Haweswater Aqueduct Resilience Programme - Proposed Bowland Section

Environmental Statement

Volume 2

Chapter 6: Landscape and Arboriculture

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Haweswater Aqueduct Resilience Programme - Proposed Bowland Section

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6. Landscape and Arboriculture

6.1 Introduction

1) This chapter presents an assessment of the likely significant effects of the Proposed Bowland Section on landscape and visual receptors and arboricultural features.

2) The report begins by defining the scope of the topic and the assessment areas for the Landscape and Visual Impact Assessment (LVIA), followed by a review of legislation and guidance documents relevant to landscape and arboriculture. The methodology for the assessment is then outlined. The nature, value and sensitivity of the existing baseline environment are then identified before an assessment is made of the potential effects on landscape, visual and arboricultural receptors. Mitigation measures have been proposed to avoid, reduce or offset any potential effects and these have been taken into account in the assessment.

3) The arboricultural survey was conducted in accordance with British Standard (*BS) 5837:2012 Trees in relation to design, demolition and construction. Recommendations*[1], and the findings have informed the landscape assessment reported in this chapter. Full details of survey scope and methodology are detailed in Appendix 6.6, the Arboricultural Impact Assessment (AIA).

4) The topics of landscape and visual amenity have been considered individually. The European Landscape Convention[2] defines landscape as '*an area, as perceived by people, whose character is the result of the action and interaction of natural and / or human factors*.' Landscape takes its character from a combination of elements, including landform, watercourses, land use and pattern, land cover / vegetation, open space and cultural heritage influences.

5) To a large extent, people experience the landscape visually, and the quality of views can affect the quality of life. This assessment addresses potential changes in the quality of existing views, taking into account the extent to which the Proposed Bowland Section would be visible from surrounding residential properties, settlements, farms, footpaths and cycleways.

6) The assessment areas for the LVIA have been broadly defined by the distance from the Proposed Bowland Section within which there may be significant effects on the surrounding landscape or on people's views. These areas incorporate the application site and the wider landscape and visual context. The development of the assessment areas has been supported by computer-generated Zone of Theoretical visibility (ZTV) mapping, as described in Appendix 6.1 and illustrated on Figure 6.1: Zone of Theoretical Visibility and Figure 6.2: Representative Viewpoint Locations and Photomontage Locations.

7) The ZTV for each assessment area extends out to a distance of 6 km from each compound. These 6 km overarching assessment areas (shown on Figure 6.1) have been further refined, as site appraisal has shown that significant effects are unlikely to be experienced beyond 3 km and, in many situations, visibility is limited by intervening topography, buildings and vegetation. Therefore, the baseline for landscape and visual effects has been focussed on a detailed assessment area extending to a distance of 3 km from each compound (also shown on Figure 6.1). The assessment has also considered highly sensitive receptors beyond 3 km where there may be views from elevated locations within the Forest of Bowland Area of Outstanding Natural Beauty (AONB).

8) This chapter is supported by the following technical appendices and figures:

- Appendix 6.1: Landscape and Visual Impact Assessment Methodology, Zone of Theoretical Visibility Methodology and Photomontage Methodology
- Appendix 6.2: Landscape Character Baseline
- Appendix 6.3: Landscape Sensitivity Schedule

[1] British Standards Institution (2012) *BS5837:2012 Trees in relation to design, demolition and construction. Recommendations.* London, BSI Standards Limited [Accessed January 2020]

[2] Council of Europe (2000) The European Landscape Convention [Online] Available from: https://www.coe.int/en/web/landscape [Accessed: January 2020]

- Appendix 6.4: Schedule of Landscape Effects
- Appendix 6.5: Schedule of Visual Effects
- Appendix 6.6: Arboricultural Impact Assessment
- Figure 6.1: Zone of Theoretical Visibility (ZTV)
- Figure 6.2: Representative Viewpoint Locations and Photomontage Locations
- Figure 6.3: Landscape Context
- Figure 6.4: Landscape Character
- Figure 6.5: Tree Constraints and Assessment Plan
- Figure 6.6: Preliminary Trees at Risk Plan
- Figure 6.7: Representative Viewpoint Photos
- Figure 6.8 to Figure 6.11: Representative Viewpoint Photomontages (as per Section 6.2.3).

6.2 Scoping and Consultations

6.2.1 Scoping

9) The landscape and arboriculture chapter included in the EIA Scoping Report, was submitted to the relevant planning authorities for comment in October 2019. A scoping addendum was submitted in February 2021. Scoping report responses were provided by each of the local authorities and these have been reviewed and the October 2019 Scoping Report responses incorporated into the assessment. Scoping comments and responses are outlined in Appendix 4.1.

6.2.2 Consultation

10) During the course of this assessment, consultation has taken place with relevant statutory and non-statutory consultees, stakeholders and third parties, through both correspondence and face-to-face meetings. This has also been summarised in Appendix 4.1. The principal third parties consulted in relation to the landscape have been Ribble Valley Borough Council, Lancashire County Council, Natural England for the Forest of Bowland Area of Outstanding Natural Beauty (AONB) and the AONB management team.

11) The methodology and scope of the LVIA has been guided by the responses provided by local authorities to the Scoping Report. The detailed methodology for the LVIA is provided in Appendix 6.1.

6.2.3 Photomontages

12) A series of photomontages have been developed to illustrate the likely visual changes arising from the Proposed Bowland Section. Publicly-accessible locations have been selected with views towards components of the Proposed Bowland Section. These are representative of the views experienced by various groups of people, including residents, workers, walkers on footpaths and travellers on local roads.

13) The selection of photomontage viewpoints was undertaken in consultation with Ribble Valley Borough Council, Lancashire County Council and the Forest of Bowland AONB officers. A methodology for the production of the photomontages is provided in Appendix 6.1. The photomontages are shown on Figures 6.8 to 6.11 and their locations on Figure 6.2.

14) The locations for the photomontages are:

- A view south-west from Park House Lane and the intersection of footpaths: Lancaster public rights of way (PRoW) FP22, FP23 and FP44, towards Lower Houses Compound (reference TR03_01)
- A view west from High Road and Lancaster PRoW FP29 towards Lower Houses Compound (reference TR03_02)

- A view north from Easington Road and Ribble Valley PRoW FP35 towards Newton-in-Bowland Compound (reference TR03_03)
- A view north from Ribble Valley PRoW FP31 towards Newton-in-Bowland Compound (reference TR03_04).

6.3 Key Legislation and Guidance

15) Table 6.1 sets out key legislation and guidance of relevance to both landscape and visual amenity including arboriculture.

Table 6.1: Key Legislation and Guidance

Applicable Legislation and Guidance	Description
Countryside and Rights of Way (CRoW) Act 2000[3]	The Act makes provision for designating an AONB for the purpose of conserving and enhancing the natural beauty of an area. The CRoW Act also sets out the roles and responsibilities that different organisations must follow to manage AONBs. The CRoW Act also aims to make new provision for public access to the countryside; conserve an area's natural beauty; amend the laws relating to public rights of way, nature conservation and the protection of wildlife; and make provision for purposes connected to the above such as Access Land.
National Parks and Access to the Countryside Act 1949[4]	An Act to make provision for National Parks and the establishment of a National Parks Commission; to confer on the Nature Conservancy and local authorities powers for the establishment and maintenance of nature reserves; to make further provision for the recording, creation, maintenance and improvement of public paths and for securing access to open country, and to amend the law relating to rights of way; to confer further powers for preserving and enhancing natural beauty; and for matters connected with the purposes aforesaid.
Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990[5]	An Act relating to special controls in respect of buildings and areas of special architectural or historic interest.
Tree Preservation Orders: The Town and Country Planning (Tree Preservation) (England) Regulations 2012[6]	The Town and Country Planning Act 1990 imposes a duty on authorities by section 197 of the Act to make Tree Preservation Orders as they think necessary. The Town and Country Planning (Tree Preservation) (England) Regulations 2012 outline the procedures to be followed for the granting of a Tree Preservation Order and protection measures for protected trees.

