Line Boundary

COMMUNITY FACILITIES

- School
- Health Centre
- Church
- Other
- 500m Study Area

Issue	Description	Date
01	DRAFT	07/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:15,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S	©Copyright reserved	

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.11 COMMUNITY FACILITIES AND COMMERCIAL ASSETS

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3081

Date: 07/11/2017 14:09:19 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_11_HE551473-ARC-HGN-A57-DR-LE-3081_People_and_Communities.mxd

Legend

- Red Line Boundary
- Noise Action Planning Important Area
- 300m Study Area

Issue	Description	Date
01	Draft	06/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:12,500	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S		

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.12 NOISE IMPORTANT AREAS: MOTTRAM MOOR LINK ROAD AND A57(T) TO A57 LINK ROAD

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3082

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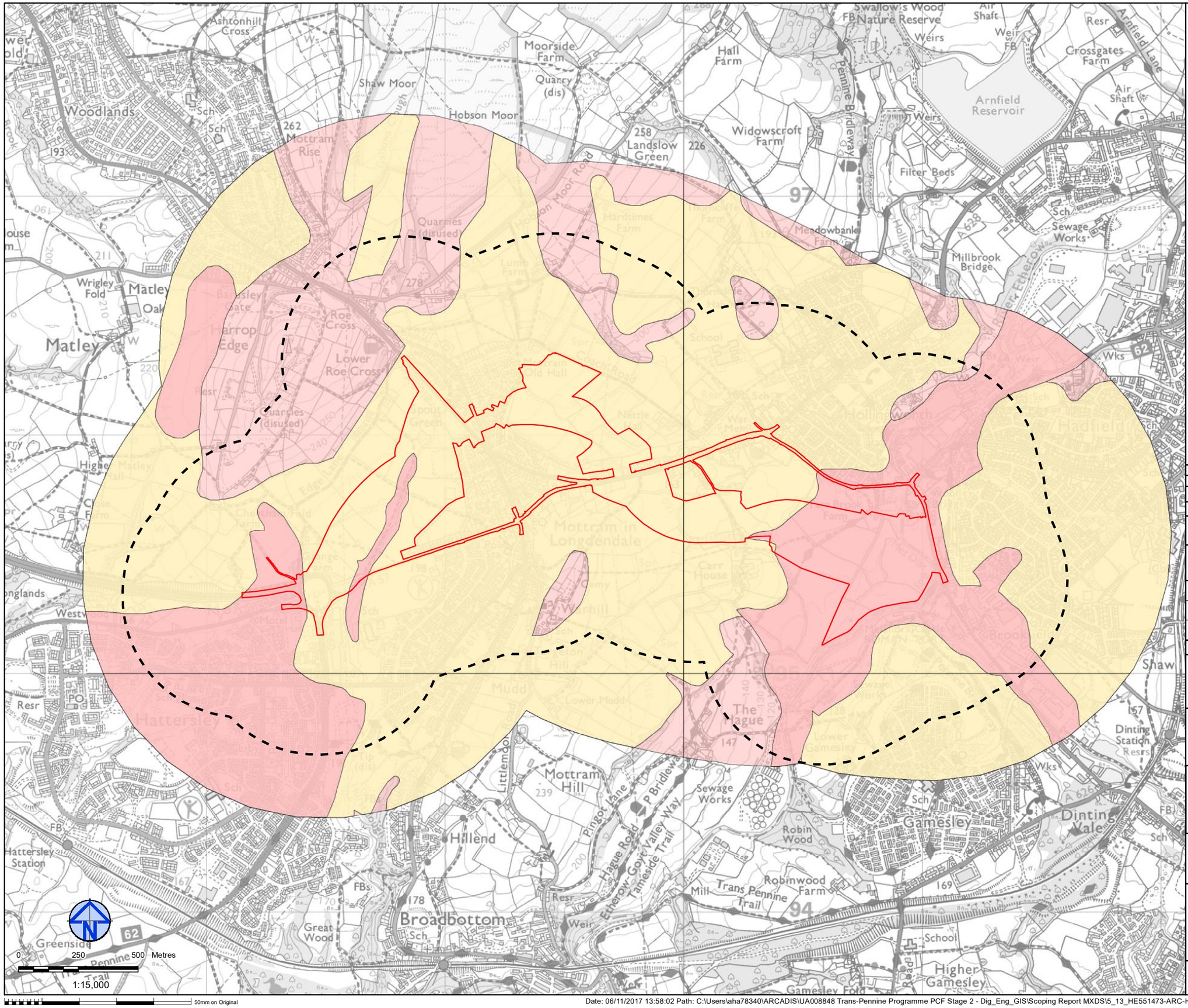


