



Haweswater Aqueduct Resilience Programme

HARP Proposed Bowland Section EIA Scoping Report Addendum

February 2021

United Utilities



Haweswater Aqueduct Resilience Programme

Project No: B27070CT

Document Title: HARP Proposed Bowland Section EIA Scoping Report Addendum

Revision: 0

Date: February 2021

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i. Introduction

i.i Purpose of the Report

- 1) This report is an Addendum to the Haweswater Aqueduct Resilience Programme (HARP) Proposed Bowland Section Environmental Impact Assessment (EIA) Scoping Report (the October 2019 Scoping Report) which was submitted to Lancaster City Council and Ribble Valley Borough Council in October 2019. The October 2019 Scoping Report was prepared in support of an EIA Scoping Request for the Proposed Bowland Section. The two planning authorities subsequently responded to the EIA Scoping Request in correspondence dated 24 December 2019 (Ribble Valley Borough Council Ref. JM/3/2019/0977) and 6 March 2020 (Lancaster City Council Ref. 19/01371/EIO).
- 2) This Addendum has been prepared to support a second, updated EIA Scoping Request for the Proposed Bowland Section. It is required due in part to stakeholder consultation feedback, design changes and additions, scheme refinements and the need for alternative methodologies which have arisen since the first Scoping Opinions were published by the two planning authorities.
- 3) The alternative methodologies, design changes and refinements have in turn resulted in some changes to the proposed scope of the HARP EIA. Alternative methodologies have been proposed in cases where good practice guidance has been updated (for example, air quality), or a more detailed understanding of the Proposed Bowland Section has enabled refinements to our approach (for example, communities). In some cases, such as the climate change agenda, we have responded to feedback provided in the first Scoping Opinions.
- 4) This Addendum therefore outlines where changes have arisen subsequent to the October 2019 Scoping Report, while also confirming where approaches, methodologies and anticipated outcomes remain broadly the same.
- 5) It is important to note that this Addendum should be read in conjunction with the October 2019 Scoping Report - while it does not supersede the October 2019 Scoping Report, there is a requirement for updated Scoping Requests to be submitted to both Lancaster City Council and Ribble Valley Borough Council. In many instances the nature and scope of the proposed EIA remains unaltered, and in these cases the relevant sections of the original Scoping Report remain valid. The Addendum therefore accounts only for:
 - Substantive construction or design-related changes and additions arising after submission of the October 2019 Scoping Report
 - Instances where technical approaches or methodologies have changed over the intervening period, for example in response to changes in published guidance or stakeholder consultation feedback
 - New information relevant to EIA scoping has been developed.
- 6) It should be noted that the proposed transport route serving the Lower Houses Compound in Lancaster City Council's administrative area would involve directing construction vehicles into Craven District Council's area. There would be some minor development required in Craven District in connection with the proposed transport route, specifically limited widening of short sections of the existing highway to enable the safe passage of construction vehicles. It has been agreed with both local authorities that Lancaster City Council will determine, on behalf of Craven District Council, those elements of the planning application which fall within Craven District.

i.ii Approach to the Scoping Addendum

- 7) The 2017 Environmental Impact Assessment Regulations (the EIA Regulations) state that a Scoping Report should provide an explanation of the likely significant effects of the development on the environment. The EIA Regulations also require a plan sufficient to identify the land required for the proposed development. The Addendum provides an update to certain elements of detail of the original proposals, which overall remains the replacement of the five single line tunnel sections of the Haweswater Aqueduct in Cumbria, Lancashire and Greater Manchester (Figure 1.1), as outlined in

Chapter 1 of the original Scoping Report. An updated version of Figure 3.1, which shows an update of the land required for the Proposed Bowland Section, is also provided in this Addendum.

i.iii Design Changes to the Proposed Bowland Section

- 8) The 2019 Scoping Report indicated a below-ground tunnel corridor approximately 16.4 km in length with a small additional length (approximately 400 m) of open-cut trenching at the surface to connect the new tunnel to the retained multi-line sections.
- 9) At the time the October 2019 Scoping Report was submitted the preferred solution was Option 4B which included five construction compounds of which three were intermediate shaft locations. This alignment was chosen based on the available ground investigation and environmental data at the time. Subsequent work by United Utilities has developed a preferred design which is the subject of this Addendum. Table 1 below summarises the key design and construction changes which differ from the October 2019 Scoping Report. More detail on these changes and additions is provided in Section 3.5. An updated Figure 3.1 shows the route of the Proposed Bowland Section as it passes through and below the Forest of Bowland. Additionally, proposed transport routes on the public highway and construction compound accesses have been identified and are illustrated in Figure 3.1A.
- 10) The preferred design – which will form the basis of the planning applications to Lancaster City Council and Ribbles Valley Borough Council – discounts the need for intermediate shafts along the tunnel route. This therefore removes Construction Areas B, C and D as presented in the 2019 Scoping Report from the scope of works. The Lower Houses Compound (formerly referred to as Construction Area A) is now the sole reception shaft and Newton-in-Bowland Compound (formerly referred to as Construction Areas E) is the sole launch site. Indicative layouts of both compounds are provided in Figure 3.2.
- 11) This Addendum has been prepared in conjunction with other Addendum reports dealing with changes and updates to other proposed replacement tunnel sections of HARP. This supports a consistent approach across each of the nine planning applications to be submitted in connection with the proposed programme of works.

Table 1: Comparison of Proposed Bowland Section features described in the 2019 and 2021 reports

Feature	October 2019 Scoping Report	February 2021 Scoping Addendum
Construction Area A (Lower Houses Compound)	Broad indicative envelope (11.98 ha) for the construction compound.	Indicative envelope refined, including access into the compound from the north and egress from the south end of the compound. Reduction in area to 10.82 ha.
Construction Area B	Intermediate shaft	Removed, no longer part of the proposals.
Construction Area C	Intermediate shaft	Removed, no longer part of the proposals.
Construction Area D	Intermediate shaft	Removed, no longer part of the proposals.
Construction Area E (Newton-in-Bowland Compound)	Broad indicative envelope (27.79 ha) for the construction compound and overflow, but excluding the Hodder Crossing (see below).	Reduction in the size of the construction area to 23.94 ha. However, this area also includes the proposed Hodder Crossing (see below).
Wray Satellite Compound	Not presented in the 2019 report – a subsequent design development.	Satellite compound included along the B6480 Hornby Road to act as a park and ride facility, vehicle holding area and housing welfare facilities – 0.10 ha.
Temporary residents' parking, Wray	Not presented in the 2019 report – a subsequent design development.	Temporary parking required for residents of Main Street in Wray when infrequent

Feature	October 2019 Scoping Report	February 2021 Scoping Addendum
		Traffic Restriction Orders are in place – 2.30 ha.
Hodder Crossing	Not presented in the 2019 report – a subsequent design development.	A temporary haul route to the Newton-in-Bowland Compound which avoids the need to direct any construction traffic through Newton-in-Bowland. Crosses the River Hodder by means of a temporary bridge. Open to construction traffic only.
Clitheroe Park and Ride*	Not presented in the 2019 report – a subsequent design development.	Parking location for construction workers' private cars and vans at the existing cement works staff car park on West Bradford Road - 0.54 ha.
Clitheroe HGV Holding Area*	Not presented in the 2019 report – a subsequent design development.	Holding location for approximately 10 exceptional load vehicles within the existing cement works – 2.13 ha.
Ribble Crossing*	Not presented in the 2019 report – a subsequent design development.	Proposed temporary haul road – 29 ha
Highways Works	Not presented in the 2019 report – a subsequent design development.	Minor, local highways works such as passing places and road widening at discrete locations on the public highway to enable the safe passage of construction vehicles and other road users.
Management of surplus arisings from shaft construction and tunnel boring	The 2019 report advised that the final destination for surplus tunnel arisings and other materials was under consideration.	Following in-principle agreement between United Utilities and the operators of Waddington Fell Quarry, the basis of assessment for the EIA will be an assumption that all surplus material would be directed to the quarry for processing and placement as part of the site's restoration plan. Except for the Lower Houses Compound there are no proposals to retain surplus material within the planning application boundaries.

*These features form part of both the Proposed Bowland Section and Proposed Marl Hill Section. They would be shared by traffic associated with both developments should both applications receive planning consent.

i.iv Structure of the Scoping Addendum

- 12) The chapter sequence in this Scoping Addendum follows the same sequence as the October 2019 Scoping Report. For this reason, the next chapter is Chapter 3. Where applicable, the chapters describe how the nature and scope of the EIA has changed since the October 2019 Scoping Report in response to design changes, stakeholder consultations and revised methodologies.

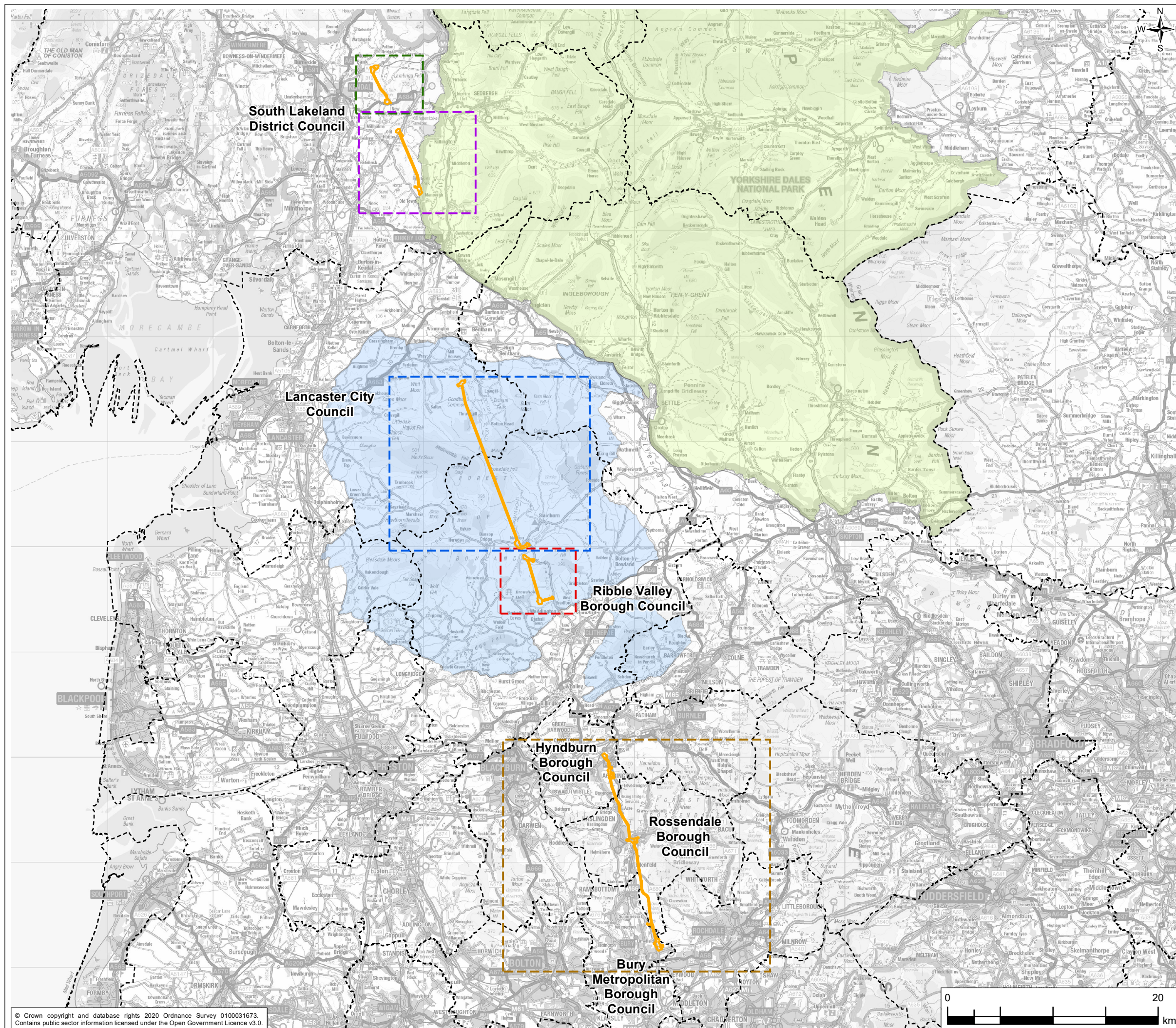
Initial Chapters

- 13) The first five chapters of the original Scoping Report were introductory chapters that provided the reader with background information about the Proposed Programme of Works (replacement of all tunnel sections on the existing Haweswater Aqueduct), the Proposed Bowland Section, and the general approaches to the EIA and planning application. To avoid duplicating unchanged information, please refer to the original Scoping Report for the following chapters:

- Chapter 1: Introduction
 - Chapter 2: The Proposed Programme of Works
 - Chapter 4: Approach to Planning and the Environmental Statement
 - Chapter 5: Approach to Scoping.
- 14) An update to Chapter 3: The Proposed Bowland Section is contained in this Scoping Addendum to provide the new design information.
- Topic Specific Chapters
- 15) The scope and approach to Chapter 15: Major Accidents and Disasters has not been affected by changes to the proposed design. Additional information is therefore not provided in this Scoping Addendum for this topic and the text in the original Scoping Report remains valid.
- 16) Only minor and non-substantive changes have been made to the methodology and approaches to the following seven EIA topics. These changes will be applied not only to the original scope of the development proposals, but also the new additional elements described in Table 1. The changes for these topics are detailed in Appendix A of this Scoping Addendum:
- Chapter 6: Landscape and Arboriculture
 - Chapter 7: Water Environment
 - Chapter 8 Flood Risk
 - Chapter 10: Cultural Heritage
 - Chapter 11: Soils, Geology and Land Quality
 - Chapter 12: Materials and Waste
 - Chapter 13: Public Access and Recreation
 - Chapter 16: Transport Planning.
- 17) It is anticipated that the remaining four EIA topics will have more substantive changes because their scope and methodology have been updated in response to design updates and consultation feedback received in the Scoping Opinions and subsequently over the intervening months. The changes to these four topics are described in this Scoping Addendum:
- Chapter 9: Ecology
 - Chapter 14: Communities and Health
 - Chapter 17: Noise and Vibration
 - Chapter 18: Air Quality and Climate Change.

FIGURE 1.1

- Legend**
- Indicative Development Envelope Boundary
 - Proposed Docker Section
 - Proposed Swarther Section
 - Proposed Bowland Section
 - Proposed Marl Hill Section
 - Proposed Haslingden and Walmersley Section
 - Planning Authority Boundary
 - Yorkshire Dales National Park
 - Forest of Bowland Area of Outstanding Natural Beauty



1	JAN 20	Scoping Addendum	SP	LH	LH	SH
0	OCT 19	Initial Issue	LT	IM	TA	SH
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

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 Water for the North West

Project **HAWSWATER AQUEDUCT RESILIENCE PROGRAMME**

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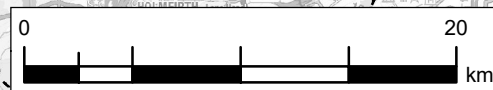
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3. The Proposed Bowland Section

3.1 Introduction

- 18) The following chapter describes the general approach for the Proposed Bowland Section and sets out any changes to the basis assessment described in the October 2019 Scoping Report. Further details regarding the enabling works, construction works, commissioning phase and reinstatement activities for the proposed works can be found in Chapter 3 of the October 2019 Scoping Report.

3.2 Indicative Development Envelope

- 19) Figure 3.1 is an updated figure which shows the land that presently falls within a reasonable worst-case development envelope for the Proposed Bowland Section. It is important to note that Figure 3.1 is not intended to imply that the entire area would be developed. Instead it shows indicative areas of land within which construction and operation phase activities might take place. Nevertheless, the development envelope is significantly reduced in the updated figure when compared with the October 2019 Scoping Report.

3.3 The Existing Aqueduct

- 20) Please refer to Chapter 3.3 of the October 2019 Scoping Report for details regarding the existing Haweswater Aqueduct.

3.4 General Approach to Design and Construction

- 21) Please refer to Chapter 3.3 of the October 2019 Scoping Report for details regarding the general approach to design and construction.

3.5 Proposed Bowland Section

- 22) The route of the new tunnel passes below moorland areas and agricultural land, from Wray in the north to Newton-in-Bowland to the south. The Proposed Bowland Section would replace an existing 16.7 km section of existing aqueduct. It would be constructed by a Tunnel Boring Machine (TBM) below ground level, with short sections of new pipework installed in surface trenching at each end of the new tunnel to connect back into the existing aqueduct. The new tunnel would be bored in a northerly direction from a launch portal constructed at the Newton-in-Bowland compound, approximately 850 m to the west of Newton-In-Bowland. At the north end a reception shaft would be constructed within the Lower Houses compound near Wray. The existing aqueduct would be left in situ.
- 23) The indicative development envelope for surface-based activities associated with the Proposed Bowland Section encompasses some 68.83 ha of predominantly agricultural land, although the Clitheroe Park and Ride and HGV Holding Area are presently used for car parking and HGV vehicle storage, respectively. The combined 68.83 ha area includes:
- The indicative development envelope for construction accesses and the two main construction compounds
 - Wray satellite compound
 - Wray alternative parking location
 - Ribble Crossing
 - Clitheroe Park and Ride and HGV holding area at the cement works on West Bradford Road.
- 24) The October 2019 Scoping Report Figure 3.1 previously identified the indicative corridor of a proposed water discharge pipe serving the new aqueduct. This has now been removed from the scope of the proposals and instead an existing outfall structure on the existing Haweswater Aqueduct would be used.