[3] Countryside and Rights of Way Act 2000 *Legislation.gov.uk* [Online] Available from: http://www.legislation.gov.uk/ukpga/2000/37/contents [Accessed February 2020]
[4] National Parks and Access to the Countryside Act 1949 *Legislation.gov.uk* [Online] Available from: http://www.legislation.gov.uk/ukpga/Geo6/12-13-14/97 [Accessed: April 2020]
[5] Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990 *Legislation.gov.uk* [Online] Available from: http://www.legislation.gov.uk/ukpga/1990/9/contents [Accessed: April 2020]
[6] The Town and Country Planning (Tree Preservation)(England) Regulations 2012 *Legislation.gov.uk* [Online] Available from: https://www.legislation.gov.uk/uksi/2012/605/contents/made [Accessed: April 2020]

Applicable Legislation and Guidance	Description
Important Hedgerows: Environment Act 1995[7] and The Hedgerow Regulations 1997[8]	The Hedgerows Regulations 1997 of England and Wales came into effect on 1 June 1997 and is government legislation which falls under the Environment Act 1995. The regulations introduce new arrangements for local planning authorities to protect Important Hedgerows in the countryside, by controlling their removal through a system of notification.
Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3)[9]	Provides overarching guidance on the assessment of landscape and visual effects.
Arboricultural guidance *BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations*[10]	Provides recommendations relating to tree care, with a view to achieving a harmonious and sustainable relationship between new construction / existing structures and their surrounding trees.
The European Landscape Convention (ELC)[11]	Promotes the protection, management and planning of the landscapes and organises international co-operation on landscape issues.
An Approach to Landscape Character Assessment, published in 2014 by Natural England,[12] is the main source of guidance for Landscape Character Assessment in England.	Sets out the process of identifying and describing variation in character of the landscape. Landscape Character Assessment documents identify and explain the unique combination of elements and features that make landscapes distinctive, by mapping and describing character types and areas. They also show how the landscape is perceived, experienced and valued by people.

16) National and local planning policies of relevance to landscape, visual amenity and arboriculture are set out in detail in Chapter 5. Local planning policies have been included from Lancaster City Council, Lancashire County Council and Ribble Valley Borough Council.

6.4 Assessment Methodology and Assessment Criteria

6.4.1 Assessment Methodology

17) The methodology used to assess the sensitivity of receptors, magnitude of effects and significance of effects is described here only in outline. A more detailed methodology is provided in Appendix 6.1. The LVIA has been carried out in line with the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3), which provides overarching guidance on the assessment of landscape and visual effects.

[7] Environment Act 1995 *Legislation.gov.uk* [Online] Available from http://www.legislation.gov.uk/ukpga/1995/25 [Accessed: April 2020]
[8] The Hedgerows Regulations 1997 *Legislation.gov.uk* [Online] Available from: http://www.legislation.gov.uk/uksi/1997/1160/contents/made [Accessed: februay2020]
[9] The Landscape Institute and Institute of Environmental Management and Assessment (2013) *Guidelines for Landscape and Visual Impact Assessment Third Edition* (GLVIA3) Abingdon, Routledge
[10] ibid
[11] ibid
[12] Natural England (2014) *An Approach to Landscape Character Assessment* [Online] Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/691184/landscape-character-assessment.pdf [Accessed: February 2020]

18) Reference has been made to national and local policy documents, relevant British Standards, national guidance and other relevant information in determining the assessment methodology and criteria to be used (see Section 6.3 for further detail).

19) The methodology was agreed with relevant stakeholders as outlined above in Section 6.2.2.

20) The methodology for assessing landscape and visual effects recognises the special qualities of the Forest of Bowland AONB and also the influence these special qualities have on adjacent areas.

21) The landscape and visual site surveys for the LVIA were undertaken in March and April 2020 (winter surveys), with some further survey work undertaken in May and June 2020 (summer survey). The winter surveys were undertaken to establish the baseline for the visual impact assessment, considering the 'worst case' when there is the least foliage cover on intervening vegetation and therefore the most visibility of the Proposed Bowland Section. Some receptors were visited only during the summer of 2020 due to programme and COVID-19 constraints (refer to limitations in Section 6.4).

22) In accordance with GLVIA3, a proportionate assessment and the use of representative viewpoints has been adopted, based on the largely temporary nature of the impacts. These are viewpoints that represent a number of localised and similar individual receptors. Therefore, the visual impact assessment does not identify effects on every potential individual receptor, and the number and locations of representative viewpoints are considered appropriate for the nature of likely effects.

23) Assessments have been made for a winter's day when vegetation screening is lowest (due to reduced leaf cover) representing the worst case / maximum visibility scenario for each of the enabling Works, Construction and Commissioning Phases, as well as the Operational Phase (Year 1), immediately following completion of the Commissioning Phase.

24) Assessments during the future year (Year 15) have been made for a summer's day reflecting the effect of establishing mitigation planting. This is in line with the standard approach to LVIA for determining residual effects, i.e. those that have been mitigated.

25) Vegetation loss arising from the enabling works phase has also been considered during the assessment of construction and operational impacts, as any loss would potentially result in greater visibility of the works associated with the Proposed Bowland Section.

26) The assessment of the Operational Phase has taken account of the re-established grass sward across the extent of the compounds and access tracks. The assessment of the future year has also taken into account the growth of proposed vegetation e.g. riparian areas, hedgerow field boundaries, individual trees and woodland. For the purposes of assessment, it has been assumed that after 15 years of growth the average height of woodland trees and shrub planting would be 7 - 8 m high; unmanaged hedgerow and shrub planting would be 2 - 3 m high, and individual native trees would be 7 - 8 m high.

27) Impacts on landscape elements including topography, hydrology, land use, landscape pattern, settlement pattern and land cover have been considered in the assessment of effects on landscape character.

6.4.2 **Assessment Criteria**

28) The likely significance of effect on Landscape and Visual receptors has been determined taking into account the value/sensitivity of the baseline environment, and the potential magnitude of change, the assessment criteria for which are set out in Tables 6.2 to 6.5 in the following section. Table 6.6 then provides an illustration of how the significance of effects can be assessed taking into account both the magnitude of effect and a receptor's sensitivity to that change. For the purposes of this assessment, effects of Moderate and above are considered to be significant.

29) It is important to note that the tables below present typical criteria only. The assessment of levels of sensitivity, magnitude and/or significance has balanced several conflicting factors and has used professional judgement throughout. These tables aim to provide transparency in the assessment, and the LVIA has provided justification where the assessment may vary with the descriptions set out within these tables.

30) Table 6.2 outlines typical criteria that have been used in the evaluation of overall landscape sensitivity.

Table 6.2: Landscape Sensitivity Criteria

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

31) The criteria used to help determine the magnitude of landscape effects are shown in Table 6.3 below.

Table 6.3: Magnitude of Landscape Effects

Magnitude	Criteria
Major	**Size / Scale**: substantial change to the key characteristics of the landscape; and / or total loss or substantial change to the existing landscape elements; and / or the addition of major new and uncharacteristic features or components. **Geographical Extent**: effects on a large part of the landscape character area / types; and / or a large proportion of landscape elements / features. **Duration and Reversibility**: introduction of permanent / irreversible change.
Moderate	**Size / Scale**: noticeable change to the key characteristics of the landscape; and / or partial loss or noticeable change to existing landscape elements; and / or the introduction of moderate new and uncharacteristic features or components. **Geographical Extent**: effects on a moderate part of the landscape character area / types; and / or a notable proportion of landscape elements / features. **Duration and Reversibility**: introduction of long-term / reversible change.
Minor	**Size / Scale**: minor change to the key characteristics of the landscape; and / or minor loss or slight change to existing landscape elements; and / or the introduction of minor new and uncharacteristic features or components. **Geographical Extent**: effects on a small part of the landscape character area / types; and / or a small proportion of landscape elements / features. **Duration and Reversibility**: introduction of medium-term / reversible change.
Negligible	**Size / Scale**: barely perceptible change to the key characteristics of the landscape; and / or minimal loss or barely perceptible change to existing landscape elements; and / or the introduction of barely perceptible new and uncharacteristic features or components. **Geographical Extent**: effects on a negligible part of the landscape character area / types; and / or a very small proportion of landscape elements / features. **Duration and Reversibility**: introduction of a short-term / reversible change.