Legend

- Red Line Boundary
- 500m Study Area
- Secondary - A
- Secondary - Undifferentiated

Issue	Description	Date
01	DRAFT	26/10/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:15,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S		

Client: highways england

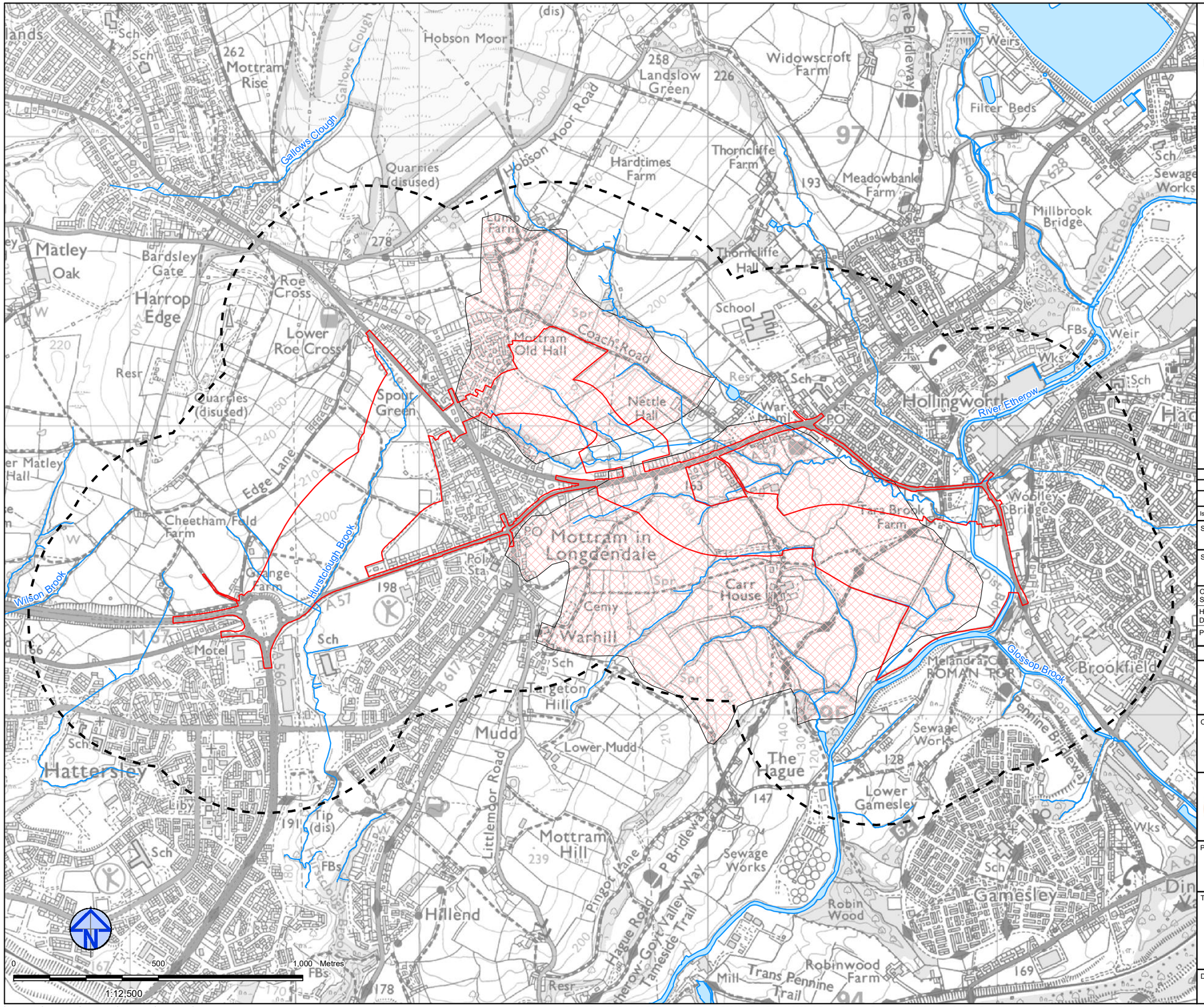
ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.13 BEDROCK AND SUPERFICIAL AQUIFERS