Lower Houses Compound

- 25) The Lower Houses Compound (formerly Construction Area A) would be a reception site for the TBM. A 15 m diameter shaft would be constructed to receive the TBM arriving from the Newton-in-Bowland drive site at the end of tunnel boring activities. This shaft would be constructed in advance of the arrival of the TBM and made safe until the TBM arrives. At this point a large crane would be used to lift the TBM from the shaft and load it onto lorries for removal from site.
- 26) Access to and from the Lower Houses Compound would be from the M6 Junction 34 via the A683. From the A683 the transport route for most HGVs – Route 1 – would continue along the B6480 Wennington Road towards Low Bentham in Craven District before approaching the compound from the north via Park House Lane. A partial one-way system on Route 1 would assist in the safe passage of construction vehicles on the more constrained sections of the transport route to and from the Lower Houses compound. Abnormal loads would access the site from the A683 through Main Street, Wray, and Helks Brow – Route 2. Further details of Routes 1 and 2 are provided in Figure 3.1A and in Appendix A.

Newton-in-Bowland Compound

- 27) As described above the Newton-in-Bowland Compound (formerly Construction Area E) would be the launch site for the TBM.
- 28) Access to the Newton-in-Bowland Compound would be from Hallgate Hill with a temporary track and bridge over the River Hodder which would obviate the need for any construction traffic to pass through the village of Newton in Bowland.
- 29) For vehicles up to 3.5 m in height, the preferred route to Newton-in-Bowland Compound from the A59 at Clitheroe would be via Pimlico Link Road, Chatburn Road and north on Waddington Road below the limited headroom railway bridge towards and through the village of Waddington (Route 1). Vehicles over 3.5 m in height would have to avoid the limited headroom railway bridge and would be directed via Pimlico Link Road, through Chatburn and Grindleton, and along West Bradford Road towards Waddington (Route 2). Route 1 and Route 2 together represent one transport route solution.
- 30) An alternative transport route solution, the Ribble Crossing, has been developed following local stakeholder consultations. The Ribble Crossing (Route 3) could be used to avoid the villages of Chatburn, Grindleton and West Bradford.
- 31) For the purposes of the EIA and the planning application Route 1 and Route 2 will be considered in combination, while Route 3 will be reported separately in isolation from Route 1 and Route 2. The two transport route solutions are mutually exclusive and only one will be taken forward for consideration at planning committee.

Wray Satellite Compound

- 32) A satellite compound is proposed off the B6480 Hornby Road between Hornby and Wray. The satellite compound would be constructed to serve as a park and ride facility for contractors' private cars and vans. It could also be used infrequently as an exceptional load marshalling area, enabling HGVs to assemble safely off the public highway before travelling through the centre of Wray under escort towards the Lower Houses Compound.

Temporary Residents' Parking, Wray

- 33) On the infrequent occasions when exceptional loads are directed through Wray village, Traffic Restriction Orders (TROs) would be in force. Residents would be notified of TROs in advance and would be required to temporarily relocate their parked cars from Main Street to an existing parking area. This would enable the safe passage of exceptional loads through the village.

Hodder Crossing

- 34) The Hodder Crossing would be a 1,450 m length of temporary haul route allowing construction traffic to bypass the village of Newton-in-Bowland. The Hodder Crossing would entail an approximately 70 m

clear span bridge over the river with three 35 m spans across the floodplain, and a highways standard road up to the Newton-in-Bowland compound.

Clitheroe Park and Ride

- 35) In consultation with Lancashire County Council highways officers during 2020, it was agreed in principle that a park and ride facility located off the A59 in the Clitheroe area would assist in reducing traffic numbers on the local road network towards the Marl Hill and Bowland Compounds. It is proposed that contractors commuting to the compounds would park their vehicles at the park and ride facility, before being transported to the compounds by minibus. The park and ride facility may contain welfare facilities and a security presence.

Clitheroe HGV Holding Area

- 36) On occasion, throughout the course of the enabling works and construction activities and site reinstatement works at the construction compounds, there would be a requirement for exceptional loads and small fleets of HGVs to be marshalled off the public highway. This may be required for example in situations where exceptional loads, with the agreement of the highways authority, can be released onto the local 'B' road network only at certain times of the day, in the interests of road safety and to avoid inconveniencing other road users. It is proposed for the HGV holding area to be located at the cement works.

Ribble Crossing

- 37) A proposed temporary haul road – the Ribble Crossing, Route 3 - has been developed in response to community consultation and a request for United Utilities to examine options to reduce the levels of construction traffic that would pass through local communities in the Clitheroe area. It would involve the construction of a dedicated sealed road across open farmland. The temporary haul road would be approximately 1,300 m long and start in the vicinity of the cement works at West Bradford Road (just south of the River Ribble), and would involve the construction of a temporary 42 m (approximate) clear span bridge over the River Ribble. The haul road would head in a northerly and westerly direction to connect back into West Bradford Road in between Waddington and Waddington and West Bradford C.E. Primary School.
- 38) If approved, the haul route would be constructed as part of the enabling works prior to construction of the main compounds. The route would be a temporary feature that would be removed entirely following completion of the HARP construction programme in the Ribble Valley area; land would be reinstated back to its current use and setting. Further consultation is proposed between interested parties to establish how the proposed Ribble Crossing will be presented in the Marl Hill and Bowland planning applications in conjunction with potential access routes on the public highway. It is anticipated that the two options would be included in the planning application. However, it is envisaged that only one would be taken to planning committee (informed through consultation) with a decision on which route to adopt taken during the determination phase.

Highways Works

- 39) It is anticipated that public highways works would be required at approximately 28 locations in the Lancaster area and at 30 locations on roads in the Ribble Valley area. The need for, and the scope of, the highways works have been developed in consultation with Lancashire County Council's highways department.
- 40) The works would include:
- Small (approximately 25 m x 2 m) passing places or sections of road widening to enable oncoming HGVs to pass each other and local traffic without the need to reverse or manoeuvre onto the roadside verge
 - Junction improvements to provide enough space for larger vehicles when turning from one road to another

- Short sections of limited road widening where the highway is presently too narrow to accommodate general construction traffic.
- 41) While some of the works could be constructed within highways land, others would require access to and / or construction on third party land. This may require the temporary removal of field boundaries such as dry-stone walls, and the removal of trees and hedgerows. Tree and hedgerow reinstatement plans would be developed in conjunction with the local authority and the AONB Board.
- 42) The highways works would be delivered during the enabling works. To form a basis of assessment for the EIA, it has been assumed that:
- All passing places would be reinstated
 - Sections of road widening involving third party would be reinstated
 - Sections of road widening within the highway limits of deviation would be retained permanently following completion of the construction works.
- 43) The fate of all highways works following completion of construction would be subject to future agreement with the Local Highway Authority and respective Planning Authority.
- Management of surplus arisings from tunnel boring
- 44) The October 2019 Scoping Report proposed that tunnel arisings may require disposal at a suitably licensed destination, such as a quarry undergoing restoration or an operational landfill, and confirmed that work was underway to review options for the management of surplus material.
- 45) Further to ongoing development of surplus material management options it is now proposed that surplus material at the Lower Houses Compound would be retained within the planning application boundary.
- 46) For the Newton-in-Bowland compound, United Utilities entered into discussion with the operators of Waddington Fell Quarry during 2020 to explore options for the use of tunnel arisings (and from the Proposed Marl Hill Section, although this is subject to a separate Scoping Addendum) at the quarry. This solution would have the benefit of substantially reducing vehicle numbers on the road network through Waddington and Clitheroe. The operators of Waddington Fell Quarry are presently seeking planning consent from Lancashire County Council to enable this solution to be delivered. The basis of assessment for the Proposed Bowland Section EIA will therefore assume that the destination for all materials being exported off site is covered under a separate planning application. The Proposed Bowland Section ES will consider only the direct and indirect effects of vehicle movements to and from the quarry, such as traffic impacts and air quality effects; the processing or use of material upon arrival at the quarry is excluded from the proposed scope of the EIA..

3.6 Construction and Commissioning Programme

- 47) An indicative Construction Programme is shown in Figure 3.5 and presents a high-level overview of when proposed construction works might be undertaken, subject to planning permission. Figure 3.5 shows that the proposed Programme of Works could start in 2023 with enabling works, ultimately reaching completion and commissioning in 2029. The indicative programme provided does not include reinstatement works, which may continue for several years beyond the completion of construction. The dates and durations are indicative and will be developed further as the design progresses.
- 48) The construction programme would be phased so that some of the proposed new sections of aqueduct could start later and / or be completed earlier than others. Some could be completed prior to the overall indicative construction programme end date in 2028 (noting that decommissioning of the existing asset could extend into 2029).






Figure 3.5: Indicative Construction Programme

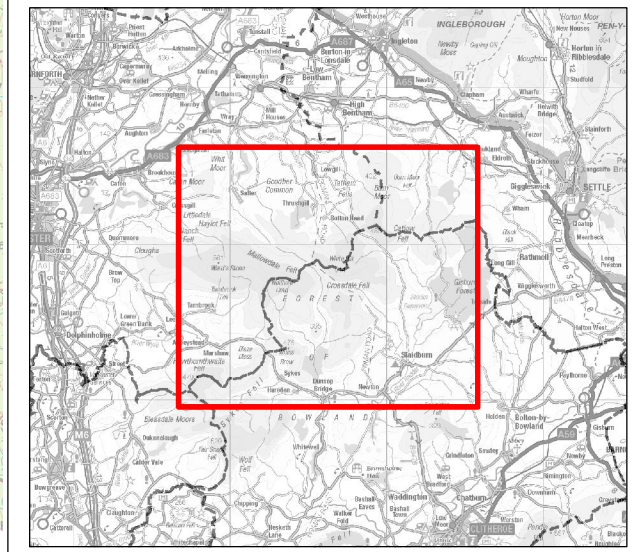
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Docker																								
Swarther																								
Bowland																								
Marl Hill																								
Haslingden & Walmersley																								

FIGURE 3.1

Construction Area A / Lower Houses Compound

Construction Area E / Newton-in-Bowland Compound

- Legend**
-  Proposed Construction Access - Indicative
 -  Proposed Construction Compound/Laydown Area - Indicative Development Envelope
 -  Proposed Tunnel Route - Indicative
 -  Proposed Indicative Construction Compound / Laydown Area
 -  Planning Authority Boundary



1	JAN 21	Scoping Addendum	SP	LH	LH	SH
0	OCT 19	Initial Issue	LT	IM	TA	SH
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

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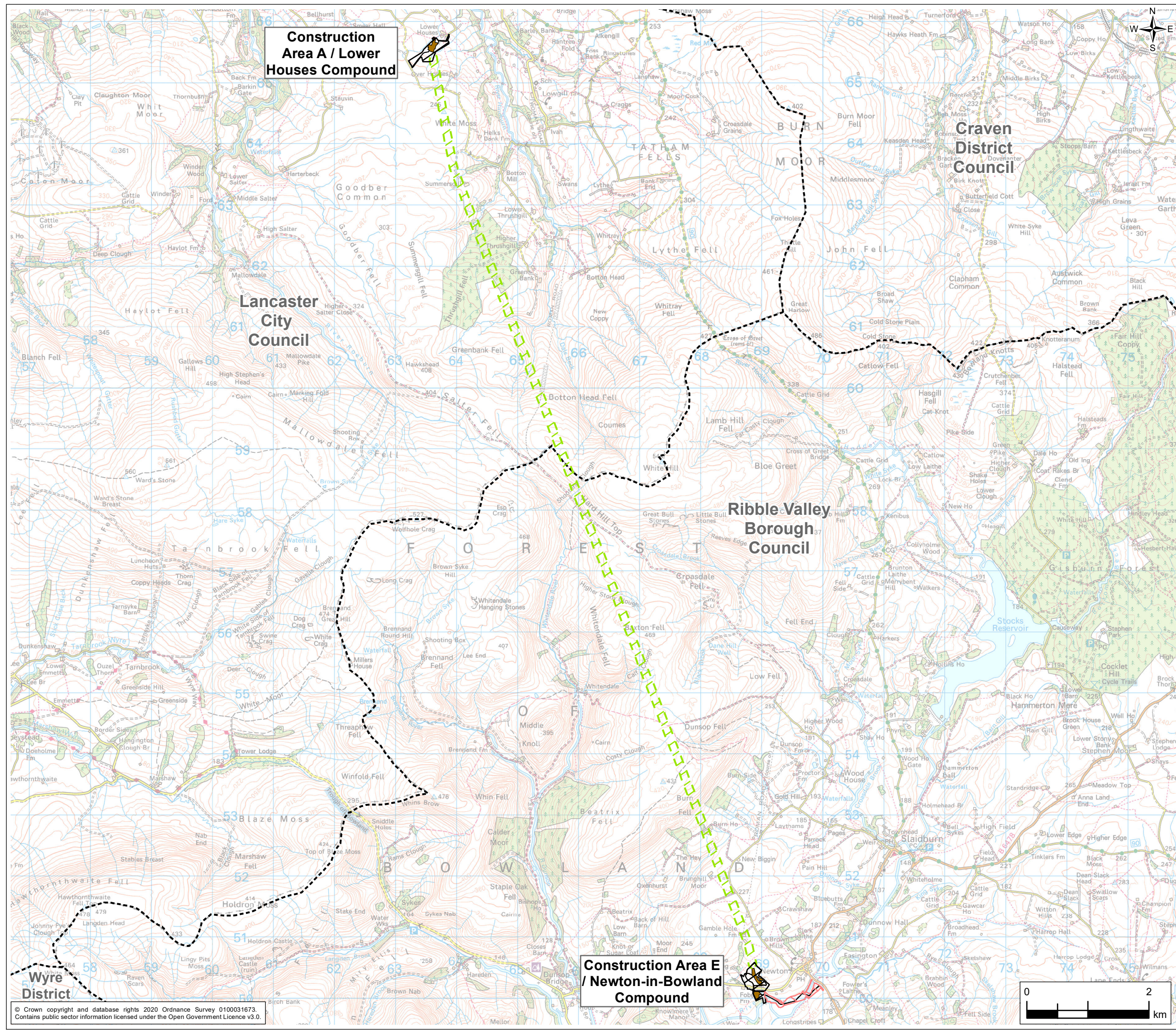
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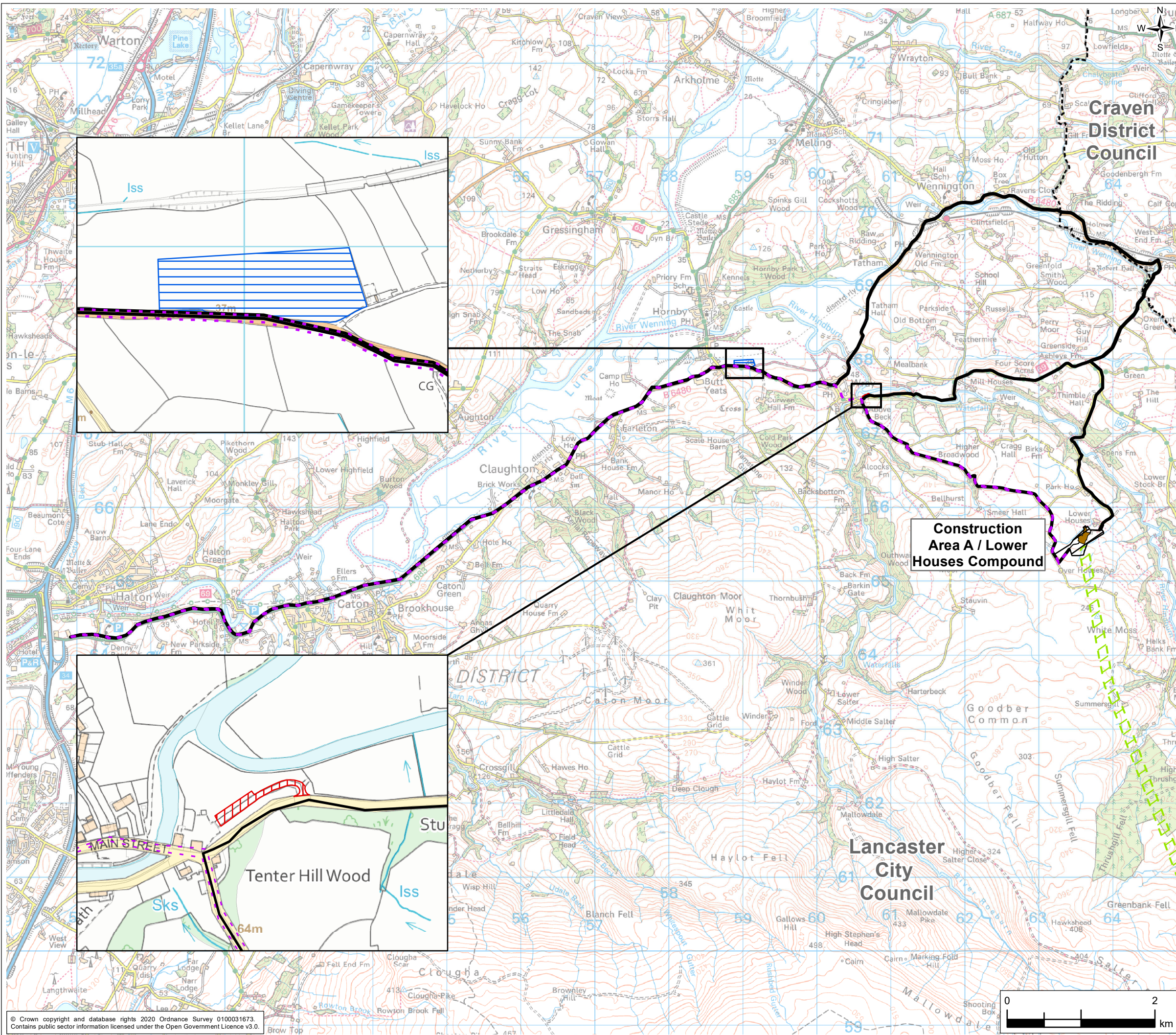
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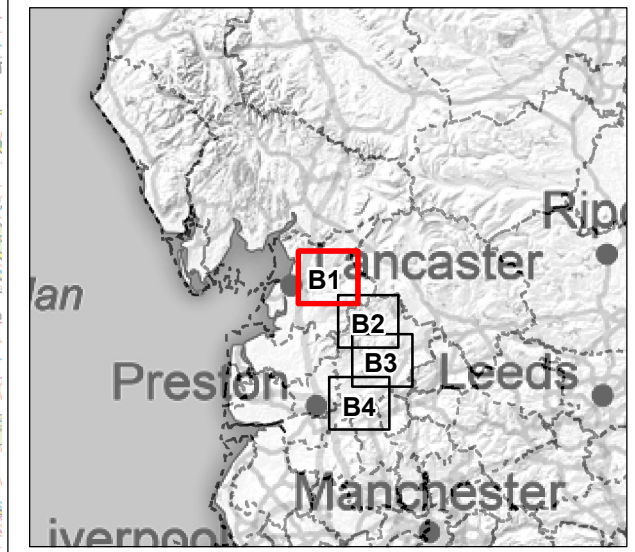