32) Table 6.4 outlines the criteria that have been used in the evaluation of overall visual sensitivity.

Table 6.4: Visual Sensitivity Criteria

Sensitivity	Criteria
High	Receptors where the changed view is of high value and importance and / or where the receptor would notice any change to visual amenity by reason of the nature of use and their expectations. Receptors where the view is important to users, such as residential or PRoW would, be considered to be of high sensitivity.
Medium	Receptors where the changed view is incidental, but not critical to amenity and / or the nature of the view is not a primary consideration of the users (receptors where users are likely to spend time outside or participation in an activity looking at the view and industrial receptors that have offices with windows that take advantage of views).
Low	Receptors where the changed view is unimportant and / or users are not sensitive to change. (Outdoor receptors where users are unlikely to consider the views an important element of their usage of the site would generally be assessed to be of low sensitivity.)

33) The criteria used to help determine the magnitude of visual effects are shown in Table 6.5 below.

Table 6.5: Magnitude of Visual Effects

Magnitude	Criteria
Major	**Size / Scale**: the project, or a part of it, would become the dominant feature or focal point of the view; and / or total loss or substantial alteration to key characteristics of the view (e.g. the proposals would dominate the view and fundamentally change its character and components); and / or introduction of uncharacteristic features across a large proportion of the view. **Geographical Extent**: the view is available from all or most parts of a specific location; or from the majority of a linear route; and / or is within the direct frame of view; and / or experienced at close proximity from the receptor such that the project would form part of the foreground of the view. **Duration and Reversibility**: introduction of permanent / irreversible change.
Moderate	**Size / Scale**: the project, or a part of it, would form a noticeable feature or element of the view which would be readily apparent to the receptor (e.g. the proposals would be noticeable in the view), affecting its character and altering some of its components and features; and / or partial loss or noticeable alteration to key characteristics of the view; and / or introduction of uncharacteristic features across part of the view. **Geographical Extent**: the view is available from a moderate proportion of a specific location; or from the moderate part of a linear route; and / or is at a slightly oblique angle; and / or experienced at a distance from the receptor such that the project would form part of the middle ground of the view. **Duration and Reversibility**: introduction of long-term / reversible change.
Minor	**Size / Scale**: the project, or a part of it, would be perceptible but not alter the overall balance of features and elements that comprise the existing view; and / or slight loss or alteration to key characteristics of the view; and / or the introduction of uncharacteristic features across a small part of the view. **Geographical Extent**: the view is available from a small proportion of a specific location; or from limited sections of a linear route; and / or is at an oblique angle; and / or experienced at a relatively long distance from the receptor such that the project would form part of the background of the view. **Duration and Reversibility**: introduction of medium-term / reversible change.

Magnitude	Criteria
Negligible	**Size / Scale**: only a very small part of the project would be discernible; and / or the introduction of features largely characteristic of the view. **Geographical Extent**: the view is available from hardly any part of a specific location; or from a very limited part of a linear route; and / or is at a very oblique angle; and / or experienced at such a distance from the receptor that the project would form a barely noticeable feature or element of the view. **Duration and Reversibility**: introduction of a short-term / reversible change.

34) The matrix used to help determine the significance of effects is shown in Table 6.6 below.

Table 6.6: Significance of Effects

		Magnitude			
		Negligible	Minor	Moderate	Major
Sensitivity	Low	Negligible	Negligible / slight	Slight / moderate	Moderate
	Medium	Negligible / slight	Slight	Moderate	Moderate / major
	High	Slight	Slight / moderate	Moderate / major	Major

6.4.3 Assumptions and Limitations

35) It was not possible to access all representative viewpoints, for example due to some landowners not agreeing access across land or due to restrictions imposed during the COVID-19 pandemic. Where this was the case, the assessment was carried out from another similar and nearby viewpoint that was accessible. It is not considered that this has affected the findings and conclusions of the assessment, as professional judgement was used to understand the types of views anticipated through an analysis of local topography, vegetation and built form.

36) Where representative viewpoints were located close to receptors of varying sensitivities, the receptor with the highest sensitivity has been assessed to represent the worst case where possible. However, it was not always possible to assess views from the receptor with the highest sensitivity because of intervening vegetation and access restrictions. Additional text is included to explain any variance of effect on individual receptors being represented, if needed.

37) Late additions to the scope of the Proposed Bowland Section and COVID-19 restrictions resulted in some survey work being undertaken in May and June 2020, when partial foliage cover provided some screening of baseline views. It should be noted that through the summer period people would experience some benefits from the filtering effects from vegetation, which would tend to reduce the effects of construction and operation.

6.4.4 Embedded Mitigation and Good Practice

38) Embedded mitigation is inherent to the design, and good practice measures are standard industry methods and approaches used to manage commonly occurring environmental effects. The assessments presented in Section 6.6 of this chapter are made taking into account embedded mitigation and the implementation of good practice measures.

39) Chapter 3: Design Evolution and Development Description explains the evolution of the design with input from the environmental team, including mitigation workshops and the use of GIS based constraints data. Embedded mitigation measures specific to each phase of the works are set out below.

Embedded Mitigation - Enabling Works Phase

- Existing hedges and walls would be retained with localised openings created for vehicular access whenever practicable
- Vegetation on the compound boundaries would be retained and protected
- Important landscape features would be retained with buffer zones agreed (e.g. streams, woodland, hedgerows).

Embedded Mitigation - Construction Phase

- Existing topography would be used where practicable to limit cut and fill and limit topographical changes
- Incremental reinstatement of grasslands, fences and other boundary features, which would be undertaken where practicable and dependent on tunnelling activities
- The valve house buildings would have a natural stone finish to match with the nearby valve house buildings and other surrounding buildings.

Embedded Mitigation - Commissioning Phase

- Final reinstatement of fences and other boundary features, and grass areas would be undertaken after the completion of the commissioning activities
- Final reinstatement of trees, shrubs and other vegetation after the completion of the commissioning activities
- Trees would be reinstated with a ratio of 3:1 for each tree lost
- Areas identified for habitat creation or habitat reinstatement would be seeded with species rich grass seed mixes. Species rich seed mixes for grasslands to be developed from Phase 1 Habitat data.
- New tree and shrub planting to provide landscape integration and visual screening of the new valve house buildings
- Agricultural land will be returned to the owner or tenant for their productive use as soon as practicable after reinstatement of the work.

Good Practice Measures

40) Good practice measures are contained in Appendix 3.2: Construction Code of Practice. Measures of particular relevance to landscape are set out below:

- Protection of existing trees, scrub and hedgerows to be retained in accordance with the recommendations in *BS 5837:2012 Trees in Relation to Design, Demolition and Construction. Recommendations*
- The height of topsoil storage mounds would be limited to 3 m to reduce potential visual impact and reduce potential adverse impacts on topsoil quality and the suitability for re-use
- Habitats, trees, shrubs and grasslands would be planted, seeded and established by appropriate aftercare including replacement of dead / dying individual plants in line with requirements set out and agreed with the relevant Local Planning Authority
- The Contractor would be required to return agricultural land to the owner or tenant for their productive use as soon as practicable after reinstatement of the works.

41) As explained in Section 6.4.4, the assessment of effects in Sections 6.6 to 6.8 takes into account the application of both embedded mitigation and good practice measures, which have been developed iteratively as part of the EIA process, informed by the findings of the landscape and visual assessment. These measures are considered to provide appropriate mitigation for potential effects on landscape character and visual amenity, and no further topic-specific essential mitigation is therefore required.