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3083

Date: 06/11/2017 13:58:02 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_13_HE551473-ARC-HGN-A57-DR-LE-3083_Superficial_and_Bedrock_Aquifers.mxd



Legend

- Red Line Boundary
- 500m Study Area
- Surface Water
- River network
- Sinks and Issues

Issue	Description	Date
01	DRAFT	06/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:12,500	Current Issue Signatures	
		Drawn R.MILLMAN	
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Height Datum	NEWLYN	Approved A.SAUNDERS	
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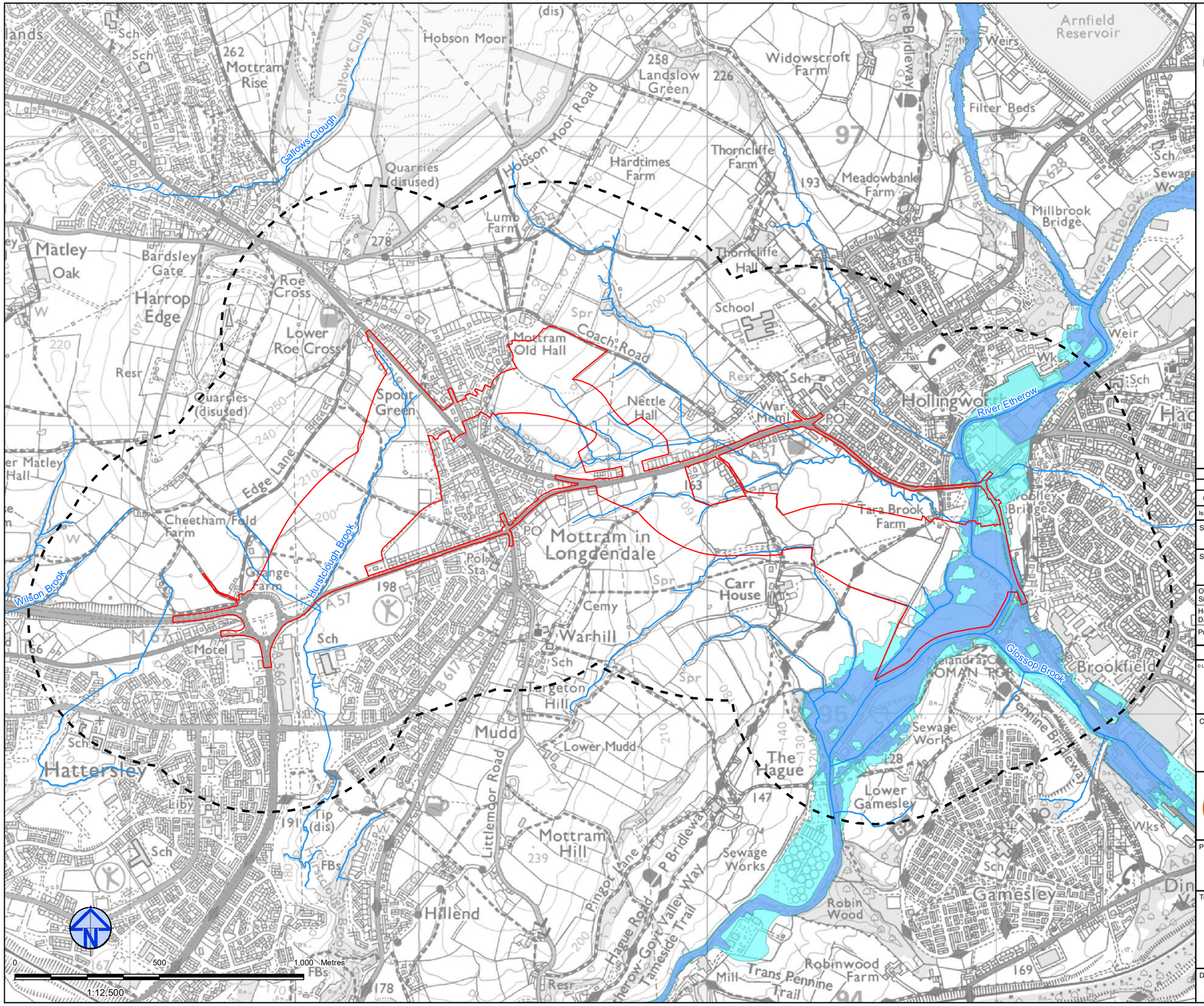
Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.14 WATER FRAMEWORK DIRECTIVE SURFACE WATERBODIES