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FIGURE 3.1A



- Legend**
- Proposed Construction Compound/Laydown Area - Indicative Development Envelope
 - Proposed Tunnel Route - Indicative
 - Proposed Indicative Construction Compound/Laydown Area
 - Wray Satellite Compound
 - Wray Alternative Parking Location
 - Planning Authority Boundary
- Compound Haul Routes**
- Lower Houses Compound - Route 1
 - Lower Houses Compound - Route 2



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Drawing Status FINAL

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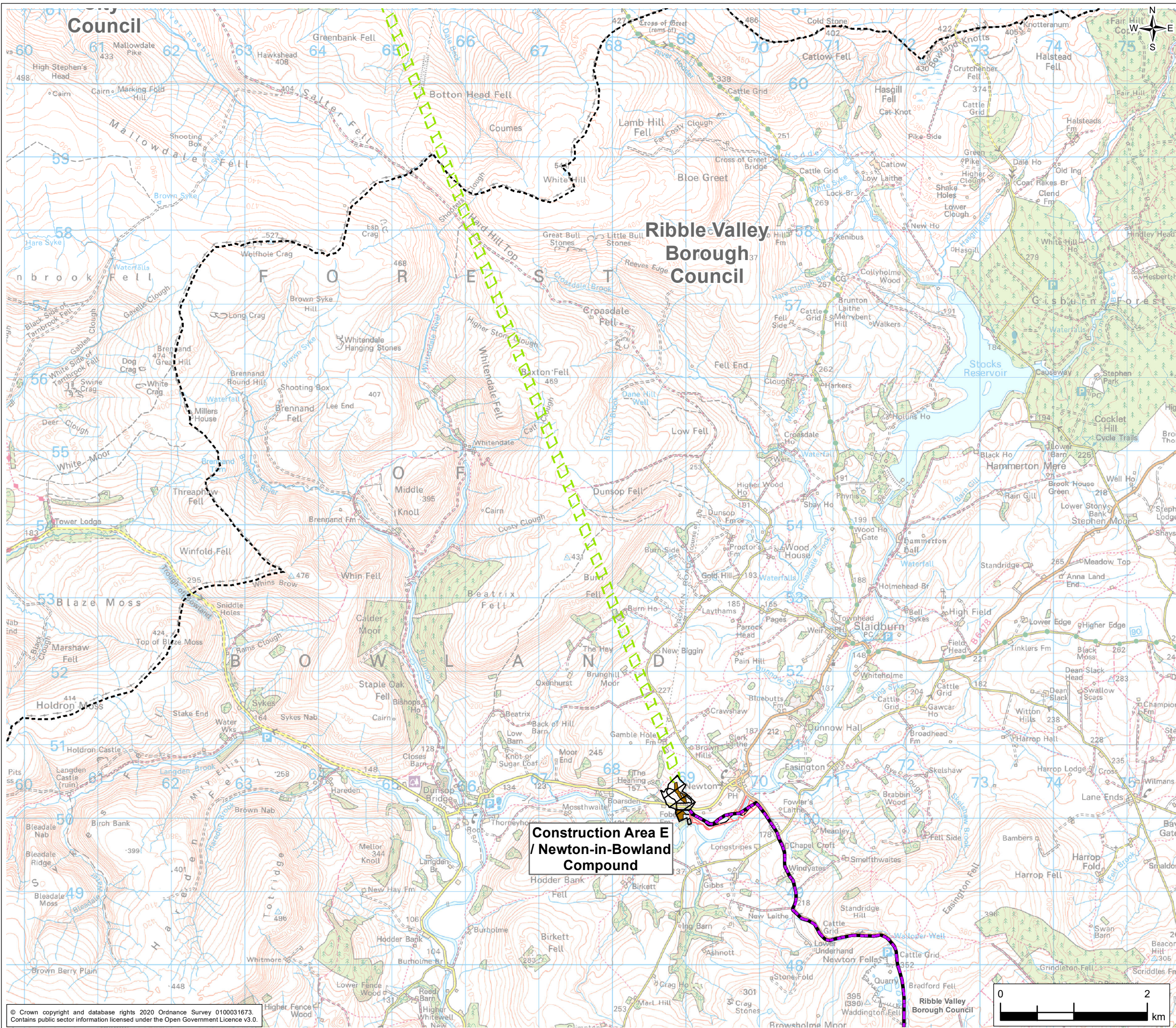
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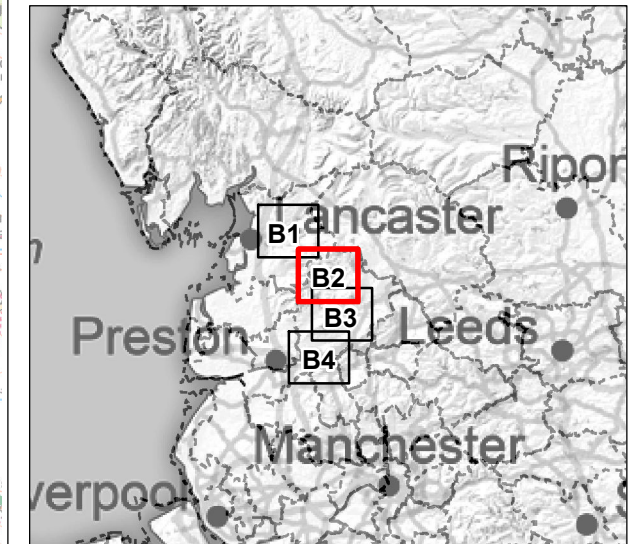
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FIGURE 3.1A



- Legend**
- Proposed Construction Access - Indicative
 - Proposed Construction Compound/Laydown Area - Indicative Development Envelope
 - Proposed Tunnel Route - Indicative
 - Proposed Indicative Construction Compound/Laydown Area
 - Planning Authority Boundary
- Compound Haul Routes**
- Newton-in-Bowland Compound - Route 1
 - Newton-in-Bowland Compound - Route 2



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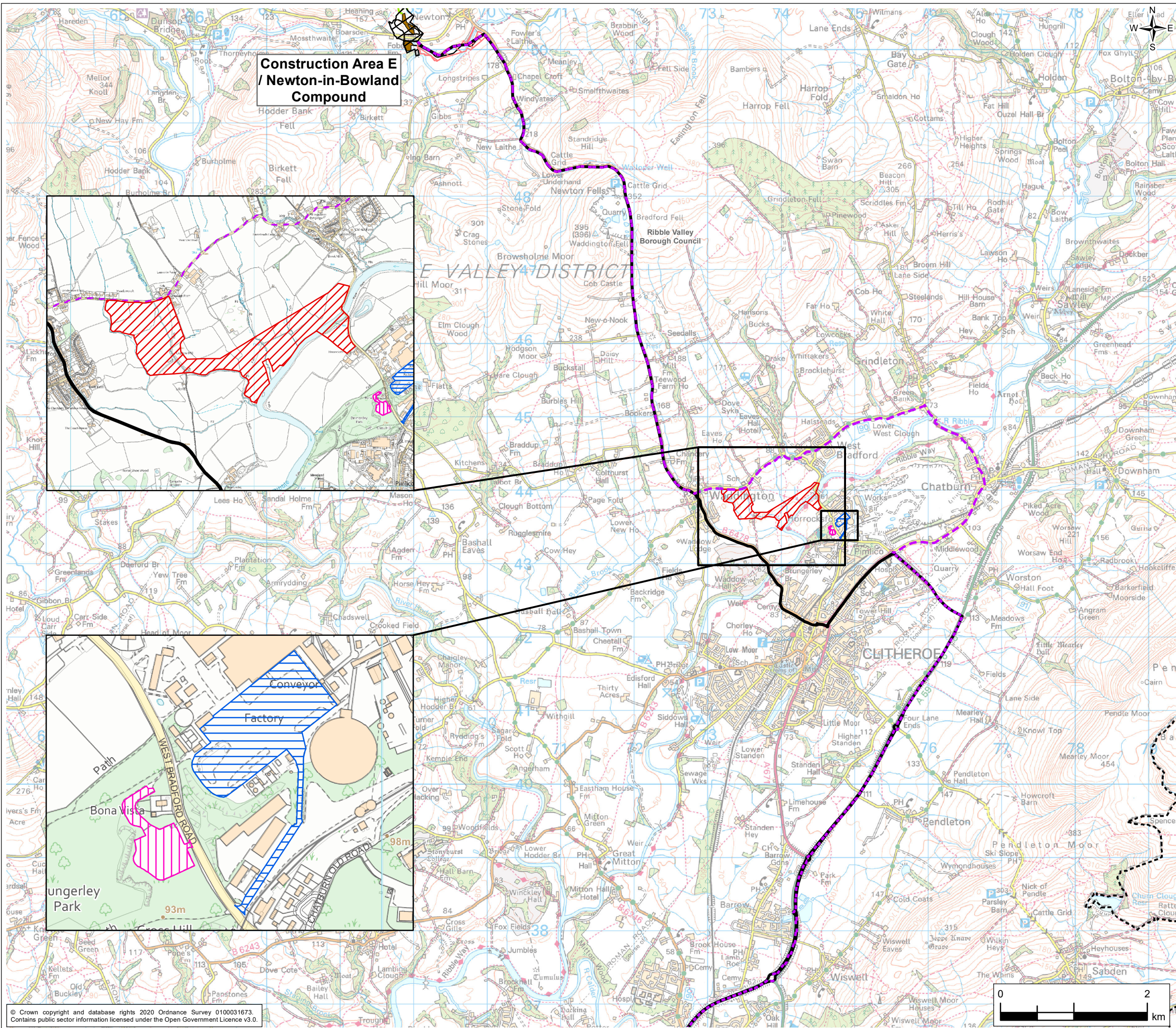
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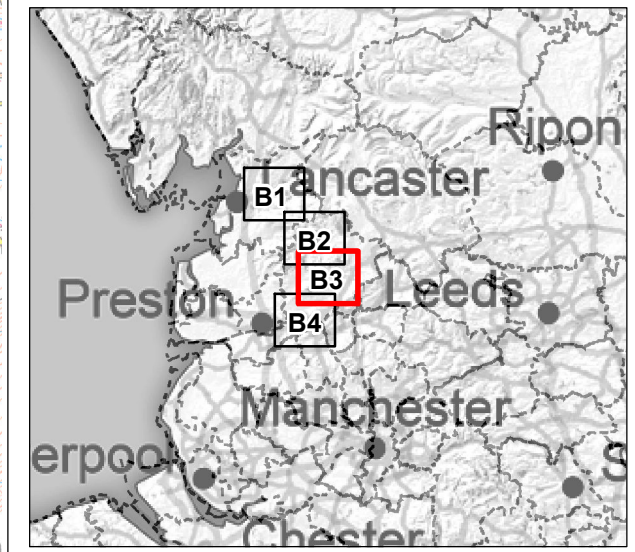
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FIGURE 3.1A



- Legend**
- Proposed Construction Access - Indicative
 - Proposed Construction Compound/Laydown Area - Indicative Development Envelope
 - Proposed Tunnel Route - Indicative
 - Proposed Indicative Construction Compound/Laydown Area
 - Ribble Crossing - Route 3
 - Clitheroe HGV Holding Area
 - Clitheroe Park and Ride
 - Planning Authority Boundary
- Compound Haul Routes**
- Newton-in-Bowland Compound - Route 1
 - Newton-in-Bowland Compound - Route 2



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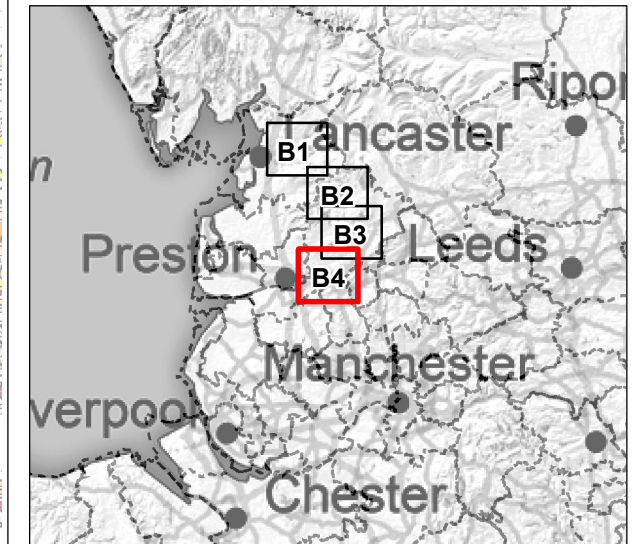
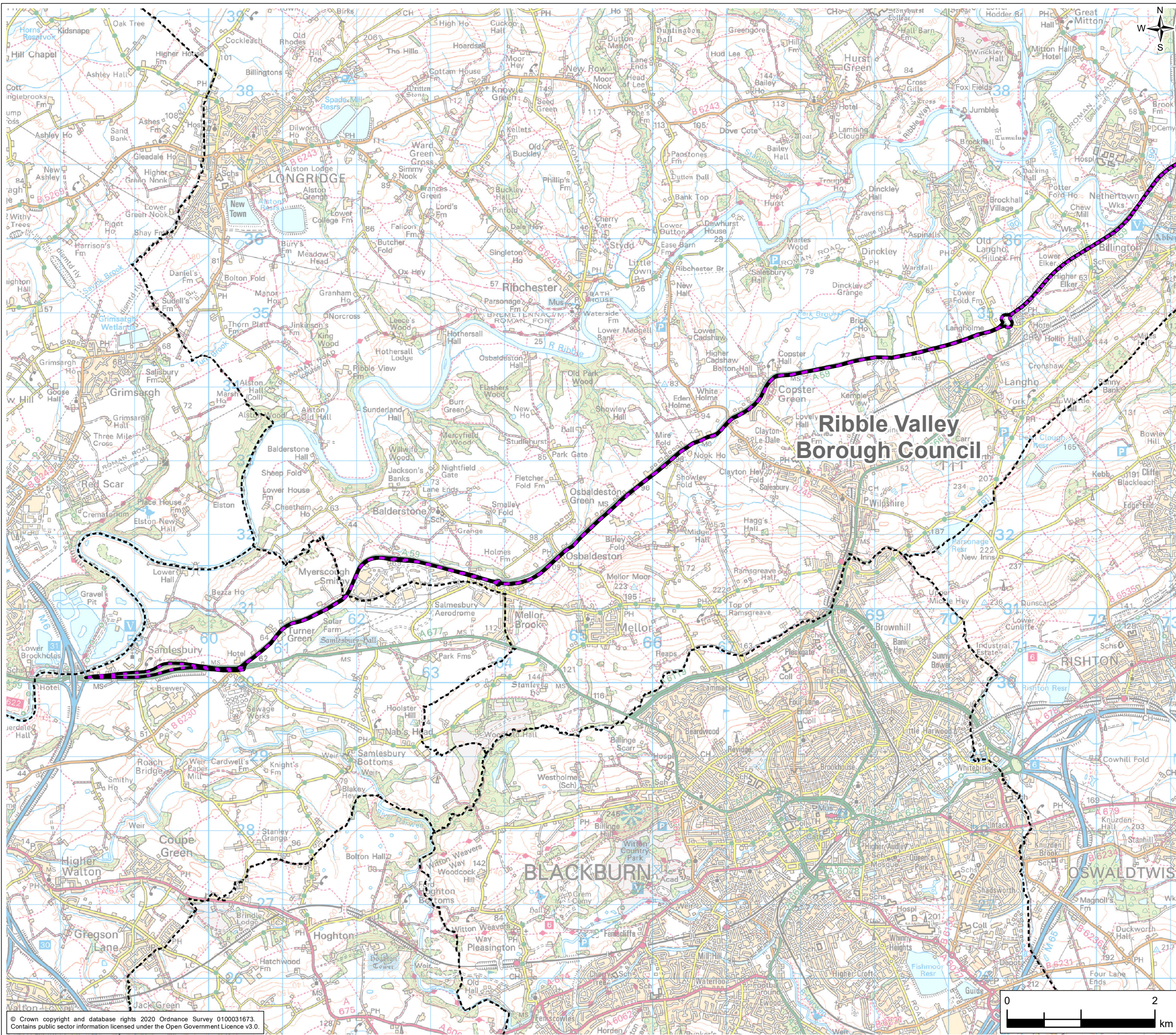
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FIGURE 3.1A