6.5 Baseline Conditions

42) This section details the landscape baseline for the assessment areas and identifies receptors where there is potential for significant effects to arise. The Proposed Bowland Section is entirely within the Forest of Bowland AONB. As described in Section 6.1, the detailed assessment area for the landscape discipline extends 3 km from the Proposed Bowland Section compounds. The Lower Houses Compound and the Newton-in-Bowland Compound are located approximately 16 km apart and, at higher elevations, their assessment areas share some similar landscape types including moorland hills and moorland fringe. At lower elevations within the Lower Houses Compound assessment area, the landscape is influenced by the moorland hills, moorland fringe and wooded rural valleys found at the higher elevations. At lower elevations within the Newton-in-Bowland Compound assessment area, the landscape is influenced not just by the moorland hills and moorland fringe at the higher elevations, but also by areas of higher moorland plateaux and undulating lowland farmland.

43) Sheep farming is the predominant land use. Settlements are located within lower elevations and comprise small rural villages such as Wray and Low Bentham to the north and Newton-in-Bowland and Slaidburn to the south. Individual and isolated farms and residential properties are common to both areas.

44) Baseline data was collated from a variety of sources in compiling this assessment, including:

- Field surveys undertaken between March and June 2020
- Aerial photography
- Online resources listed in Table 6.7.

6.5.1 Information Sources

45) The assessment was undertaken with reference to the sources detailed in Table 6.7.

Table 6.7: Key Information Sources

Data Source	Reference
MAGIC website. This data source provided information on sensitive national designations that fall within the Proposed Bowland Section.	https://magic.defra.gov.uk/MagicMap.aspx
The National Character Area (NCA) profiles published in 2014 by Natural England.[13] NCAs divide England into 159 distinct natural areas. Each area is defined by a unique combination of landscape, biodiversity, geodiversity, history, and cultural and economic activity. Their boundaries follow natural lines in the landscape rather than administrative boundaries.	https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles
A Landscape Strategy for Lancashire[14] provides a county-level landscape character assessment for Lancashire, dividing the county into a series of Landscape Character Types (LCTs) and Landscape Character Areas (LCAs).	https://www.lancashire.gov.uk/council/strategies-policies-plans/environmental/landscape-strategy/
The *Forest of Bowland AONB Landscape Character Assessment*[15] provides a local-level assessment of the Forest of Bowland's landscape. It divides the landscape into a series of LCTs and LCAs.	https://www.forestofbowland.com/Landscape-Character-Assessment

[13] Natural England (2014) *National Character Area profiles* [Online] Available from: https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles [Accessed: January 2020]
[14] Lancashire County Council (2000) *A Landscape Strategy for Lancashire* [Online] Available from: https://www.lancashire.gov.uk/council/strategies-policies-plans/environmental/landscape-strategy/ [Accessed: March 2020]
[15] Lancashire County Council (2009) *Forest of Bowland AONB Landscape Character Assessment* [Online] Available from: https://www.forestofbowland.com/Landscape-Character-Assessment [Accessed: March 2020].

Data Source	Reference
The Ribble Valley Borough Council website provides maps of local Conservation Areas.	https://www.ribblevalley.gov.uk/info/200359/conservation_countryside_and_listed_buildings/908/conservation_areas
The Sustrans website provides details of National Cycle Network (NCN) routes.	https://www.sustrans.org.uk/find-a-route-on-the-national-cycle-network/?location=null&routetype=null&distance=null
The Long-Distance Walkers Association website provides details of the North Bowland Traverse, Tops of the North (Three Shire Heads to Carlisle), the Pendle Witches Way and the Hodder Way long distance footpaths.	https://ldwa.org.uk/ldp/public/ldp_public_home.php
CPRE, The Countryside Charity, Tranquillity mapping[16] and mapping of England's light pollution and dark skies.[17] CPRE have produced tranquillity mapping, which shows the intrusions into the countryside by features that have had an impact both visually and audibly, such as road, railways, and urban areas. CPRE have also mapped England's light pollution and dark skies noting the 'tranquillity' of dark skies and their importance "*including limiting impacts on intrinsically dark landscapes and nature conservation*".	https://www.cpre.org.uk/what-we-care-about/nature-and-landscapes/
The *Forest of Bowland AONB Management Plan 2019 - 2024*[18] provides the reasoning behind the designation, the special qualities of the AONB, and policies for management.	https://www.forestofbowland.com/files/images/FOB%20ManPlan0719bLoRes.pdf
The Forest of Bowland AONB website provides details of stargazing and 'Dark Sky Discovery Sites'.	https://www.forestofbowland.com/star-gazing

6.5.2 Landscape Designations

46) The following paragraphs set out landscape designations and any other relevant designations within each assessment area. These are shown on Figure 6.3 Landscape Context. The LVIA considers ecological and heritage designations in terms of their contribution to the sensitivity/value of the landscape. In addition, heritage assets have influenced the selection of representative viewpoints in accordance with GLVIA3. Further information on ecological designations such as Sites of Special Scientific Interest (SSSI), Ramsar Sites and National Nature Reserves (NNR) can be found within Chapter 8: Ecology, and further information on heritage designations can be found within Chapter 10: Cultural Heritage

47) The Proposed Bowland Section is within the Forest of Bowland AONB. AONBs are designated and protected under the National Parks and Access to the Countryside Act 1949.[19] Their protection is further enhanced by the CRoW Act 2000.[20] Designation as an AONB gives formal recognition of the national importance of the landscape, and a high level of development constraint. The primary statutory purpose of the designation, as set out in the CRoW Act 2000, is to conserve and enhance natural beauty. There are two secondary aims: meeting the need for quiet enjoyment of the countryside; and having regard for the interests of those who live and work there.

[16] Campaign for the Protection of Rural England CPRE) (2007) *Nature and Landscape: Tranquillity Places* [Online] Available from: https://www.cpre.org.uk/what-we-care-about/nature-and-landscapes/ [Accessed: February 2020]
[17] Campaign for the Protection of Rural England (CPRE) (2016) *Nature and Landscape: Dark Skies* [Online] Available from: https://www.cpre.org.uk/what-we-care-about/nature-and-landscapes/ [Accessed: February 2020]
[18] The Forest of Bowland AONB Unit (2019) *The Forest of Bowland AONB Management Plan 2019 - 2024* [Online] Available from: https://www.forestofbowland.com/files/images/FOB%20ManPlan0719bLoRes.pdf [Accessed: July 2020]
[19] *Legislation.gov.uk op. cit.*
[20] *Legislation.gov.uk op. cit.*

48) The *Forest of Bowland AONB Management Plan* highlights several attributes that contribute to its outstanding natural beauty, including:

- The grandeur and isolation of the upland core
- The serenity and tranquillity of the area
- The distinctive pattern of settlements
- The wildlife and the landscape's historic and cultural associations.

49) The *Forest of Bowland AONB Management Plan* also lists special qualities of relevance to the landscape:

- An outstanding landscape
- Wild open spaces
- A special place for wildlife
- A landscape rich in heritage
- A living landscape
- A place to enjoy and keep special.

50) Other designations relevant to landscape are summarised below and described in more detail in subsequent baseline sections.

- There are Conservation Areas present at Newton-in-Bowland and Slaidburn
- Registered Common Land and Access Land is present across the upper slopes and plateaux of Birkett Fell and Goodber Common, as well as at the edges of the assessment areas at Waddington Fell, Easington Fell and Burn Fell
- There are swathes of Ancient Woodland along the River Hindburn and Roeburn valleys and pockets within the River Hodder valley.

6.5.3 Landscape Context

51) The Proposed Bowland Section comprises two detailed assessment areas (shown on Figure 6.1 and Figure 6.2), which are located south-east of Wray in the northern part of the Forest of Bowland AONB and near Newton-in-Bowland (shown on Figure 6.3).

Lower Houses Compound

52) The assessment area is defined by the elevated Bowland Fells landscape and the wooded valley landscape. The combination of the hilltops and the River Hindburn and Roeburn valleys results in an undulating topography, which ranges from approximately 120 m Above Ordnance Datum (AOD) along the river valleys to 300 m AOD within Goodber Common. The River Hindburn meanders through the valley in a south-east to north-west direction central to the assessment area, and has a strong influence on the topography of the broad valley. Elevated areas are afforded extensive views across the surrounding uplands and towards farmsteads and settlements in the valleys below.