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3084

Date: 06/11/2017 14:01:02 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_14_HE551473-ARC-HGN-A57-DR-LE-3084_Water_Framework_Directive_Waterbodies.mxd



01	DRAFT	06/11/17
Issue	Description	Date

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:12,500	Current Issue Signatures	
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Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
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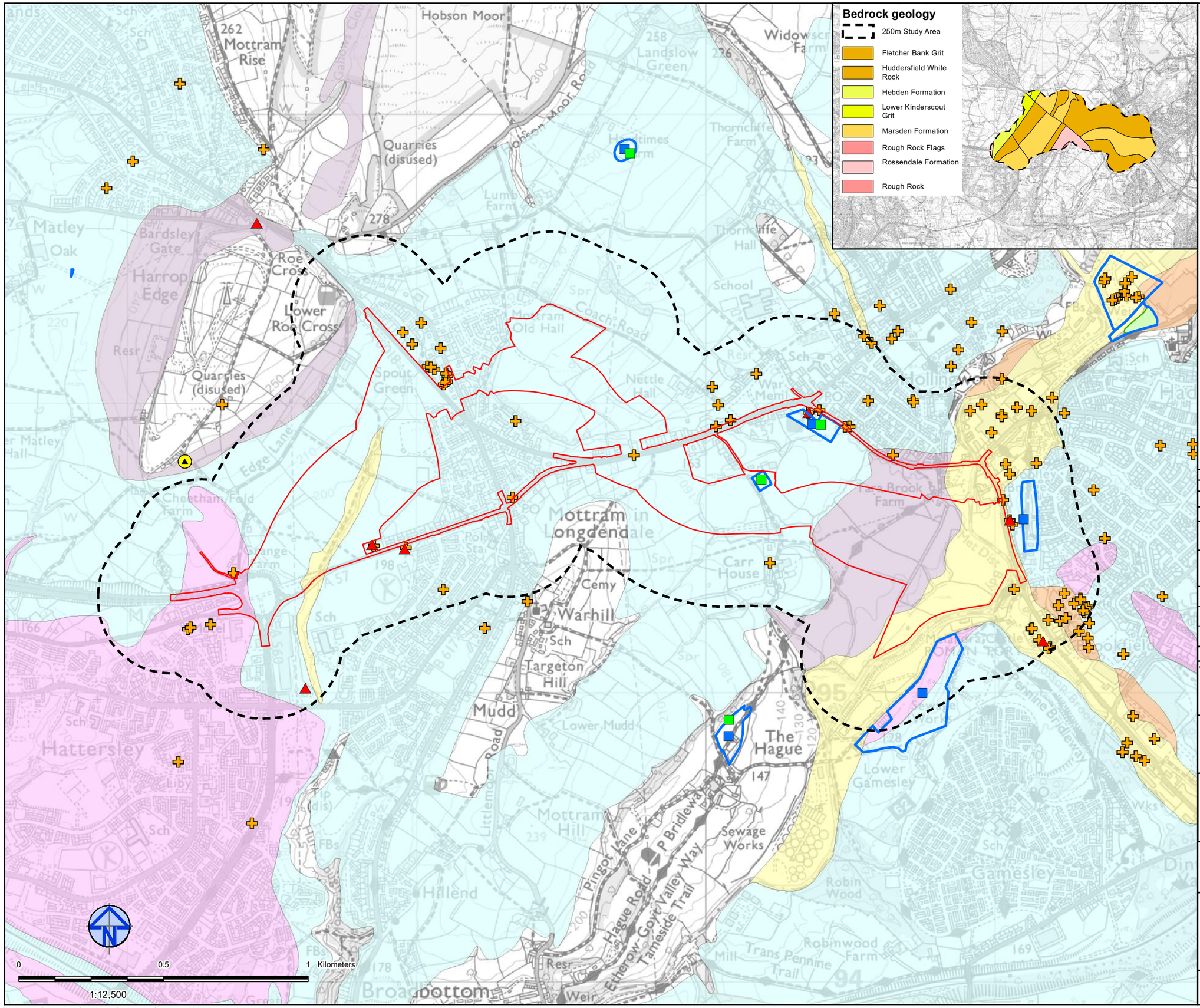
Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.15 WATERBODIES AND FLOOD ZONES