Legend

- Planning Authority Boundary
- Compound Haul Routes
 - Newton-in-Bowland Compound - Route 1
 - Newton-in-Bowland Compound - Route 2



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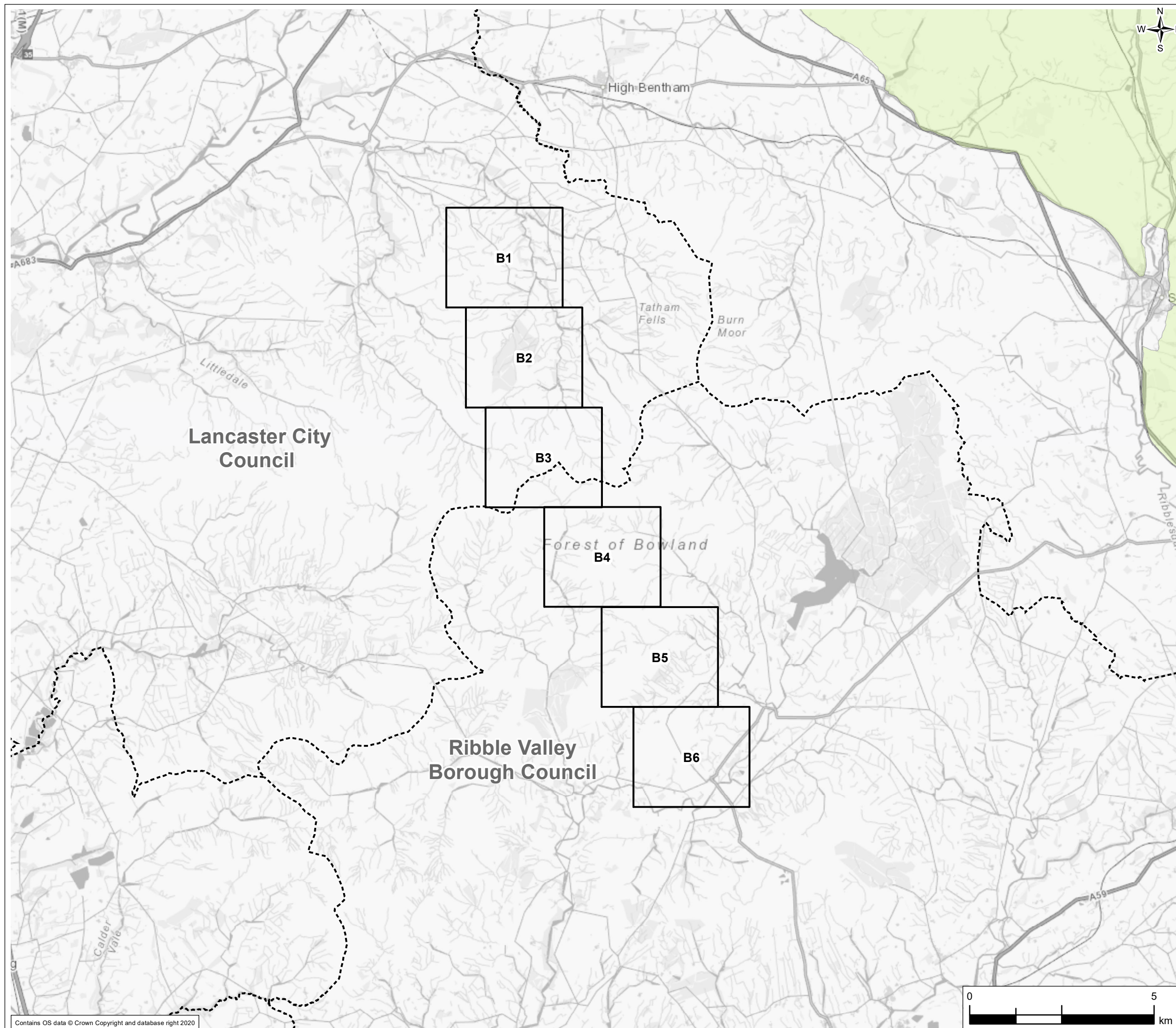
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FIGURE 3.2

Legend

- Yorkshire Dales National Park Authority Boundary
- Planning Authority Boundary



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


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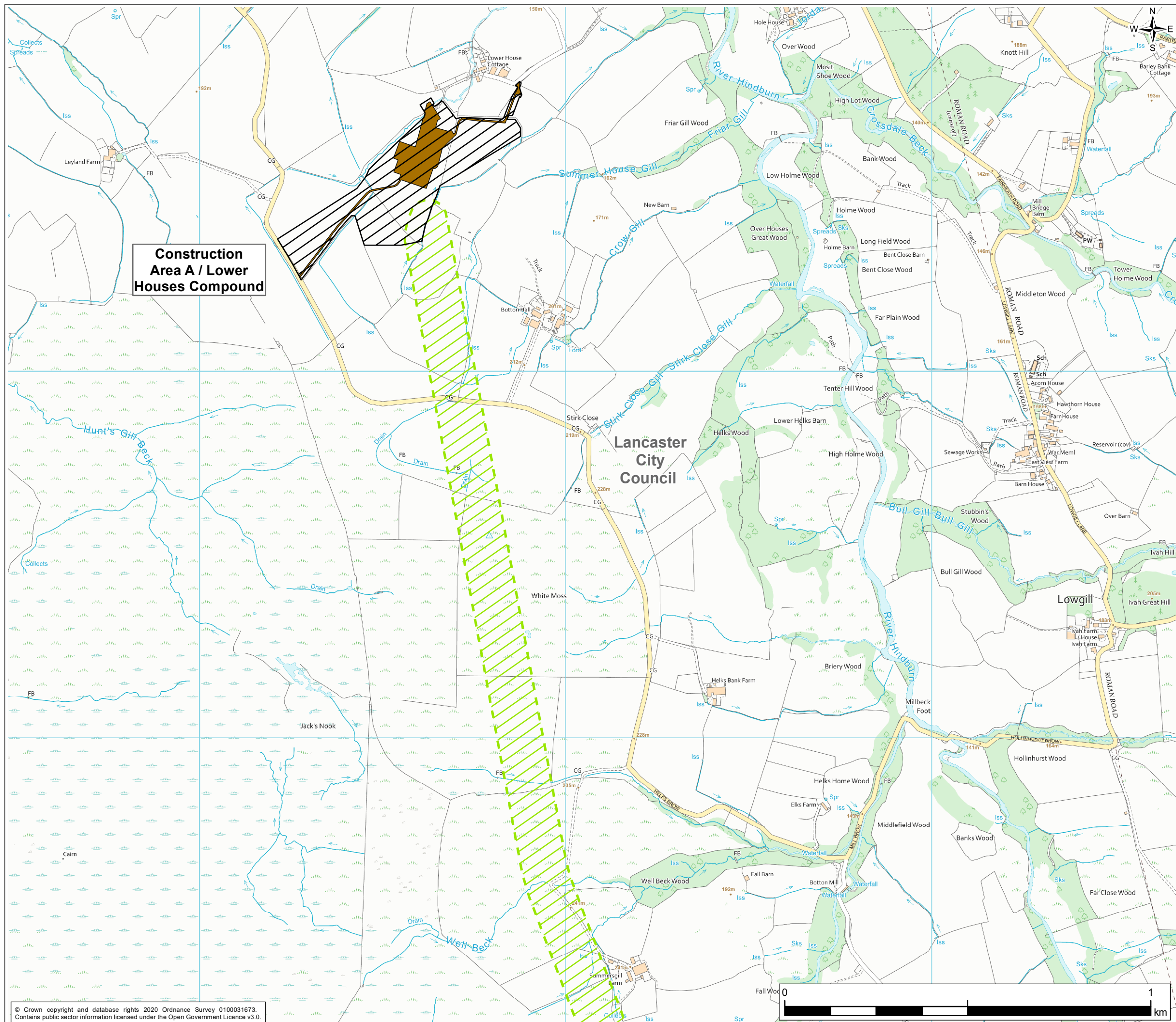
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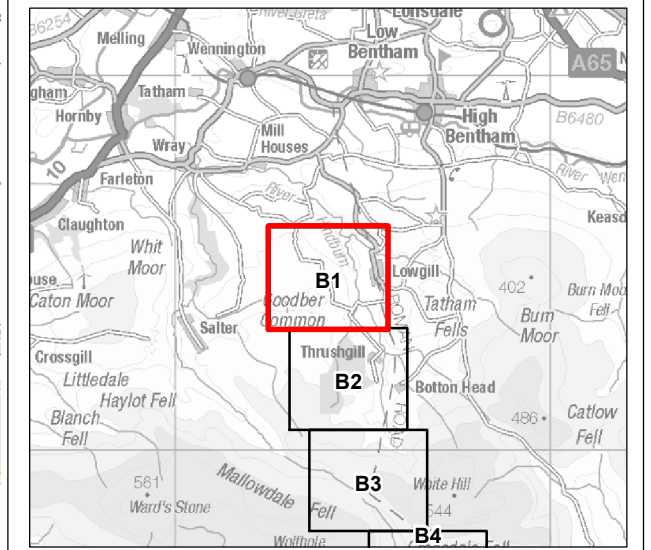
Legend

-  Proposed Construction Compound/Laydown Area - Indicative Development Envelope
-  Proposed Tunnel Route - Indicative
-  Proposed Indicative Construction Compound/Laydown Area



Construction Area A / Lower Houses Compound

Lancaster City Council



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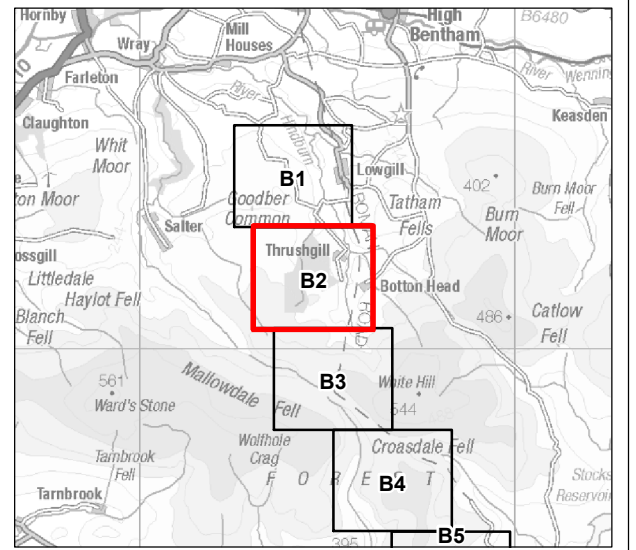
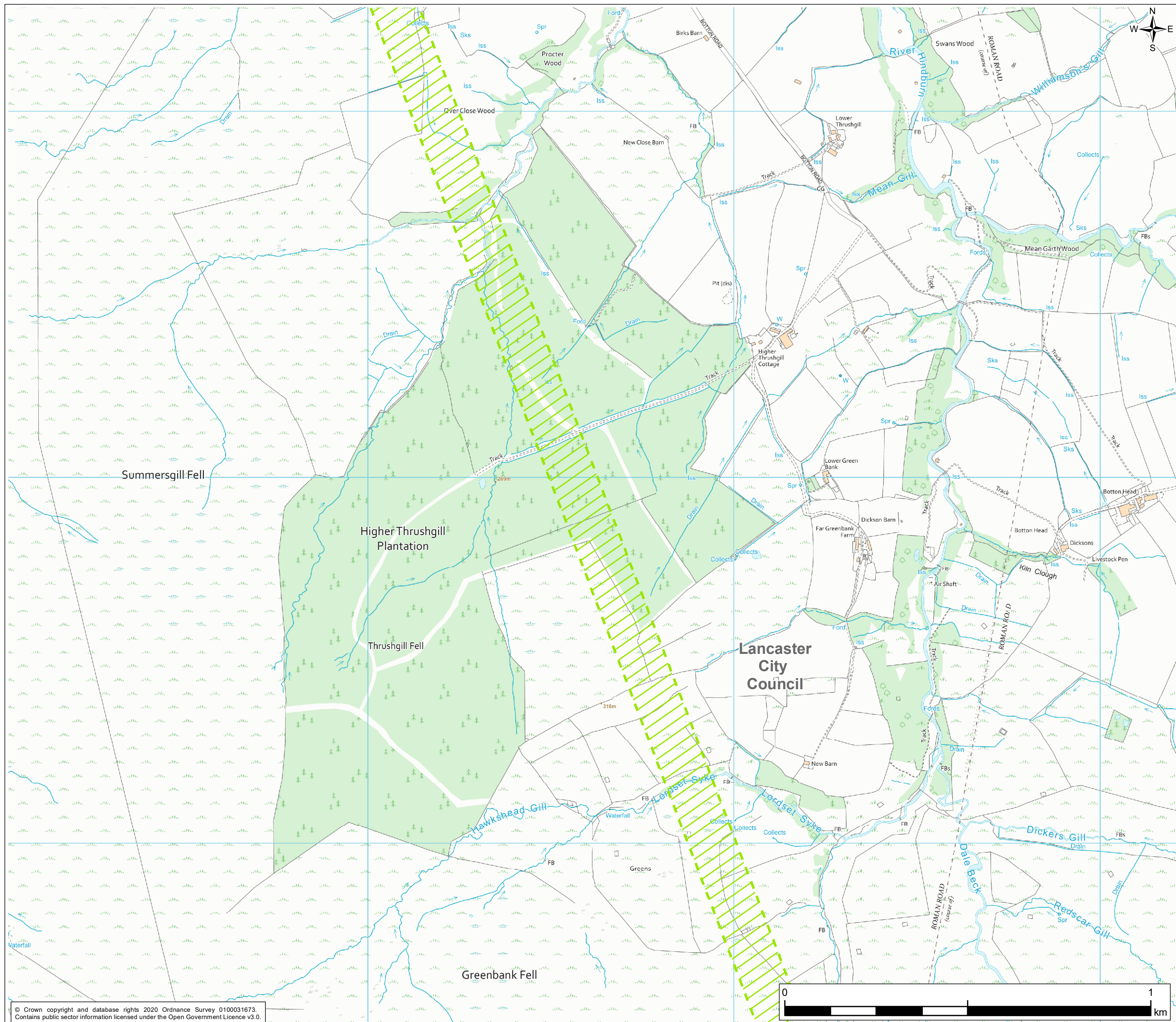
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Legend

 Proposed Tunnel Route - Indicative



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PROPOSED BOWLAND SECTION
SHEET 2 OF 6**