53) There are no large conurbations within the assessment area and the landscape is remote in character. There are a number of dispersed farmsteads and building groups on higher moorland areas, including Summersgill Farm and Overhouses Farm. The small, rural village of Lowgill is located on the rising valley side above the River Hindburn.

54) Road infrastructure is limited to local roads, including Lowgill Lane and Fairheath Road; these roads generally follow routes along the valley sides and across moorlands, linking groups of buildings and farms. The local roads have little influence on the overall rural character of the study area. In addition, there are few visual detractors noticeable in the landscape.

55) The valley landscape is well vegetated with many trees, woodland blocks and hedgerows, which often extend up the valley sides. There are frequent trees alongside the River Hindburn and dispersed Ancient

Woodland such as at Bank Wood and Cragg Wood. There are also SSSIs associated with the woodland blocks, the most notable of which is Roeburndale Woods SSSI adjacent to the River Roeburn valley at the west of the assessment area. In contrast, the elevated fells are more open in character and predominantly comprise acid grassland and heathland.

56) Numerous public footpaths and bridleways provide recreational access to the countryside, as well as large areas of Access Land across Goodber Common. The North Bowland Traverse long distance footpath runs between Slaidburn and Settle and skirts around the west of Goodber Common before passing directly along the Lower Houses Compound boundary at Cross Houses Farm. NCN route 90 follows the north-eastern slopes of the River Hindburn valley approximately 1 km to the east of the Lower Houses Compound. There is also the Tops of the North long distance path, which crosses the west of the assessment area.

57) Notable cultural heritage features within the assessment area include Grade II Listed Buildings such as Summersgill Farmhouse and Ivah Farmhouse, which form key features in the rural landscape due to their traditional vernacular style and use of local materials. There is also a cluster of Listed Buildings within Lowgill, including the Grade II Rose Cottage, Crown House and Lowgill Hall.

Newton-in-Bowland Compound

58) The assessment area comprises lowland farmland within the River Hodder valley enclosed by the elevated Bowland Fells at Standridge Hill, Birkett Fell, Crag Stones and Burn Fell. The varied topography ranges from approximately 130 m AOD along the river valley to 340 m AOD at Standridge Hill. There are extensive views from these elevated areas across the lowland valley, with the hills providing a scenic backdrop to views from within the valley.

59) Small settlements include Slaidburn at the north-eastern edge of the assessment area, Dunsop Bridge at the western edge and Newton-in-Bowland towards the centre. The settlements are generally located within the valley bottom along the River Hodder and are connected by a network of local roads such as the B6478, which connects Newton-in-Bowland with Waddington in the south. Traffic noise has little influence on the tranquillity of the surrounding countryside. Away from the settlements are isolated farmsteads and building groups. There are few visual detractors noticeable in the landscape, such as pylons and overhead lines.

60) The valley landscape is well vegetated with hedgerows, hedgerow trees and some small woodland blocks, which often extend up the valley side along stream valleys. There are frequent trees along the River Hodder and dispersed, small areas of Ancient Woodland. The hilltops are more open in character, with areas of acid grassland, heathland and blanket bog, for example at the Bowland Fells SSSI at the north-western edge of the assessment area.

61) There are numerous public footpaths connecting the settlements with the surrounding countryside and areas of Access Land at Birkett Fell, Easington Fell and Burn Fell. There are also three long distance footpaths within the assessment area including the Tops of the North (Three Shire Heads to Carlisle), the Pendle Witches Way and the Hodder Way. The Tops of the North route runs from Standridge Hill towards Easington, before turning east towards Slaidburn. The Pendle Witches Way crosses the south-western part of the assessment area between Marl Hill and Dunsop Bridge. The Hodder Way follows the River Hodder between Slaidburn and Dunsop Bridge. NCN route 90 briefly enters the assessment area at Slaidburn.

62) Newton-in-Bowland Conservation Area includes the village and extends to the River Hodder. There are a number of Listed Buildings within the village including the Grade II* Newton Hall. There is also a Conservation Area at Slaidburn, which incorporates the Grade I Church of St Andrew. Many of the isolated farms and buildings throughout the countryside are of cultural heritage importance, for example Boarsden Farmhouse and Long Stripes Farmhouse.

63) The Proposed Bowland Section comprises two detailed assessment areas (shown on Figure 6.1 and Figure 6.2) which are located south-east of Wray in the northern part of the Forest of Bowland AONB and near Newton-in-Bowland in the southern part of the AONB.

6.5.4 Landscape Character

64) The following text summarises landscape character within the assessment area based on information from published national-, county- and district-level landscape character assessments. Further information can be found in Appendix 6.2: Landscape Character Baseline and Figure 6.4 Landscape Character.

65) Landscapes that would experience a 'negligible' or 'no change' effect have been excluded from the baseline text below.

National Character Areas

66) The national-level landscape character assessment subdivides England into a series of 159 distinct National Character Areas (NCAs). A brief summary of the NCAs relevant to the assessment area is provided below. For full details of the key characteristics of the NCAs associated with the assessment area, refer to Appendix 6.2: Landscape Character Baseline and Figure 6.4 Landscape Character.

67) The assessment areas are covered by NCA 33 Bowland Fringe and Pendle Hill[21] and NCA 34. Bowland Fells.[22]

68) NCA 33 Bowland Fringe and Pendle Hill is a transitional landscape encircling the upland core of the Bowland Fells. Over half the area contributes to the Forest of Bowland AONB. It comprises herb-rich hay meadows, lush pastures, broadleaved woodland, parkland and waterbodies, together with numerous river valleys and associated woodlands. Over time, the area has been changed by human habitation and activity, including its long farming history. It includes the urban areas of Clitheroe, Bentham and Longridge, which contrast with the predominantly rural feel of the area.

69) NCA 34 Bowland Fells is a distinctive upland block on the boundary between north Lancashire and the Yorkshire Dales. It located within the Forest of Bowland AONB and contains important areas of moorland designated as Special Protection Areas. The overall landscape is generally wild and windswept, with steep escarpments, upland pasture and expansive open moorland. Blanket bog and peat soils of fells are important for water storage and carbon storage, and there are also important waterbodies throughout the area. High-quality species-rich meadows can be found in the limestone areas to the east, and extensive conifer plantations to the south-east and east.

70) Due to their broad geographical coverage effects on the landscape character of the NCAs have been considered as part of the assessment of the county- and district-level LCAs described below; as the LCAs more related to the scale and extent of the landscape character in the assessment area.

County- and District-Level Landscape Character Assessments

71) Landscape character assessments identify and describe the elements and features that make landscapes distinctive by mapping and describing character areas and/or types.

72) At the county and district-level, the assessment areas are covered by the published landscape character assessments listed below. These assessments divide the county or district-level landscape into a series of smaller and recognisable units of character described as Landscape Character Types (LCTs) and/or Landscape Character Areas (LCAs).

73) LCTs are typically more uniform units of landscape with a distinct and recognisable pattern of elements that occur consistently throughout the LCT. They provide a spatial framework for landscape character and can occur in more than one geographical location. LCAs are more place-specific and generally only occur in one distinct geographical location. LCTs often include a number of distinct LCAs. LCTs have

[21] Natural England (2013) *National Character Area Profile: 33. Bowland Fringe and Pendle Hill.* [Online] Available from: https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles. [Accessed: March 2020].

[22] Natural England (2013) *National Character Area Profile: 34. Bowland Fells.* [Online] Available from: https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles. [Accessed: March 2020].

been excluded from this assessment due to their broader geographical extent and occurrence across multiple geographical locations. They have been listed below for reference only.

74) The extent to which the published documents are representative of the assessment areas has also been considered as part of a desk study and field survey conducted in 2020. The description of the LCAs are consistent with judgements made during site surveys and appropriate for the assessment of landscape effects.

75) A list of the relevant LCTs and LCAs within the assessment areas is provided in the sections below. For full details of the relevant units of character associated with the assessment areas, refer to Appendix 6.2: Landscape Character Baseline and Figure 6.4 Landscape Character.