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3085

Date: 06/11/2017 14:00:58 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_15_HE551473-ARC-HGN-A57-DR-LE-3085_Waterbodies_and_Flood_Zones.mxd



Issue	Description	Date
01	DRAFT	06/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:12,500	Current Issue Signatures	
		Drawn R.MILLMAN	
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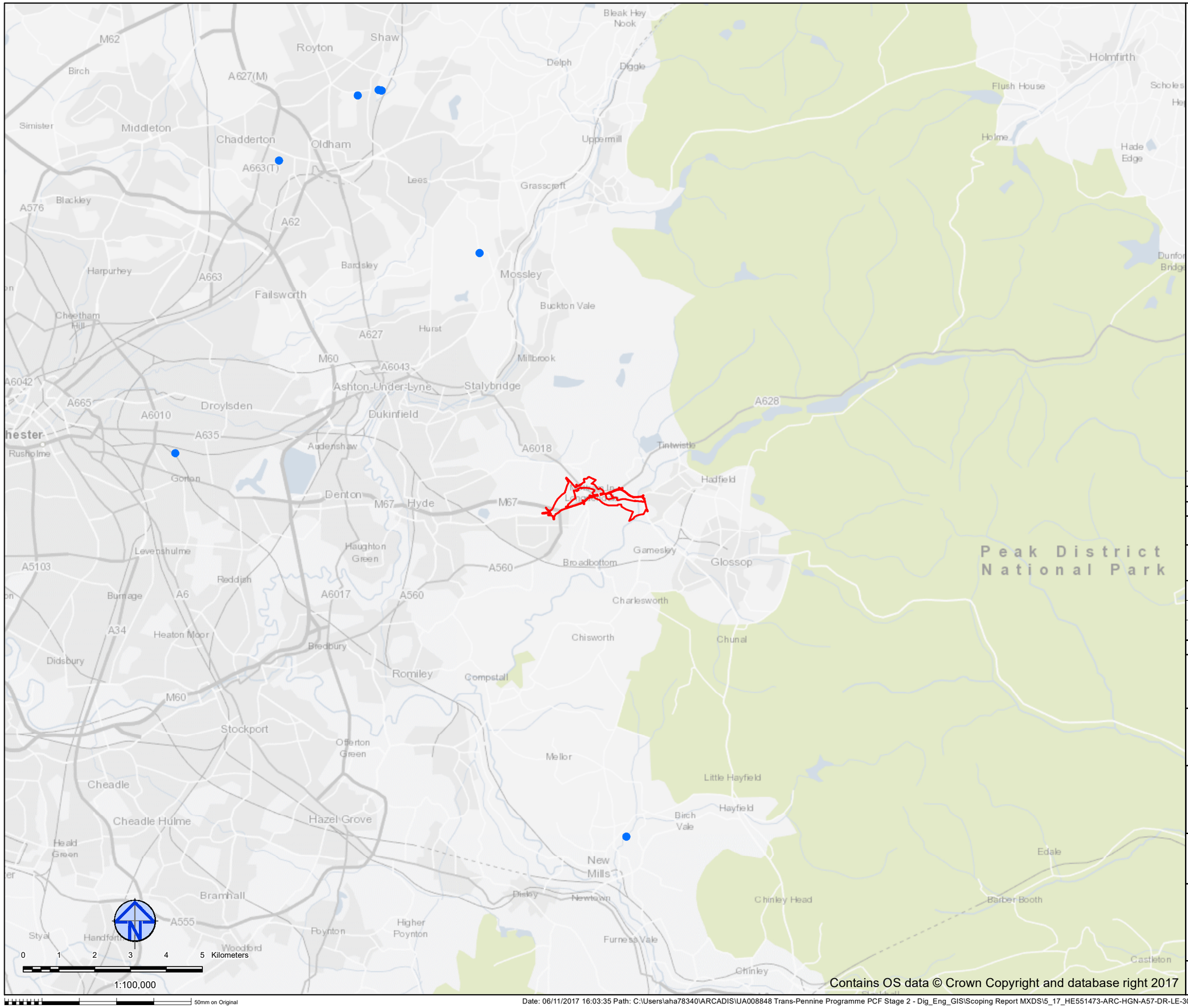
Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.16 ENVIRONMENTAL FEATURES ASSOCIATED WITH THE GEOLOGY AND SOIL

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3086

Date: 06/11/2017 14:06:04 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_16_HE551473-ARC-HGN-A57-DR-LE-3086_Environmental_Features_Associated_Geology_and_Soil.mxd



Legend

- Waste Management Facility
- Red Line Boundary

Issue	Description	Date
01	Draft	06/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:100,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
Projection	O.S		

Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 5.17 LOCATION OF LANDFILL AND WASTE MANAGEMENT FACILITIES MOTTRAM MOOR LINK ROAD AND A57 (T) TO A57 LINK ROAD

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3087

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Date: 06/11/2017 16:03:35 Path: C:\Users\aha78340\ARCADIS\UA008848 Trans-Pennine Programme PCF Stage 2 - Dig_Eng_GIS\Scoping Report MXDS\5_17_HE551473-ARC-HGN-A57-DR-LE-3087_Location of Landfill and Waste Management Facilities.mxd

Legend

- Red Line Boundary

Cumulative Sites

- Approved
- Decision Pending
- LDP Housing Allocation Site

Issue	Description	Date
01	DRAFT	07/11/17

Status: PRELIMINARY/CONFIDENTIAL

Scale	1:20,000	Current Issue Signatures	
		Drawn R.MILLMAN	
Original Size	A3	Checked M.MUTALE	
Height Datum	NEWLYN	Approved A.SAUNDERS	
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Client: highways england

ARCADIS Design & Consultancy for natural and built assets

Project: TRANS-PENNINE UPGRADE PROGRAMME

Title: FIGURE 6.1 CUMULATIVE DEVELOPMENTS

Drawing No.: HE551473-ARC-HGN-A57-DR-LE-3088

0 130 260 390 520 650 m

1:20,000

50mm on Original