Drawing Status **FINAL**

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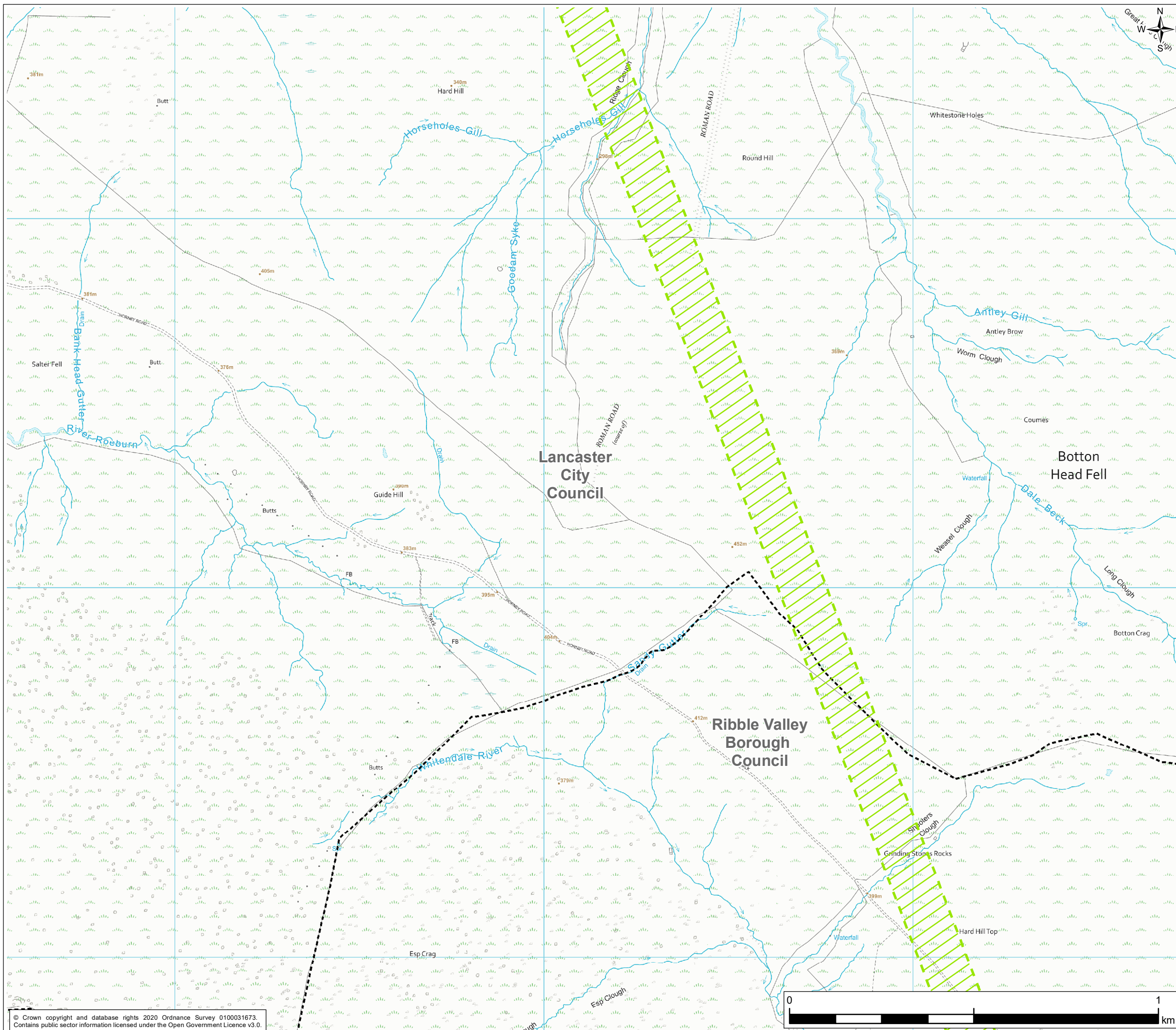
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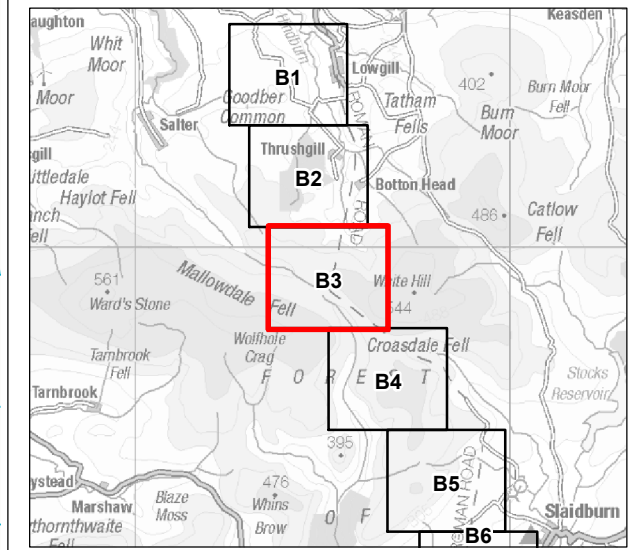
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B3

- Legend**
- Proposed Tunnel Route - Indicative
 - Planning Authority Boundary



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Drawing Title

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 PROPOSED BOWLAND SECTION
 SHEET 3 OF 6**

Drawing Status

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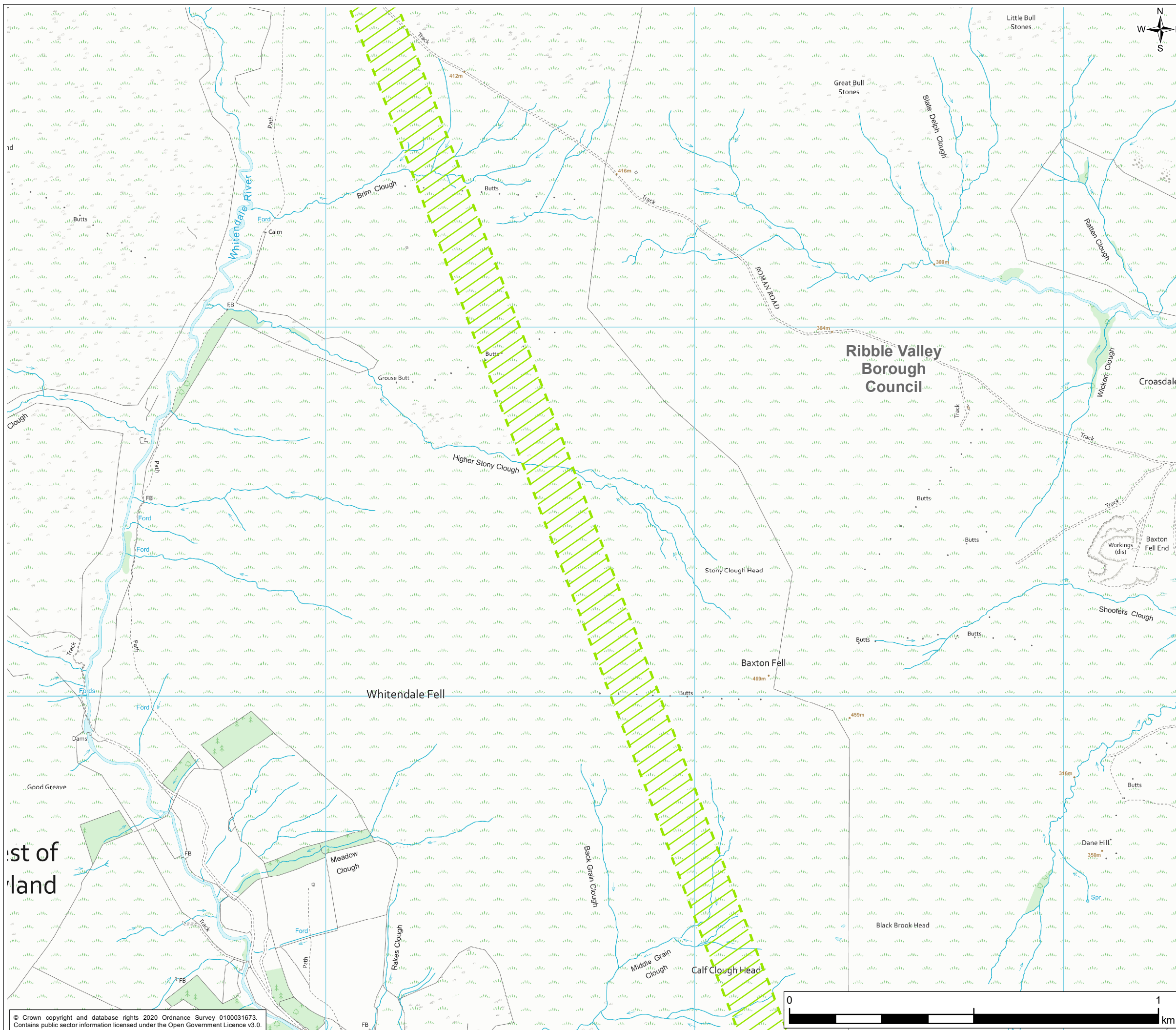
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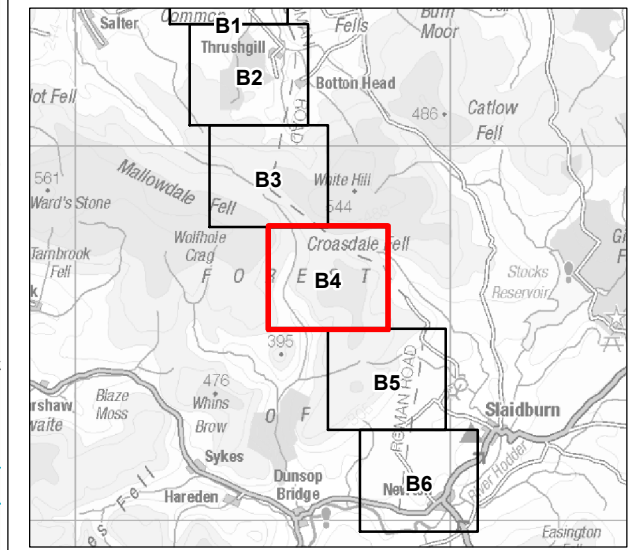
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B4

Legend
 Proposed Tunnel Route - Indicative



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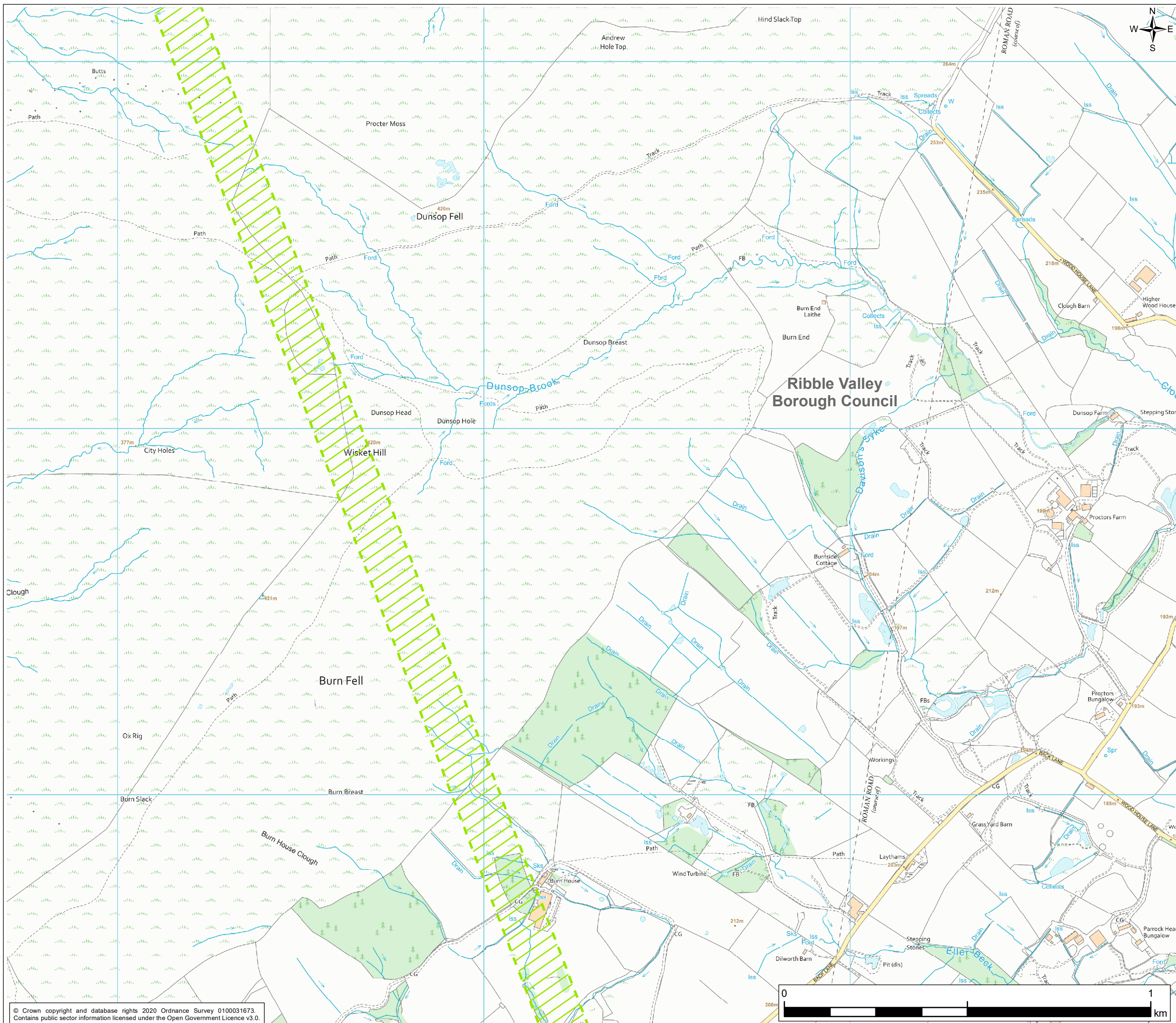
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 PROPOSED BOWLAND SECTION
 SHEET 4 OF 6**

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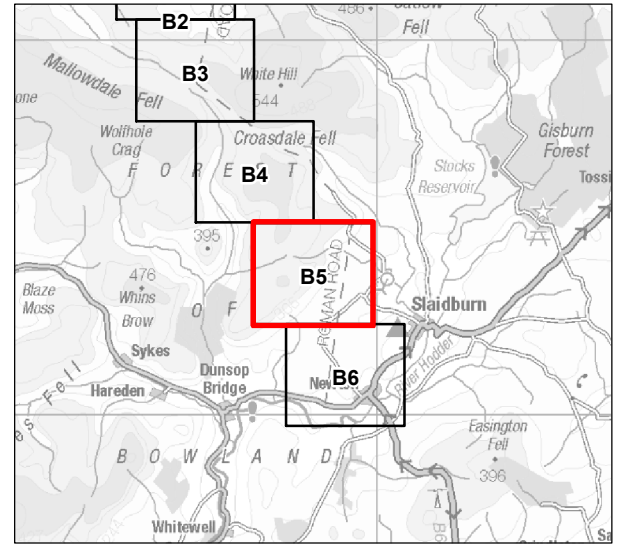
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B5

Legend
 Proposed Tunnel Route - Indicative



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 PROPOSED BOWLAND SECTION
 SHEET 5 OF 6**

Drawing Status **FINAL**

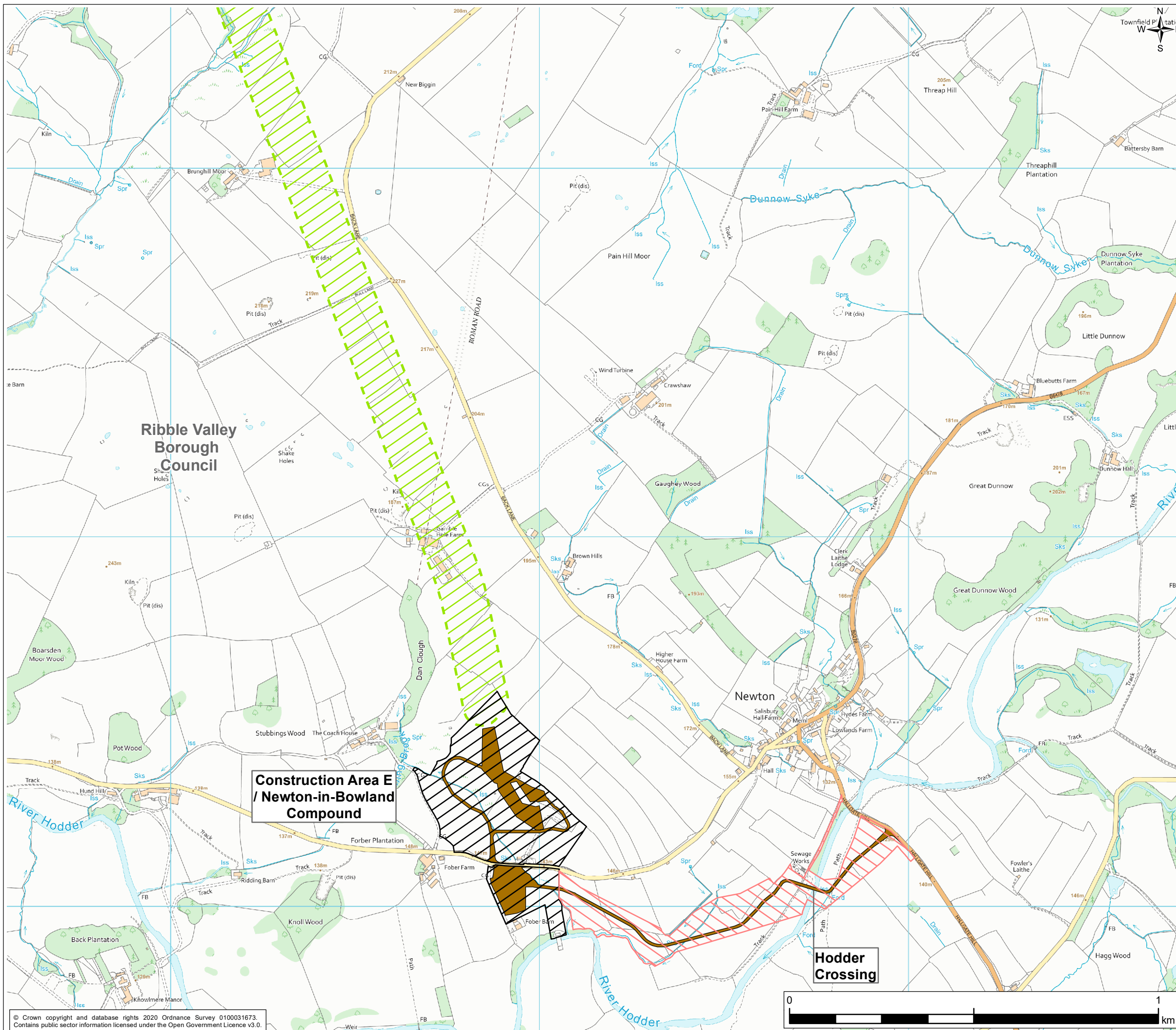
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