A Landscape Strategy for Lancashire

76) *A Landscape Strategy for Lancashire*[23] provides a county-level landscape character assessment for Lancashire, dividing the county into a series of LCTs and LCAs.

77) The assessment area is covered by the following LCTs and LCAs:

- 01. Moorland Plateaux LCT and 1b. High Bowland Plateaux LCA
- 02. Moorland Hills LCT and 2b. Central Bowland Fells LCA
- 02. Moorland Hills LCT and 2d. Waddington Fell LCA
- 04. Moorland Fringe LCT and 4d. Bowland Gritstone Fringes LCA
- 04. Moorland Fringe LCT and 4e. Bowland Limestone Fringes LCA
- 05. Undulating Lowland Farmland LCT and 5a. Upper Hodder Valley LCA
- 05. Undulating Lowland Farmland LCT and 5j. North Bowland Fringes LCA
- 10. Wooded Rural Valleys LCT and 10b. North Bowland Valleys LCA
- 13 Drumlin Field LCT and 13b. Bentham-Clapham LCA
- 14 Rolling Upland Farmland LCT and 14a. Slaidburn-Giggleswick LCA.

Forest of Bowland AONB Landscape Character Assessment

78) The *Forest of Bowland AONB Landscape Character Assessment*[24] provides a local-level assessment of the Forest of Bowland's landscape. It divides the landscape into a series of LCTs and LCAs.

79) The assessment area is covered by the following LCTs and LCAs:

- B. Unenclosed Moorland Hills LCT and B7. Langden LCA
- B. Unenclosed Moorland Hills LCT and B8. Crossdale to Lythe LCA
- B. Unenclosed Moorland Hills LCT and B9. Goodber Common LCA
- C. Enclosed Moorland Hills LCT and C3. Easington LCA
- C. Enclosed Moorland Hills LCT and C9. Newton and Birkett LCA
- D. Moorland Fringe LCT and D2. Tatham LCA
- D. Moorland Fringe LCT and D5. Beatrix to Collyholme LCA
- D. Moorland Fringe LCT and D13. Park House LCA
- E. Undulating Lowland Farmland LCT and E3. Forest of Mewith LCA

[23] Lancashire County Council (2000) *A Landscape Strategy for Lancashire* [Online] Available from: https://www.lancashire.gov.uk/council/strategies-policies-plans/environmental/landscape-strategy/ [Accessed: March 2020]
[24] Lancashire County Council (2009) *Forest of Bowland AONB Landscape Character Assessment* [Online] Available from: https://www.forestofbowland.com/Landscape-Character-Assessment. [Accessed: March 2020].

- G. Undulating Lowland Farmland with Parkland LCT and G3. Upper Hodder LCA
- I. Wooded Rural Valleys LCT and I2. Roeburndale LCA
- I. Wooded Rural Valleys LCT and I3. Hindburndale LCA
- K. Drumlin Field LCT and K2. Lower Tatham LCA.

6.5.5 Landscape Sensitivity

80) To assess the significance of landscape effects on key landscape receptors, an evaluation has been made of their sensitivity to the changes that would be likely to arise from the Proposed Bowland Section. This has been determined by combining judgements on their susceptibility to change and the value attached to the landscape using the criteria outlined in Table 6.2 and Appendix 6.1: Landscape Methodology. The overall assessment of sensitivity of the landscape receptors is described in Appendix 6.3: Landscape Sensitivity Schedule and has been determined using professional judgement. A summary of the sensitivity of landscape receptors is shown in Table 6.8 below.

Table 6.8: Evaluation of Landscape Sensitivity

Landscape Receptor	Value	Susceptibility	Sensitivity
1b. High Bowland Plateaux LCA	High	High	High
2b. Central Bowland Fells LCA	High	High	High
2d. Waddington Fell LCA	High	High	High
4d. Bowland Gritstone Fringes LCA	High	High	High
4e. Bowland Limestone Fringes LCA	High	High	High
5a. Upper Hodder Valley LCA	High	High	High
5j. North Bowland Fringes LCA	High	Medium	High
10b. North Bowland Valleys LCA	High	High	High
13b. Slaidburn-Clapham LCA	High	High	High
14a. Slaidburn-Giggleswick LCA	High	High	High
B7. Langdon LCA	High	High	High
B8. Crossdale to Lythe LCA	High	High	High
B9. Goodber Common LCA	High	High	High
C3. Easington LCA	High	High	High
C9. Newton and Birkett LCA	High	High	High
D2. Tatham LCA	High	Medium	High
D5. Beatrix to Collyholme LCA	High	Medium	High
D13. Park House LCA	High	Medium	High
E3. Forest of Mewith LCA	High	High	High
G3. Upper Hodder LCA	High	Medium	High
I2. Roeburndale LCA	High	High	High
I3. Hindburndale LCA	High	High	High
K2. Lower Tatham LCA	High	High	High

6.5.6 Tranquillity

81) CPRE has undertaken a study of tranquillity in England and have mapped and published the results. Tranquillity is one of the most important qualities by which people judge their environment. Tranquil area maps show places that are 'disturbed' and 'undisturbed' by noise and visual intrusion from urban areas (towns and cities) and other major infrastructure such as traffic (road, rail and airports), power stations, pylons and power lines.

82) There are high levels of tranquillity within the Forest of Bowland AONB relative to many other parts of England, with slightly lower levels along minor roads due to associated traffic noise. The Proposed Bowland Section is located within this rural AONB, with little or no influences that would detract from the high levels of tranquillity.

6.5.7 Woodland

83) An Arboricultural Impact Assessment (AIA), Appendix 6.6, and including Figure 6.5 Tree Constraints Plan and Figure 6.6 Preliminary Trees at Risk, has been undertaken to assess the potential impact on trees and the report findings have been taken into account in the assessment of landscape character. *BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations* sets out the need to assess the effects of a development on trees. The tree survey was undertaken by Arboriculturists to record information about trees within 20 m of the Planning Application boundary. The AIA also refers to any Tree Preservation Orders present within the study area.

84) Notable trees are defined as prominent trees within the landscape and by nature will generally be the larger more mature specimens. Notable trees were assessed as Category A and B trees during the arboricultural survey, using the grading definitions within BS 5837:2012. A precautionary approach was taken to the identification of notable trees where surveyed as tree groups and woodlands, in that not every tree within the group may be notable.

6.5.8 Visual Context and Visual Receptors

85) Chapter 6 of GLVIA3 sets out how the visual baseline should be established for the purposes of an LVIA. This includes determining:

- the area within which the Proposed Bowland Section may be visible
- people who may experience views of the development
- viewpoints where people may be affected
- the nature of the view at the viewpoints.

Extent of Visibility

86) The potential extent of visibility of the Proposed Bowland Section has been determined for each of the compounds through a combination of digital ZTV mapping, desk study and field survey. Firstly, a ZTV was created using GIS software to determine theoretical visibility within a 6 km area for a 45 m high crane jib located at each compound (refer to Appendix 6.1 for the methodology). The crane jib is anticipated to be the tallest piece of construction plant that would be present for the duration of the works in the compounds. The ZTV is based on a 'bare earth' scenario, which represents the worst-case extent of visibility. Only limited reliance can therefore be placed on the ZTVs and further refinement was undertaken as described below. The ZTVs are shown on Figures 6.1.

87) There is a requirement for a crane to be located at the Proposed Newton-in-Bowland Compound tunnel portal for the duration of the construction phase. However, the height of the crane would be determined by operational requirements during the tunnelling. Therefore, a ZTV has been modelled to reflect a worst-case scenario for a 45 m tall crane located at the tunnel portal.

88) Further refinement of the ZTVs was undertaken through desk study and field survey work to determine potential screening features such as vegetation and buildings. OS mapping, aerial photographs and Google Street View were used to locate these features, as well as the locations of people who may

experience views of the development by identifying a series of representative viewpoints. Field survey work was then undertaken to review the potential screening features and to visit each representative viewpoint in order to confirm the extent of visibility and the potential more accurately for significant effects. As a result, it was determined that a distance of 3 km from the Proposed Bowland Section captured the areas of greatest visibility and those visual receptors likely to be significantly affected.

Representative Viewpoints

89) As described above, a series of representative viewpoints were identified using the ZTVs, OS mapping, aerial photographs and Google Street View as a guide. These representative viewpoint locations and the extent of the detailed 3 km assessment area were then agreed with the local planning authority officers at Lancashire County Council, Ribble Valley Borough Council and within the Forest of Bowland AONB management team.

90) Representative viewpoints relevant to each proposed compound are identified in Table 6.9 and shown on Figure 6.2 and Figure 6.7 Photosheets.

6.5.9 **Table 6.9: Representative Viewpoints for the Proposed Bowland Section**

Representative Viewpoint Number	Location	Receptor Group	Sensitivity
Lower Houses Compound assessment area			
T3/01	Oak Head, Oakhead Bank and surrounding residential properties, Lancaster FP 33 and FP 34 and the surrounding PRoW network	Residential and recreational	High
T3/02	The Hill (Grade II), Spen Lodge, Green farm and surrounding residential properties, Lancaster FP 23, FP 64 and FP 26, and Spen Brow	Residential, recreational and transient	High
T3/03	Birks Farm (Grade II) and Birks Cottage, Lancaster FP 18	Residential and recreational	High
T3/04	Park House Farm (Grade II), High Park House Farm (Grade II Listed) and Park House Cottage	Residential	High
T3/05	Lancaster FP 18	Recreational	High
T3/5b	Lower House Cottage, North Bowland Traverse Long distance path and Lancaster FP 21	Residential and recreational	High
T3/06	Lancaster FP 40	Recreational	High
T3/07	North Bowland Traverse Long distance path and Lancaster FP 23	Recreational	High
T3/08	Lancaster FP 22	Recreational	High
T3/09	Lancaster FP 19	Recreational	High
T3/10	North Bowland Traverse Long distance path, Lancaster FP 21 and a local moor road	Recreational and transient	High
T3/11	Leyland Farm, North Bowland Traverse Long distance path and Lancaster FP 1 and FP 3	Recreational	High

Representative Viewpoint Number	Location	Receptor Group	Sensitivity
T3/12	North Bowland Traverse Long distance path, Scale Farm, Burnscale and Lancaster FP 1 and FP 2	Residential and recreational	High
T3/13	Outhwaite Farm (Grade II), Outhwaite Hall and Lancaster FP 6	Residential and recreational	High
T3/14	Barkin Gate (farm), Back Farm and surrounding residential properties, Lancaster FP 10 and FP 11, and Moor Lane	Residential, recreational and transient	High
T3/15	Stauvins Farm and Lancaster FP 1	Residential and recreational	High
T3/16a	Open Access Land	Recreational	High
T3/16b	Overhouses (farm), Bottom Hall Farm and Lancaster FP 22, FP 25 and FP 26	Residential and recreational	High
T3/17	Higher Stock Bridge Farm (Grade II), Lancaster FP 29 and surrounding PRoW network, and High Road	Residential, recreational and transient	High
T3/18	Settlement of Lowgill, including Low Gill House and other Grade II Listed Buildings, Lancaster FP 56, FP 56a and FP 57, and Lowgill Lane	Residential, recreational and transient	High
T3/19	Ivah Farmhouse (Grade II) and Lowgill Lane	Residential and transient	High
Newton-in-Bowland Compound assessment area			
T3/20	Beatrix Fell, Burn Fell, Open Access Land	Recreational	High
T3/21	Burn House Farm, Burn House Cottage and surrounding farms Ribble Valley FP 1 and the surrounding footpath network	Residential, recreational	High
T3/22	Hay Farm, The Hay Barn, and surrounding farms, Ribble Valley FP 1 and the surrounding footpath network	Residential, recreational	High
T3/24	Crawshaw Farm, Ribble Valley FP 11	Residential, recreational	High
T3/25	Gamble Hole Farm, Ribble Valley FP 10	Residential, recreational	High
T3/26	Brown Hills Farm, Ribble Valley FP 14, Back Lane	Residential, recreational and transient	High
T3/27	Ribble Valley FP 12, FP 14	Recreational	High
T3/28	Newton settlement edge, Newton Road to Dunsop Bridge	Residential, transient	High
T3/29	The Heaning (Farm), Ribble Valley FP 15	Recreational	High
T3/30	Fober Farm, Dunsop Road	Residential, transient	High

Representative Viewpoint Number	Location	Receptor Group	Sensitivity
T3/31	Ribble Valley FP 27 and the surrounding footpath network	Recreational	High
T3/32	The Pendle Witches Way Long distance path, Ribble Valley FP 31 and the surrounding footpath network	Recreational	High
T3/33	The Hodder Way and the Pendle Witches Way Long distance paths, Ribble Valley FP 31 and the surrounding footpath network	Recreational	High
T3/34	Long Stripes Farmhouse, Grade II Listed, Ribble Valley FP 26 and the surrounding footpath network	Residential, recreational	High
T3/35	Residential properties Farrowfield and surrounding properties, the Hodder Way Long distance path, Ribble Valley FP 35, FP 40, FP 43 and the surrounding footpath network, Easington Road	Residential, recreational and transient	High
T3/36	The Hodder Way Long distance path, Ribble Valley FP 26, Hallgate Hill	Recreational, transient	High
T3/37	Newton Hall, Grade II* Listed, Hodderbank, Newton settlement	Residential	High
T3/38	The Hodder Way Long distance path, Ribble Valley FP 26	Recreational	High
T3/39	Ribble Valley FP 36	Recreational	High
T3/40	Properties within Easington, Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17, FP 18	Residential, recreational	High
T3/41	Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17	Residential, recreational	High
T3/42	Smelthwaites Farm, Standridge Barn, Ribble Valley FP 36 and surrounding footpath network	Residential, recreational	High
T3/43	Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network	Recreational	High
T3/44	Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network	Recreational	High
T3/45	Hillhouse Farm	Residential	High
T4/01	Wyndfell Farm, Slaidburn Road	Residential and transient	High

Representative Viewpoint Number	Location	Receptor Group	Sensitivity
T4/03	Newlaithe Farm, Ribble Valley FP 43	Residential and recreational	High
T4/04	Ing Barn, Easington Road	Residential and transient	High
T4/05	Slaidburn Road	Transient	High

Nature of Existing Views at Lower Cross House Compound

91) The rural landscape within the assessment area is elevated, open and gently undulating with the rising topography of Godber Common to the west. To the east, within the River Hindburn valley, woodland blocks and vegetation along the valley limit views outwards, although from the surrounding elevated valley slopes, including from the Lowgill settlement, there are unobstructed views west across the Bowland Fells.

92) Farmsteads and individual properties on the Bowland Fells generally have partly enclosed, short-distance views, obstructed by the locally undulating topography and rising fells. However, depending on the location, some properties have open, long-distance views.

93) The many local PRoW, including the North Bowland Traverse long distance footpath, and the few local roads provide access throughout the area, including to some areas along the fells. The elevated locations generally allow open, long-distance views, although surrounding vegetation and topography occasionally limit these views. The areas of Access Land are located on elevated land west of the River Hindburn and are afforded open, extensive views west.

Nature of Existing Views at Newton-in-Bowland Compound

94) The rural landscape rises from the River Hodder valley towards the Bowland Fells including Burn Fell in the north, and Easington Fell, Standridge Hill and Crag Stones in the south. Areas of Access Land are located on the higher elevations, which have elevated and unobstructed long-distance views towards the surrounding fells and across the River Hodder valley below. Views from within Newton-in-Bowland along the River Hodder valley are mostly contained by surrounding buildings and vegetation, although the rising high fells to the south are apparent. Views from the western edge of the village are more open, allowing views to the nearby River Hodder vegetation along its banks.

95) Views from the network of footpaths, including the Tops of the North (Three Shire Heads to Carlisle), Pendle Witches Way and Hodder Way long distance footpaths, are generally extensive and open, allowing long-distance views across the River Hodder valley and to the surrounding fells.