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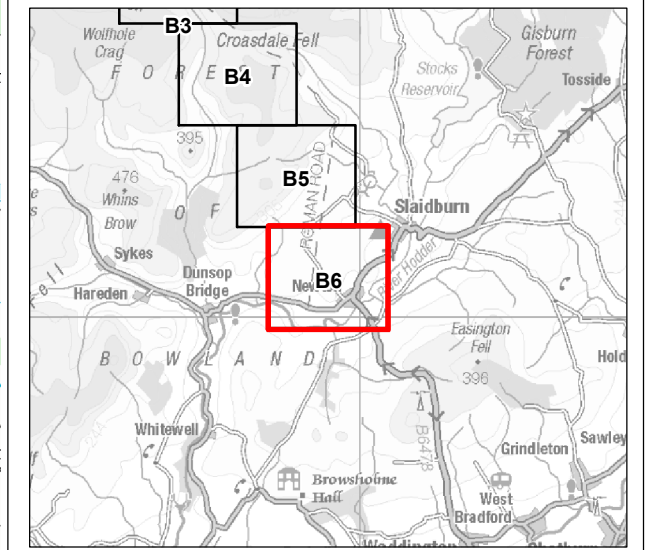
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B6

- Legend**
-  Proposed Construction Access - Indicative
 -  Proposed Construction Compound/Laydown Area - Indicative Development Envelope
 -  Proposed Tunnel Route - Indicative
 -  Proposed Indicative Construction Compound/Laydown Area



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Ribble Valley Borough Council

Construction Area E / Newton-in-Bowland Compound

Hodder Crossing

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9. Ecology

9.1 Overview

- 49) For the purpose of this chapter, the development envelope includes the proposed construction compounds (including laydown areas and open-cut excavations, shaft, operational buildings and temporary outfall elements of the scheme), the proposed construction access routes, including the new temporary crossing of the River Hodder and River Ribble, and any public highways works included with the planning application.
- 50) It is intended that the Ecology Chapter (Chapter 9) of the Environmental Statement will be presented in two parts:
- Chapter 9a Terrestrial Ecology
 - Chapter 9b Aquatic Ecology.
- 51) This Addendum does not replicate the October 2019 Scoping Report, but instead only considers any changes in scope.

9.2 Proposed Methodology

9.2.1 Desk Study

- 52) As the proposals for the Bowland Section evolved, the desk study was updated in summer 2020 to ensure data was gathered in line with the search zones identified in the original October 2019 Scoping Report.
- 53) The following additional sources were reviewed for the Aquatic Ecology ES Chapter:
- Ecological datasets for the period 2009-2019 were obtained via the Environment Agency Ecology and Fish Data Explorer website¹; these data included:
 - National Fish Populations Database (NFPD): Freshwater Fish Counts for all species for all areas and all years. The NFPD consists of information collected from fisheries monitoring work on rivers and lakes. This monitoring work is undertaken by the Environment Agency
 - Data for freshwater and marine biological surveys for macroinvertebrates, diatoms and macrophytes in England. The Environment Agency undertakes freshwater and marine biological monitoring in England. Freshwater and Marine Biological Surveys England is a large dataset containing taxonomic level species data for biological surveys carried out in freshwater and marine environments. This archive is more commonly known as BIOSYS
 - Other data sources utilised during the desk study:
 - Aerial photography (MAGIC, 2020)
 - Environment Agency Catchment Data Explorer (CDE) (Environment Agency, 2019)²
 - Designated area (Natural England, 2003)³
 - North West River Basin Management Plan (Environment Agency, 2018).
- 54) For the purpose of assessing air quality effects the scope includes European sites within 10 km (as per the criteria set out in Chapter 18: Air Quality;) and national and local designations within 2 km of Lower Houses and Newton-in-Bowland Compounds. It is understood that the traffic movements do not meet the threshold for requiring assessment along the transport routes as the highway works are not extensive enough to be considered under the DMRB guidance. Diesel generator set use at the compounds would, however, require assessment (for further information please refer to Chapter 18: Air Quality). The citations of the designations within these search zones were reviewed to identify nitrogen sensitive

¹ Environment Agency Ecology and Fish Data Explorer website <https://environment.data.gov.uk/ecology-fish/>. Accessed May-July 2020.

² Environment Agency Catchment Data Explorer website <https://environment.data.gov.uk/catchment-planning/>. Accessed May-July 2020.

³ Natural England Designated Sites View website <https://designatedsites.naturalengland.org.uk/SiteSearch.aspx>. Accessed May-July 2020.

habitats (as per Air Pollution Information System⁴). The following bullet points list those habitats used to scope sites into the assessment.

- Acid grassland
- Bogs
- Ancient Woodland
- Calcareous grassland
- Coastal and floodplain grazing marsh
- Dunes, shingle and machair
- Dwarf Shrub Heath
- Fen and marsh and swamp
- Inland rock and scree
- Maritime cliff and slopes
- Unimproved neutral grassland
- Lichen and moss communities.

9.2.2 Field Surveys

- 55) Surveys continued into 2020 either where changes to the design or scope of development introduced new locations or where seasonal constraints had not allowed completion in 2019.

Highways Works

- 56) Highway works would be required on the local network in the form of junction improvements, minor road widening and/or additional passing places. Given the potential for only limited impacts associated with these works due to the small footprint of works in any single location and their position (adjoining existing public highways), the scope of ecology surveys is as follows:

- Data search for protected species and designations
- Extended Phase 1 habitat surveys
- Watercourse walkover survey.

- 57) Given the small scale of the highways works in any location, professional opinion is that this level of survey is sufficient to determine likely significant effects to inform the assessment in the Environmental Statement and identify mitigation requirements.

- 58) Please refer to Chapter 9.2 of the October 2019 Scoping Report for further details regarding the proposed methodology.

9.3 Proposed Assessment Criteria

- 59) Please refer to Chapter 9.3 of the October 2019 Scoping Report for further details regarding the proposed assessment criteria.

9.4 Existing Baseline and Preliminary Assessment

9.4.1 Designated Sites

- 60) The following designations no longer fall within the search zones (5 km for SSSIs and 2 km for BHSs) of the Proposed Bowland Section and have therefore been scoped out of the EIA process:

⁴ <http://www.apis.ac.uk>

- Standridge Farm Pasture SSSI
- Barn Gill Meadow SSSI
- Mean Garth Wood BHS
- Swans Wood (Including Far Close Wood) BHS
- Burn End Pasture BHS
- Hollinhurst Wood BHS
- Waddington Fell Road, Roadside Verges BHS.

9.4.2 Habitats and Species of Principal Importance

61) No change.

9.4.3 Habitats within the Survey Area

62) Any updates to detailed habitat descriptions and valuations will be included in the Environmental Statement. The following additional habitats have been identified during field surveys:

- Broadleaved woodland plantation (within 50 m of the Newton-in-Bowland access)
- Mixed woodland plantation (within 50 m of the Newton-in-Bowland access)
- Fen (within the Newton-in-Bowland compound)
- The following habitats are no longer within the Proposed Bowland Section or associated survey buffers:
 - Coniferous plantation woodland
 - Continuous bracken
 - Dry heath / acid grassland mosaic
 - Wet heath / acid grassland mosaic
 - Blanket Bog
 - Valley mire
 - Introduced shrub.

9.4.4 Species

63) No significant changes. Any updates to detailed species descriptions and valuations will be included in the Environmental Statement.

9.5 Potential Effects

64) The following potential effect has been added under the bullet point Disruption of local watercourses and drainage patterns causing:

- Changes to ground water dependent terrestrial ecosystems (GWDTE).

9.6 Design and Mitigation

65) Please refer to Chapter 9.6 of the October 2019 Scoping Report for further details regarding design and mitigation.

9.7 Ecology Summary Scope for the EIA

9.7.1 Field Surveys

66) No change.

9.7.2 Ecological Impact Assessment

67) Table 9.5 in the October 2019 Scoping Report detailed the completed and proposed field surveys, significant changes to this are as follows:

- Changes to the scope of designated sites is as detailed under Section 9.4.1
- Surveys may continue beyond previously stated end dates including those required to capture areas requiring highways works
- Watercourse walk-over habitat surveys were undertaken in 2020 for watercourses within and adjacent to the Lower Houses and Newton-in-Bowland Compounds. The walk-over habitat survey methodology was based on the Environment Agency's 'Restoration of Riverine Salmon Habitats' guidance manual (Hendry & Cragg-Hine, 1997)
- Following review of desk data and walkover surveys, no detailed fish, invertebrate or aquatic plant surveys were required
- Great crested newt eDNA surveys were undertaken at all accessible ponds within 500 m the Lower Houses and Newton-in-Bowland compounds unless separated by a barrier to amphibian dispersal
- Following consultation with stakeholders the scope of bat surveys had been decreased. It was discussed that, given the timeframe between completion of the Environmental Statement and the short survey shelf life, tree climbing/inspection surveys and presence/absence/backtracking surveys would be more appropriate following contractor appointment and when reference can be made to the compound layout plans. For the avoidance of doubt, bat activity automated surveys, bat activity transect surveys, ground level bat tree roost assessments and data searches for bat records have been undertaken to inform assessment of likely significant effects
- Additional habitat survey was undertaken within a buffer zone up to at least 200 m from the proposed compound red line boundaries. Where potential groundwater dependant terrestrial ecosystems (GWDTE) were identified, additional assessment was undertaken as necessary to classify the habitat type taking account of National Vegetation Communities (NVC) and SNIFFER wetland typologies
- Additional breeding bird surveys were undertaken in spring 2020 to cover areas of the works not accessed in 2019.

68) Please refer to Chapter 9.7 of the October 2019 Scoping Report for further details regarding the Ecological Impact Assessment.

10. Communities and Health

10.1 Overview

- 69) The authors have taken the opportunity in preparing this Scoping Addendum to provide a more focussed approach to the assessment on the communities which are expected to be affected by the Proposed Bowland Section.
- 70) Please refer to Chapter 14.1 of the October 2019 Scoping Report for the overview of the Communities and Health scoping assessment.

10.2 Proposed Communities Methodology

- 71) The socio-economic assessment area will be defined by local and regional communities:
- The local community assessment area (LCAA) will be defined by a 1 km boundary around all elements of the Proposed Bowland Section excluding the indicative corridor for the tunnel.
- 72) The LCAA has generally been extended from 500 m (as reported in the original October 2019 Scoping Report) to 1 km to capture all potential disturbance effects for communities which could occur as a result of a combination of traffic, noise and visual impacts. Where disturbance effects could occur over a wider area, for example due to transport routes, these will be considered in the ES.
- 73) Published guidelines and criteria contained in the following documents will be referenced to assist in the evaluation of effects on the socio-economic environment (this will replace the 2019 DMRB guidance as reported in the original Scoping Report):
- The Design Manual for Roads and Bridges LA 112 – Population and Human Health (2020).
- 74) Please refer to Chapter 14.2 of the October 2019 Scoping Report for further details regarding the proposed communities methodology.

10.3 Proposed Communities Assessment Criteria

- 75) The authors have taken the opportunity in preparing this Scoping Addendum to provide a more focussed approach to the assessment on the communities which are expected to be affected by the development. Based on this, and as a result of updates to the DMRB guidance, the assessment will be updated to include:
- Disturbance effects
 - Severance effects
 - Demands on tourism accommodation.
- 76) The updated methodology is outlined below.
- Disturbance effects
- 77) For the purposes of the EIA, disturbance effects are considered to arise when a combination of two or more visual, traffic, air quality and noise effects coincide on a particular area or receptor.
- 78) Assessment findings from each of the following sections will be used in the determination of disturbance effects:
- Chapter 6 Landscape and Arboriculture
 - Chapter 16 Transport Planning
 - Chapter 17 Noise and Vibration
 - Chapter 18 Air Quality.
- 79) There is no published guidance for assessing disturbance effects on communities. The assessment of disturbance effects will therefore follow a bespoke methodology which will acknowledge that where

there is a combination of at least two environmental effects on a receptor or group of receptors, this could result in a disturbance effect to the community.

- 80) The assessment of disturbance effects will be based on the residual effects reported by the contributing assessments i.e. effects after the proposed mitigation measures are accounted for. Professional judgement will be applied in determining whether the combination of topic effects could result in a significant disturbance effect overall. As such, no additional sensitivity and magnitude criteria will be required for this element of the Communities and Health assessment.
- 81) Community receptors will be identified through the use of Ordnance Survey Addressbase data, site surveys, google imagery and stakeholder engagement. Receptors will be classified into the following categories: residential properties, social infrastructure, agricultural activities and commercial operations.
- 82) The full list of receptors considered in the assessment of disturbance effects will presented in the Environmental Statement.

Severance effects

- 83) In this context, severance will concern the ability of people to access community facilities, residential property, commercial land and agricultural land. This could be due to:
 - The difficulty of crossing a heavily trafficked road
 - Highway diversions increasing journey length
 - Direct loss of access to property due to land take
 - New roads (in this context – temporary access tracks which could sever agricultural fields)
 - Pedestrian access to essential facilities impeded by minor traffic flows.
- 84) The assessment will be based on the severance results which will be presented in Chapter 16 (Transport Planning) , combined with information from design drawings and identification of community facilities.
- 85) All community receptors will be assigned a High sensitivity. The criteria used to help determine the magnitude of severance effects on community receptors are shown in Table 14.1.

Table 14.1: Communities and Health Magnitude Criteria – Severance effects (DMRB,2020)

Magnitude	Criteria
Major	Introduction (adverse) or removal (beneficial) of complete severance with no/full accessibility provision.
Moderate	Introduction (adverse) or removal (beneficial) of severe severance with limited / moderate accessibility provision.
Minor	Introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.
Negligible	Very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision.
No Change	No loss or alteration of accessibility; no observable impact in either direction.

- 86) The full list of receptors considered in the assessment of severance effects will presented in the Environmental Statement.

Demands on Tourism Accommodation

- 87) A conservative assumption will be applied that all non-home-based workers would reside within the Regional Community Assessment Area (RCAA.) It is acknowledged that there is a small chance of workers choosing to take up accommodation closer to site in holiday cottages and B&Bs that ordinarily accommodate tourists. If workers stay long term, this could result in a lack of availability for tourists resulting in knock on impacts on the tourism industry. However, given that construction is predicted to last over a number of years, B&B accommodation would generally be unsuitable for individuals working in shifts. B&B and holiday cottage accommodation is more expensive than ordinary rental properties and, over the construction period, workers are likely to feel the need for more social and recreational amenities provided in larger settlements and towns. It is plausible to assume that workers will choose to distribute themselves throughout the remaining area of the RCAA.
- 88) The potential for construction workers to put pressure on demand for tourism accommodation will be assessed based on the estimated peak workforce.
- 89) The peak workforce will be compared against the available capacity or headroom to determine whether effects are likely to be significant. The temporal aspect of magnitude (duration and frequency) will be taken into consideration in concluding on the significance of effects. Tourism accommodation effects will be considered within the context of tourism accommodation bed space stock within the RCAA. A conservative assumption will be applied that all non-home-based workers would reside within the RCAA.
- 90) The tourism accommodation sector will be assigned a High sensitivity. The criteria used to help determine the magnitude of effects on tourism accommodation are shown in Table 14.2.

Table 14.2: Communities and Health Magnitude Criteria – Tourism accommodation effects

Magnitude	Criteria
Major	Large, direct change to the availability of tourism accommodation (change in the context of these criteria means fewer bed spaces in tourist accommodation and reduction in capacity to serve the visitor economy).
Moderate	Medium, direct change to the availability of tourism accommodation.
Minor	Small, direct change to the availability of tourism accommodation.
Negligible	Very slight change from the baseline condition.
No Change	Change hardly discernible, approximating 'no change' in conditions.

- 91) Please refer to Chapter 14.3 of the October 2019 Scoping Report for further details regarding the proposed communities assessment criteria.

10.4 Proposed Health Methodology

- 92) Please refer to Chapter 14.4 of the October 2019 Scoping Report for further details regarding the proposed health methodology.

10.5 Proposed Health Assessment Criteria

- 93) Please refer to Chapter 14.5 of the October 2019 Scoping Report for further details regarding the proposed health assessment criteria.

10.6 Existing Conditions

Assessment Area

- 94) The LCAA has been extended from 500 m to 1 km. Community areas have also been established using the smallest geographical unit at which population statistics can be gathered. In many cases, the community boundaries will extend further than the LCAA 1km boundary. Professional judgement will

therefore be applied to extend or reduce the community study area where required due to, for example, known environmental effects or the extent of transport routes.

Socio-economic characteristics

- 95) As part of scoping, an initial desk-based study has been undertaken to review the key socio-economic characteristics of the area. This initial desk study helps to understand the potential receptors close to the Proposed Bowland Section and identify the potential for significant effects to arise. The LCAA will consider potentially affected parishes and town council areas, where the predominant land use outside the settlements is agriculture and where population density in the LCAA is as low as 0.25 people per hectare. Many businesses in the LCAA are primarily related to agriculture and are widely dispersed, while there is a broader economic base in the Clitheroe area.
- 96) Please refer to Chapter 14.3 of the October 2019 Scoping Report for further details regarding the proposed Communities assessment criteria.

10.7 Potential Effects

- 97) Given the rural nature of the community, there is potential for disturbance effects, severance effects and effects on tourism and accommodation. These will therefore be considered further in the Environmental Statement.
- 98) Please refer to Chapter 14.7 of the October 2019 Scoping Report for further details regarding the potential effects.

10.8 Mitigation

- 99) Please refer to Chapter 14.8 of the October 2019 Scoping Report for further details regarding mitigation.

10.9 Summary Scope for the EIA

- 100) Table 14.3 below identifies the key socio-economic receptor groups and the reasons for scoping them in or out. This is an update of Table 12.5 from the original Scoping Report as some receptor groups have now been scoped back in due to the changes in design.

Table 14.3: Scoping outcomes

Receptor Group	Matter/ potential effects	Location within assessment area	Comments
Employment and economy	Employment opportunities for local workforce. Economic opportunities for local suppliers. Disturbance to normal functioning affecting commercial performance.	LCAA & RCAA	Scoped out: Opportunities for employment for the local workforce, or opportunities for involvement from the local supply chain in construction is expected to be limited in scale. Scoped in: Potential disturbance and severance effects on commercial properties within the LCAA.
Tourism	Use of tourist accommodation by construction workforce. Disturbance to normal functioning of tourist attractions.	RCAA	Scoped in: Potential for construction worker demand to put pressure on tourist accommodation capacity.

Receptor Group	Matter/ potential effects	Location within assessment area	Comments
Social infrastructure (e.g. hospitals, doctors' surgeries, aged care facilities, places of worship, emergency services, schools, post offices, open space and recreation areas)	Disturbance to normal functioning affecting community cohesion.	LCAA	Scoped in: Disturbance effects on social infrastructure are scoped in.
Population and residential properties	Disturbance to normal functioning affecting quality of life. Community severance from increased traffic.	LCAA	Scoped in: Due to the scale of works involved, there are potential disturbance effects on residential properties due to for example, noise or dust impacts. Given the proximity of the A-road network (A685 and A684), there could also be severance and accessibility effects on minor roads due to increased traffic.
Agricultural land / crops and farms.	Temporary or permanent loss of agricultural land. Disturbance to normal functioning of farms and landholdings.	LCAA	Scoped in: Construction effects would be temporary, and all land not occupied by above ground operational facilities will be restored. Construction would be undertaken in a manner that minimises, as far as practicable, the potential effects on the normal functioning of farms and landholdings. Potential effects would be assessed and appropriately recorded in the Environmental Statement.

101) Please refer to Chapter 14.9 of the October 2019 Scoping Report for the Summary Scope for the EIA.

17. Noise and Vibration

17.1 Overview

102) Please refer to Chapter 17.1 of the October 2019 Scoping Report for the overview of the Noise and Vibration scoping assessment.

17.2 Proposed Methodology

103) The assessment will be undertaken using the latest DMRB Guidance (2019)⁵. The updated DMRB guidance provides a method for assessing construction noise and vibration which is broadly consistent with that in BS5228-1. This was not included in the earlier version of the standard and, as a result, it was therefore not included in the original Scoping Report.

104) Please refer to Chapter 17.2 of the October 2019 Scoping Report for further details regarding the proposed methodology.

17.3 Proposed Assessment Criteria

105) The updated DMRB guidance provides an approach to determining impacts during construction of road schemes. The approach is broadly consistent with that in BS5228-1, but does provide a more simplified method, defines LOELs and SOELs and the impact classifications. As a result, the criteria below will be used when conducting the impact assessment.

Airborne Noise

106) Noise impact thresholds for construction activities at residential premises, and other noise sensitive receptors, as presented in presented in Table 17.3, have been classified using the assessment approach set out in Annex E.3 of BS5228-1:2009 + A1:2014.

107) In relation to construction noise, day is 07:00 to 19:00, evening is 19:00 to 23:00 and night is 23:00 to 07:00. The level provided for the daytime is for the entire period, whereas that for evening and night is applicable to any single hour within the respective period.

108) The threshold values presented in Table 17.3 relate to the site noise level, which is the noise from construction activities alone.

Table 17.3: Construction noise LOAEL and SOAEL values at residential receptors (construction noise only)

Construction Airborne Noise Effect Level	Threshold Value (LAeq,T) 1m in front of the relevant façade	Source
Lowest Observed Adverse Effect Level (LOAEL)	Exceeds existing $L_{Aeq,T}$ noise level for day, evening or night	LOAEL is set at a level where construction noise becomes the dominant source.
Significant Observed Adverse Effect Level (SOAEL)	Threshold level determined as per BS 5228-1:2009+A1:2014 Section E3.2 and Table E.1	Based on BS 5228-1:2009+A1:2014 and follows approach promoted within DMRB LA111.

109) In order to determine the significance of effects (see Table 17.2 of the October 2019 Scoping Report), the magnitude of airborne noise change due to construction will be defined using the criteria presented in Table 17.4.

⁵ Design Manual for Road and Bridges, Volume 11 Section 3 Part 7 'Noise and Vibration' (DMRB LA111), 2019

Table 17.4: Magnitude of impact and construction noise descriptions

Magnitude of change	Criteria
Major	Above or equal to 'SOAEL+5dB'
Moderate	Above or equal to SOAEL and below 'SOAEL+5dB'
Minor	Above or equal to LOAEL and below SOAEL
Negligible	Below LOAEL

Groundborne Noise

- 110) The impact classification criteria presented in Table 17.7 and 17.8 shall be used in the assessment of groundborne noise and vibration impacts at residential receptors and buildings during construction.
- 111) The significance criteria for groundborne noise levels arising from underground construction have been determined using criteria from the Elizabeth Line project (formerly known as Crossrail). Table 17.7 summarises the criteria and indicates that the effect would be considered potentially significant if groundborne noise levels exceed 40 dB L_{Amax,S}.
- 112) Effect levels in terms of NPSE have been added to the table based on the 40dB L_{Amax,S} being considered as the LOAEL, and 45 dB L_{Amax,S} the SOAEL.

Table 17.7: Groundborne noise impact criteria for residential receptors

Impact Classification	Groundborne sound level dB L _{pASmax} , (measured indoors, near the centre of any dwelling room on the ground floor)
No change	<35
Negligible	35 - 39
Minor	40 - 44
Moderate	45 - 49
Major	>49

Construction Traffic

- 113) A classification for the magnitude of changes in road traffic noise is provided in DMRB LA 111. For construction road traffic noise, the classification of magnitude of change is reproduced from DMRB LA 111 in Table 17.8.

Table 17.8: Magnitude of impact at receptors (short-term) (reproduced from DMRB LA 111)

Magnitude of impact	Increase in Basic Noise Level of closest public road used for construction traffic (dB)
Major	Greater than or equal to 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	Less than 1.0

- 114) Construction noise and construction traffic noise shall constitute a significant effect where it is determined that a Major or Moderate magnitude of impact will occur for a duration exceeding either:
 - Ten or more days or nights in any 15 consecutive days or nights
 - A total number of days exceeding 40 in any 6 consecutive months.

115) These time periods are presented in the LA111 guidance and are presented within BS5228-1 (for the assessment of potential noise insulation and temporary rehousing eligibility). With the construction design details available at this time, it will not be possible to determine impacts in strict accordance with the above temporal criteria and, as such, the assessment will present the text above and state that all impacts reported within the assessment are assumed to meet these, unless stated otherwise.

Operational traffic

116) It is not currently known whether any impacts will result from operational traffic (due to changes in the highway designs, for example), however, if these impacts are expected then they will be assessed using the criteria as set out in DMRB LA 111.

117) DMRB LA 111 states the following with regard to vibration from road traffic noise, which is therefore not included within the scope of this assessment:

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

118) Please refer to Chapter 17.3 of the October 2019 Scoping Report for further details regarding the proposed assessment criteria.

17.4 Existing Conditions

Baseline noise and vibration conditions

119) Due to Covid-19 restrictions, changes to the baseline sound level monitoring will be required. It was not considered safe or appropriate to enter private properties for the purpose of noise monitoring. It was also considered whether the data collected would be representative of typical conditions (owing to reduced traffic flows, for example) and therefore if the data was suitable for use in the assessment. Guidance on this matter, issued by The Institute of Acoustics (IOA) and Association of Noise Consultants (ANC)⁶ on the 24 March 2020, has been followed.

120) After a review of the available options, and considering the guidance given by the IOA/ANC, the following approach to defining baseline conditions along the route of the scheme will be taken:

- Measured baseline sounds will be used where available
- Where measured levels are unavailable, a review of online sources will be made to identify indicative sound levels (road and rail: extrium⁷ and previous local surveys, for example)
- Where measured levels are unavailable and online sources do not provide indicative levels, conservative assumptions shall be made, which will likely result in low noise thresholds being adopted for construction noise assessment (i.e. the 65, 55 and 45 dB(A) day, evening and night thresholds presented within BS 5228 part 1).

121) In order to work around the various uncertainties surrounding the pandemic, this approach will be kept under constant review.

122) Full details of this approach, including the limitations and uncertainties, will be presented in the Environmental Statement.

123) Please refer to Chapter 17.4 of the October 2019 Scoping Report for further details regarding existing conditions.

⁶ <https://www.association-of-noise-consultants.co.uk/wp-content/uploads/2020/03/Joint-Guidance-On-the-Impact-of-Covid.IOA-ANC-V2.pdf> accessed July 2020

⁷ www.extrium.co.uk accessed July 2020

17.5 Potential Effects

124) Please refer to Chapter 17.5 of the October 2019 Scoping Report for further details regarding potential effects.

17.6 Design and Mitigation

125) Please refer to Chapter 17.6 of the October 2019 Scoping Report for further details regarding design and mitigation.

17.7 Summary Scope for the ES

126) The information provided in this chapter of the Scoping Addendum is to provide an update to the changes in baseline and technical guidance. Further scoping information should be obtained from Chapter 17 of the October 2019 Scoping Report.

18. Air Quality and Climate Change

18.1 Overview

- 127) The October 2019 Scoping Report assumed that the main air quality impacts would be from road traffic. The need for the assessment of emissions from diesel generators, which may need to be used to power the tunnel boring machines (TBMs), other plant and equipment and site facilities has also subsequently been highlighted. Therefore, this chapter presents the outcome of the scoping exercise in relation to the likely significant air quality effects of the Proposed Bowland Section based on the consideration of emissions from diesel generators. Other changes to the original scope or assessment of road traffic emissions are also discussed where these have occurred.
- 128) Chapter 18.1 of the October 2019 Scoping Report highlighted the main pollutants of concern were primarily oxides of nitrogen (NO_x), nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}). Due to the emissions from on-site diesel generators, carbon monoxide (CO), sulphur dioxide (SO₂) and ammonia (NH₃) have also been included within the air quality assessment.
- 129) Following feedback received in the original scoping decisions for the Proposed Haslingden and Walmersley Section, further consideration is given in this chapter to the climate change agenda and carbon emissions.
- 130) As part of the original scoping exercise, a data review and desk study of the Proposed Bowland Section was undertaken to establish existing air quality. This has not been updated as the baseline conditions remain similar to those previously reported and do not influence or alter the assessment scope and methodologies.
- 131) The competent bodies for air pollution control and management on the Proposed Bowland Section are Lancaster City Council and Ribble Valley Borough Council.

18.2 Proposed Methodology

- 132) The following section describes the proposed approaches for assessing air quality impacts arising from road traffic exhaust emissions and on-site generator emissions where these have changed or have been included since the October 2019 Scoping Report. Consideration is also given to the climate change agenda.
- 133) The methodology to assess fugitive dust from construction areas has not changed since the October 2019 Scoping Report.

18.2.1 Exhaust Emissions from Construction Vehicles

- 134) The assessment methodology for road traffic related emissions will be defined based on the updated DMRB Guidance (2019)⁸ which was released subsequent to the October 2019 Scoping Report. The DMRB criteria, as outlined in section 18.2.2 of the October 2019 Scoping Report, will continue to be used to determine the extent of the air quality Affected Road Network (ARN) (i.e. the study area for road traffic emissions).

18.2.2 Diesel Generator Emissions

- 135) Current estimates of the on-site energy usage and energy availability now indicate that it will be necessary to use diesel generators in each key compound. The Environment Agency Guidance (2016)⁹ for the assessment of industrial emissions will be used to assess the impact of emissions from on-site generators. Generator specification data from generator suppliers will be used to estimate emissions assuming that they operate for a full year on a 24/7 basis for NO_x, SO₂, CO, NH₃ and particulate matter. Each generator will be modelled as a point source using ADMS, using five years of meteorological data,

⁸ Standards for Highways (2019) Design Manual for Road and Bridges, 'Air Quality' (DMRB LA105). [Online] Available from: <https://www.standardsforhighways.co.uk/prod/attachments/10191621-07df-44a3-892e-c1d5c7a28d90> [Accessed: September 2020].

⁹ Environment Agency (2016) Air Emissions Risk Assessment for your Environmental Permit. Available from: <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit> [Accessed: September 2020].

for ecological receptors up to 10 km from the diesel generators for European ecological sites and 2 km for other sites (including those defined for the ARN for road traffic and locally designated ecological sites).

- 136) Human receptors (i.e. locations such as residential properties, schools, hospitals and other publicly accessible locations where exposure to air pollutants may occur) will be modelled for NO₂, SO₂, CO, NH₃ and particulate matter (PM₁₀ and PM_{2.5}). The human receptors will be selected to represent the nearest locations to the construction compounds containing diesel generators or close to the road network where a combined impact from diesel generator and road traffic emissions could occur. Ecological sites will be modelled for NO_x, SO₂ and NH₃. Concentrations will be modelled for 15 minute, 1-hour, 8-hour, 24-hour and annual averages as appropriate for the relevant pollutant air quality standards (refer to Table 18.1 in the October 2019 Scoping Report and also Table 18.1 in this report for the additional pollutants). The impact from the generator emissions, and where appropriate, road traffic emissions (referred to as the Process Contribution (PC)) will be assessed. The PC is the estimated maximum environmental concentration of substances due to releases from the process alone. The PC will also be combined with background concentrations to provide the Predicted Environmental Concentration (PEC) of the substances of interest as appropriate.
- 137) For ecological sites, deposition calculations will be undertaken for acid deposition and nitrogen deposition as appropriate.
- 138) Where traffic levels on road links close to human or ecological receptors do not trigger the DMRB scoping criteria (i.e. are not part of the ARN), the impact of generator and road traffic will still be modelled to assess the combined impact of both road traffic and generator emissions. This will ensure the maximum PEC at each receptor will be determined.

18.2.3 Assessment of impacts

- 139) The predicted pollutant concentrations at each receptor will be added to the relevant Defra background map values¹⁰ or Air Pollution Information System (APIS) background concentration data ¹¹ (for NH₃) to derive total concentrations.
- 140) Results will be compared with Air Quality Objectives (AQOs) and EU Limit Values to assess any potential exceedances, their associated impact and if the overall effect is significant for human receptors will be based on the significance criteria in the DMRB LA105 guidance.

18.2.4 Greenhouse Gas Emissions and Climate Change Resilience

- 141) Climate change and the resultant shifts in weather patterns have the potential to significantly impact United Utilities' operations when hazards such as droughts, floods, storms or heatwaves become more frequent and more intense. United Utilities has first-hand experience of the impacts of extreme weather events on its operations and customers; United Utilities knows it needs to adapt its service to a changing climate, and has a part to play in mitigating climate change. At a corporate level, the company has developed a climate change mitigation strategy and made six pledges to reduce its carbon footprint.
- 142) It has been previously stated that, once operational, HARP would transfer treated water from its source to supply points in Cumbria, Lancashire and Greater Manchester under the influence of gravity along its entire length. There would be no requirement for energy-consuming pumping plant or machinery under normal day-to-day operating conditions, and consequently no significant carbon emissions associated with treated water supply. It is acknowledged however that HARP would give rise to direct and indirect carbon emissions associated with the enabling works, construction activities, materials, and commissioning of the infrastructure before it enters use. Main sources of carbon emissions would include transport and road haulage, the use of diesel generating sets at the construction compounds, and concrete and steel production. It is expected that the resulting carbon emissions should therefore be estimated, and proposals to minimise these emissions will be encouraged.

¹⁰Defra (2020), Background Mapping data for local authorities, Background Maps 2018 and 2001 [online] available from: <https://uk-air.defra.gov.uk/data/laqm-background-home>.

¹¹Air Pollution Information System (2020), [online], available from: <http://www.apis.ac.uk/>.

143) In order to mitigate potential carbon emissions and address the climate agenda, United Utilities would implement its climate change mitigation strategy. It is anticipated that the most effective intervention on HARP would be in the supply chain. United Utilities is therefore proposing to embed carbon and climate agenda-related requirements in the procurement process for consortia seeking to finance, design, build and maintain HARP. While still in development it is intended that these procurement requirements will be a mandatory part of the tendering process, and will be carried forward into the contract requirements for the newly-appointed consortia.

18.3 Proposed Assessment Criteria

144) Highways England's LA 105 defines how the significance of annual mean concentrations of NO₂ and PM₁₀ from road traffic can be reported. The approach identifies and assesses sensitive 'receptors' near roads where air quality might be adversely affected. Consequently, areas where AQOs are already exceeded, or are close to being breached (such as AQMAS), are considered. This will be expanded to include the other pollutants relevant to the emissions from generators which also have annual mean air quality standards (e.g. PM_{2.5} and NH₃). For short-term concentrations, which are relevant to emissions from the diesel generators, the significance of the predicted changes in pollutant concentrations (i.e. for NO₂, PM₁₀, CO, SO₂, and NH₃) is proposed to be determined in accordance with the relevant approach in the Environmental Protection UK / Institute of Air Quality Management (EPUK / IAQM) guidance¹².

145) The additional Air Quality Objectives (AQOs), EU Limit Values and Environmental Assessment Levels which are relevant to the assessment at human receptors following the consideration of diesel generator emissions are defined in Table 18.1 below.

Table 18.1: Air Quality Objectives (AQOs)/EU Limit Value/Environmental Assessment Levels

Pollutant	Threshold Concentration ($\mu\text{g}/\text{m}^3$)	Averaging Period
Oxides of nitrogen (NO _x)	75	Maximum 24-hour mean for the protection of vegetation (referred to as the "critical level").
Sulphur dioxide (SO ₂) (human receptors)	125	24-hour mean (99.18 th percentile)
	350	1-hour mean (99.73 rd percentile)
	266	15-minute mean (99.9 th percentile)
Sulphur dioxide (SO ₂) (ecological receptors)	10	Annual mean limit value for the protection of vegetation (referred to as the "critical level") where lichens or bryophytes are present.
	20	Annual mean limit value for the protection of vegetation (referred to as the "critical level") where lichens or bryophytes are not present.
Ammonia (NH ₃) (human receptors)	180	Annual Mean
	2500	Maximum hourly mean
Ammonia (NH ₃) (ecological receptors)	1	Annual mean limit value for the protection of vegetation (referred to as the "critical level") where lichens or bryophytes are present.
	3	Annual mean limit value for the protection of vegetation (referred to as the "critical level") where lichens or bryophytes are not present.

¹² Environmental Protection UK and Institute of Air Quality Management (2017) op. cit.

- 146) With regard to concentrations and deposition for international and national ecological sites, the Environment Agency guidance states emissions can be described as insignificant and no further assessment is required (including the need to calculate PECs) if:
- The short-term PC is less than 10 % of the short-term critical level
 - The long-term PC is less than 1 % of the long-term critical level/critical load.
- 147) Where the long-term PC is above 1 %, further consideration of existing background concentrations or deposition rates is required, and where the total concentration or deposition is less than 70 % of the critical level or critical load (critical loads will be taken from APIS or provided by the scheme ecologists), calculated in combination with other committed projects, the emission is not likely to have a significant effect.
- 148) Where the long-term PC is above 1 %, and the total concentration or deposition rate is greater than 70 % of the critical level or critical load, either alone or in combination with other committed projects or developments, then this may indicate a significant effect and further consideration is likely to be required.
- 149) Where the short-term PC is above 10 % of the critical level then an assessment would be made of the PEC and if the PEC exceeds the critical level it would be regarded as potentially significant and would require further consideration.
- 150) With regard to concentrations at other ecological sites (e.g. ancient woodland, local wildlife sites and national and local nature reserves), the Environment Agency guidance states emissions can be described as insignificant and no further assessment is required if:
- The short-term PC is less than 100 % of the short-term critical level or
 - The long-term PC is less than 100 % of the long-term critical level/critical loads.
- 151) Where the contribution is above 100 %, either alone or in combination with other committed projects or developments, then this may indicate a significant effect and further consideration is likely to be required.
- 152) For ecological sites any potentially significant impacts will be passed to the scheme ecologists to determine their significance and where practicable, mitigation will be proposed.
- #### 18.4 Existing Conditions
- 153) As noted in section 18.1, there are no changes to the October 2019 Scoping Report in relation to existing conditions which affect the assessment scope and methodologies.
- #### 18.5 Potential Effects
- 154) The diesel generator emissions during the construction phase have the potential to impact on human receptors and designated ecological sites.
- 155) There are no further changes to the October 2019 Scoping Report in relation to potential effects.
- #### 18.6 Summary Scope for the ES
- 156) Table 18.2 below summarises the outcome of the scoping exercise and indicates which potential air quality effects have been scoped into and out of the EIA (the table shows only those changes or additions to the October 2019 Scoping Report).

Table 18.2: Summary of Scoping Exercise

Receptor Group	Matter / Potential Effects	Location Within Assessment Area	Comments
Human receptors	Diesel generator exhaust emission – construction.	Generally, those which are closest to the construction compounds containing diesel generators and within 2 km.	Scoped in
Ecological receptors (European designated sites)	Diesel generator exhaust emission – construction.	Within 10 km of diesel generators.	Scoped in
Ecological receptors (Other designated ecological sites)	Diesel generator exhaust emission – construction.	Within 2 km of diesel generators.	Scoped in
National / global level	Greenhouse gas emissions – construction.	Emissions from embedded carbon for key construction materials, generators and transport of construction materials.	Scoped in
National / global level	Greenhouse gas emissions – operation.	Service vehicles only – no other envisaged emissions.	Scoped out. The Proposed Bowland Section is a gravity-fed aqueduct and therefore has negligible carbon emissions during its operational phase.
National / global level	Climate change resilience - operation	Regional level – Haweswater Aqueduct.	Scoped in, to address the resilience of the proposed infrastructure to climate change.

Appendix A. Minor Scoping Changes

Environmental Topic	Methodology	Assessment Criteria	Existing Conditions	Summary Scope
Chapter 6: Landscape and Arboriculture	Baseline surveys will be undertaken in Summer (as well as Winter) in the same manner as described in Chapter 6.2 of the original Scoping Report.	No change	No change	No change
Chapter 7: Water Environment	<p>For assessing impacts upon water quality, water quantity (excluding flood risk covered in Chapter 8 and water resources where applicable) the criteria from the Design Manual for Roads and Bridges (DMRB) LA 113 Road Drainage and the Water Environment (hereafter referred to as LA 113) has been used.</p> <p>GWDTE</p> <p>It is anticipated that Ground Investigation (GI) and subsequent assessment activities will not be completed in advance of the planning application. Therefore, it is proposed that the groundwater impact assessment uses the GI information that is available, which would be supported by the desk-based study.</p> <p>After consultations with the Environment Agency, the following approach to the GWDTE assessment has been agreed:</p> <ul style="list-style-type: none"> • Conduct an initial high-level screening exercise, using Phase 1 Habitat Survey data, to identify sites which are groundwater dependent. • Use National Vegetation Classification (NVC) surveys, high-level NVC surveys, and surveys that follow the Scotland & Northern Ireland Forum for Environmental Research (SNIFFER) WFD95 Wetland Typology methodology. The UK TAG guidance links the NVC classification to indicative ranges of groundwater. • Develop Individual Conceptual Site Models (CSMs) for the refined list of potential GWDTEs. The prioritisation of GWDTEs will then be derived by considering both the ecological designation of the site, and the degree of groundwater dependency of each GWDTE. • The impact assessment will then be determined using the CSM to project anticipated impact(s) on groundwater flows, levels and quality at the site, because of a given works item. <p>Surface Water Hydrology</p> <p>Surface Water Hydrology has been assessed as part of the Flood Risk chapter and will be reported in Chapter 8 going forward.</p>	-	-	<p>Potential Effects</p> <ul style="list-style-type: none"> • Limited use of wet concrete and cementitious grout during shaft construction and tunneling – scoped out. <p>Along much of its length the proposed tunnel would run at depth (i.e. 50m plus) apart from at the portal at the Newton-in-Bowland compound and on its approach to the Lower Houses reception shaft. Therefore, any impacts to surface waters or GWDTEs, along the length of the tunnel, have been Scoped Out from further assessment. Any impacts to surface waters or GWDTEs because of open-cut and compound related works remain Scoped In and these assessments will follow the methodology as described in this report.</p>

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Chapter 8: Flood Risk	Detailed flood risk assessments will be undertaken of the proposed Hodder Crossing serving the Newton-in-Bowland compound and the Ribble Crossing in the Clitheroe area. Baseline assessment has concluded that these Main Rivers pose a high risk of flooding. The floodplains are classified as Flood Zone 3 indicating a high probability of flooding.	Will follow NPPF and Environment Agency guidelines. There has already been engagement with the Environment Agency to establish bridge design and flood risk assessment parameters.	To be confirmed in the ES.	Presently being with the Environment Agency and other stakeholders.
Chapter 10: Cultural Heritage	<p>The assessment will be undertaken using professional judgement, guided by DMRB LA 104 and LA 106 Cultural Heritage Assessment (Highways England 2020).</p> <p>Zone of Visual Influence (ZVI)</p> <p>Designated assets would be assessed within a zone of visual influence (ZVI) to assess any assets whose settings may be impacted.</p> <p>An initial ZTV would be created with a threshold of 6 km from the centre of each of the construction compounds to produce an overarching assessment area. The ZTV mapping and subsequent site appraisal work will illustrate that visibility would be principally concentrated within the surrounding landscape up to a distance of 3 km. Therefore, the detailed assessment area for landscape and visual receptors will extend up to a threshold of 3 km from each of the construction compounds.</p> <p>ZTVs would be prepared using digital terrain modelling (OS Terrain 5) and Geographical Information System (ArcGIS 10.6) base mapping. The ZTV would focus on the likely significant effect, a 45 m high crane, which would be in place for the full duration of the tunnelling activities. Therefore, the ZTV modelling will be undertaken for the full 45 m crane height above existing ground levels at the highest point at the proposed tunnel portals. GLVIA3 states that ZTV mapping should “assume that the observer height is between 1.5 m and 1.7 m above ground level”. A height of 1.6 m above ground level will therefore be used to represent the eye level of an average height person.</p>	Table 10.2 of the October 2019 Scoping Report illustrates the criteria which will be used to assess the value of historic buildings. As with all other listed buildings, Grade II Listed Buildings will now be assessed to a High (instead of a Medium) value, unless professional judgement determines that a Grade II Listed Building should be of a different value.	-	For the Cultural Heritage chapter of the ES, a 200 m assessment area around the scheme will be used for a historic environment record (HER) search for non-designated heritage assets. Designated assets would be assessed within a zone of visual influence (ZVI), to assess any assets which may have their settings impacted on. Heritage assets will be assessed in accordance with the criteria presented in DMRB LA 104 and LA 106 and Historic England guidance.
Chapter 11: Soils, Geology and Land Quality	The UK approach to the assessment of contaminated land, as set out in Land Contamination: Risk Assessment (Environment Agency 2019), will be followed by the project. However, at the time of writing, it is anticipated that Ground Investigation and subsequent assessment activities will not be completed in advance of the application for planning permission. Therefore, it is proposed to undertake the Human Health Impact Assessment using a desk-based conceptual model approach.	<p>For Table 11.1 in the October 2019 Scoping Report: the following changes are made because of the sensitive receptors being reconsidered:</p> <ul style="list-style-type: none"> In the 'Very High' sensitivity, the receptor example Schools and playing fields, children's nurseries, nursing homes or residential homes for the elderly is replaced by Residential Gardens and allotments. In the 'High' sensitivity the receptor example Residential Gardens and allotments is replaced by Residential without gardens, schools and playing fields, children's nurseries, nursing homes or residential homes for the elderly. 	Publicly available information does not identify Mineral Safeguarding Areas within the area of search. Consultation will be undertaken with local authority mineral officers to confirm this.	No change

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		<p>Soil Quality</p> <p>The following information was omitted in the original Scoping Report; however, it is considered to be relevant to conduct the Soils, Geology and Land Quality Impact Assessment:</p> <p>The economic resource value of soil is primarily measured by its ability to support agricultural uses. This is quantified by its ALC grade, with six grades defined within Agricultural Land Classification (ALC) for England and Wales: Revised criteria for grading the quality of agricultural land (Ministry of Agriculture, Fisheries and Food, 1988), as follows:</p> <ul style="list-style-type: none"> ▪ Grade 1 (excellent quality) ▪ Grade 2 (very good quality) ▪ Subgrade 3a (good quality) ▪ Subgrade 3b (moderate quality) ▪ Grade 4 (poor quality) ▪ Grade 5 (very poor quality). <p>BMV agricultural land equates to Grades 1 and 2 and Subgrade 3a of the ALC system and is the most flexible land in terms of the range of crops that can be grown, the level and consistency of yield and the cost of obtaining yield.</p> <p>Soils could be affected in several ways during stripping, handling and storage, including:</p> <ul style="list-style-type: none"> ▪ Deformation through compaction and smearing arising from trafficking and handling of the soils ▪ Mixing of topsoils and subsoils or soils with distinctly different properties, leading to a degradation of soil quality ▪ Biological, chemical and physical changes during storage due to natural compaction and anaerobic conditions arising in the core of the stockpile, although these would be largely reversible upon reinstatement. <p>The sensitivity of receptors will be defined in four categories ('Very High', 'High', 'Medium' or 'Low').</p>		
Chapter 12: Materials	Table 12.1 from the original October 2019 Scoping Report should instead show the unit of measurement in cubic metres (m ³), rather than in tonnes.	<p>The following local planning policy documents and regulations are relevant to the assessment of materials and waste:</p> <ul style="list-style-type: none"> ▪ Cumbria Minerals and Waste Local Plan (September 2017) ▪ Lancashire Minerals and Waste Local Plan (2013) Joint Lancashire Minerals and Waste Local Plan ▪ Yorkshire Dales National Park Authority (2016) Yorkshire Dales National Park Local Plan 2015-2030. 	No change	No change

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Chapter 13: Public Access and Recreation	The assessment will be undertaken using professional judgement, guided by DMRB GG 142 Walking, cycling and horse-riding assessment and review (formerly HD 42/17) (Highways England 2020). Full details of these regulations will be provided in the ES.	No change	Additional consultation to be undertaken with non-motorised user groups.	No change
Chapter 16: Transport Planning	<p>Baseline Information Sources</p> <p>Due to Covid-19 restrictions, traffic surveys may not be representative of ordinary conditions. Ongoing contact will therefore be made with Highways England to ensure that their requirements are still going to be met, such as junction capabilities, for example.</p>	<p>The transport routes to Bowland Compound have changed from the route which is described in the October 2019 Scoping Report for Lower Houses and Newton-In-Bowland Compounds. After an optioneering exercise undertaken between UU, Jacobs Transport Planning and Highways teams, and discussions with LCC Highways indicated a preferred strategy in which the proposed compounds are accessed as follows:</p> <p><u>Lower Houses compound</u></p> <ul style="list-style-type: none"> Route 1 for HGV's and Light Vehicles via B6480 (Wennington), Long Lane, Spen Brow, Furnessford Road, then a new link proposed to create a fully circular one way system through the compound to return via Helks Brow, Long Lane and B6480. Route 2 for Abnormal Loads via B6480 and Wray Main Street, then Helks Brow. <p><u>Newton-in-Bowland</u></p> <ul style="list-style-type: none"> Route 1 for Light Vehicles and HGV's under 3.5 m in height, via A59, Pimlico Link Road, Chatburn Road, and B6478 Well Terrace/Waddington Road/Clitheroe Road/Slaidburn Road/Hallgate Hill. Route 2 for HGV's over 3.5 in height and abnormal loads, via A59, Pimlico Link Road, Chatburn Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, Grindleton Road, Waddington Road, West Bradford Road, Slaidburn Road, then B478 as per Route 1. 	No change	No change