96) The B6478 crosses the landscape in a north-south alignment from the River Hodder valley and climbs southwards towards Waddington Fell. The route allows particularly extensive views in a northerly direction across the River Hodder valley. Travellers along the un-named road travelling westwards from Newton-in-Bowland towards Dunsop Bridge generally have slightly elevated views from the River Hodder valley southwards.

Dark Skies

97) CPRE have undertaken a study of dark skies in England and have mapped and published the results. They also organise an annual star count to analyse any changes in light pollution. CPRE's aim is to try to protect and improve existing dark skies. Light pollution reduces the visibility of starry skies, as well as interrupting the natural pattern of wildlife. Generally, urban areas are most affected by light pollution, with darker skies present in rural areas.

98) CPRE have mapped the majority of dark sky areas within the Forest of Bowland AONB as the two darkest sky categories due to an absence of light sources, with the darkest areas across the moorland plateaux

and upper fell slopes. Within the Proposed Bowland Section assessment areas, there is one minor light source at Dunsop Bridge. Generally, the night-time environment within the assessment areas is dark in character.

99) The Forest of Bowland AONB website describes the skies within the AONB as being among the darkest in England. They are recognised as being important for stargazing, with five designated 'Dark Sky Discovery Sites' within the AONB. Two of the sites fall within the assessment areas; one of them is located at a private business called Clerk Laithe Lodge in Newton-in-Bowland, approximately 900 m from the Proposed Newton-in-Bowland Compound, with the other located approximately 3 km distant within the Slaidburn visitor car park.

6.6 Assessment of Likely Significant Effects

100) The following section describes the predicted landscape and visual effects of the Proposed Bowland Section during the during the following development phases:

101) The assessment considers the potentially significant landscape and visual effects likely to result from the following development phases:

- Enabling Works Phase
- Construction Phase
- Commissioning Phase
- Operational Phase (Year 1) and (Year 15).

102) Two assessment timeframes are assessed for the operational phase. This enables consideration of worst-case impacts immediately after works on site have been completed (winter in Year 1 when replacement planting is new and leaf cover is reduced), and the longer term effect in the summer of Year 15 once mitigation planting becomes established and when replacement planting generally be sufficiently mature to provide beneficial integration and screening.

103) Guidance within GLVIA3[25] states that visual assessments should be undertaken during winter months, before vegetation is in leaf, to allow maximum visibility from surrounding visual receptors. However, due to COVID-19 restrictions and some later design changes, some survey work was undertaken in Spring 2020 when trees and other vegetation had come into leaf. Therefore, professional judgement has been exercised to consider how the same views would appear in winter, where effects could not be verified during the field surveys.

104) The assessment of Landscape and Visual effects has been described in full in Appendix 6.4: Schedule of Landscape Effects and Appendix 6.5: Schedule of Visual Effects. Additional detail on representative viewpoints and photomontage views is included in Figures 6.2: Representative Viewpoints, Figure 6.7 Photosheets and Figures 6.8 to 6.11 Photomontages. Greater detail on the representative viewpoints, the associated visual receptors and the nature of existing views is presented in Appendix 6.5: Schedule of Visual Effects, with a summary of the nature of existing views provided in the section below.

105) The assessment takes into account the embedded mitigation and good practice measures that have been identified as part of the design and assessment process, as set out in Section 6.4.3.

6.6.1 Enabling Works

106) The following section describes the basis for the assessment of effects for the enabling works. Enabling works effects would be temporary (short-term). The summary of enabling works effects is shown in Table 6.10, Table 6.11 and Table 6.12 below.

[25] Landscape Institute (2013) *op. cit.*

Predicted Impacts

107) The enabling works activities for the Lower Houses Compound and the Newton-in-Bowland Compound described below are considered relevant to the assessment of landscape and visual effects:

- Erection of post and wire fencing along access roads and 2.4 m high branded hoarding around compound areas. Heras-type fencing around other facilities within the wider compound footprint
- Stripping of topsoil and installation of drainage within working areas
- Clearance of vegetation within the Newton-in-Bowland Compound, at access and egress points from the local road network and along the compound bypass. Removal of a section of stone wall at the temporary Bowland bypass access track
- Topsoil stripping and forming of soil stockpiles along the route of the Newton-in-Bowland construction access track
- Construction of a temporary tarmac surface construction access track
- Construction of a temporary road bridge over the River Hodder
- Localised ground reprofiling.

108) The main effects on landscape character and people's views that would arise during the enabling Works due to the construction activities are:

- Loss of landscape features such as hedgerows, stone walls and trees, soil stripping and the stockpiling of materials
- Levelling and grading of slopes
- Visual effects and disruption from temporary soil storage
- Visual effects from moving plant and construction equipment
- Visual effects from task lighting.

Landscape Effects

109) LCAs 4d. Bowland Gritstone Fringes, LCA 5a. Upper Hodder Valley, D13. Park House, G3. Upper Hodder and I3. Hindburndale would be directly and indirectly affected by the enabling works at the Newton-in-Bowland and Lower Houses compounds.

110) These compounds would comprise construction compounds, laydown areas and temporary access roads and improvements to the existing highway network. This would require the removal of some vegetation and landscape features; the installation of construction and internal boundary fencing; soil stripping and the removal of the existing grass sward; and the localised reprofiling of the existing landform. The establishment of these features would also require the temporary diversion of the local PRoW network at the Newton-in-Bowland and Lower Houses compounds.

111) The removal of existing shrubs, trees and field boundaries, including hedgerows, fences and stone walls, would result in a more open character and the severance of the existing field pattern in the immediate vicinity. Soil stripping, including the resultant loss of the grass sward, the installation of temporary drainage, and the temporary storage of topsoil and subsoil would all be at variance with the surrounding pastoral landscape and would represent detracting features in this rural landscape. The enabling works phase would also result in the temporary loss of farmland and minor changes to the existing topography.

112) The movement of plant and machinery, along with the enabling works activities, would reduce the perceived tranquillity, remoteness and rural character, introducing uncharacteristic features and affecting the predominantly rural character of the landscape.

113) Due to the disturbance from the enabling works, there would be a noticeable and uncharacteristic change to a moderate or small proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a minor or moderate magnitude of effect, resulting in a moderate or major adverse significance of effect.

114) LCAs 2b. Central Bowland Fells, 10b. North Bowland Valleys and D5. Beatrix to Collyholme would be indirectly affected by the enabling works at the Newton-in-Bowland and Lower Houses compounds within their immediate landscape setting. Enabling works, such as the removal of existing vegetation, soil stripping, landform alterations and the establishment of the construction compounds, laydown areas and temporary access roads, would contrast with the predominantly rural character and setting of this landscape.

115) Due to the proximity of the disturbance and vegetation loss from the enabling works, there would be a minor and uncharacteristic change to a small or very small proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

116) LCAs B9. Goodber Common and C9. Newton and Birket, and 4e. Bowland Limestone Fringes LCA would also be indirectly affected by the enabling works at the Newton-in-Bowland and Lower Houses compounds within their landscape setting. However, the disturbance would be experienced across a much broader proportion of the landscape and from a much greater distance.

117) Due to the disturbance from the enabling works, there would be a minor or barely perceptible and uncharacteristic change to a moderate proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

118) LCAs 1b. High Bowland Plateaux, 5j. North Bowland Fringes, C3. Easington, D2. Tatham and E3. Forest of Mewith would also be indirectly affected by the disturbance from the enabling works within their landscape setting. These LCAs would have a barely perceptible and uncharacteristic change to a small or very small proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a negligible magnitude of effect, resulting in a slight adverse significance of effect.

119) LCAs 13b. Bentham-Clapham, 14a. Slaidburn-Giggleswick, 2d. Waddington Fell, B7. Langdon, B8. Crossdale to Lythe, I2. Roeburndale, I6. Upper Hodder, K2. Lower Tatham and L1. Harrop Fold would experience a negligible or no discernible change to their landscape during the enabling works phase due to a combination of intervening topography and vegetation. These high sensitivity landscape receptors would therefore experience no significant effect.

Visual Effects – Lower Houses Compound

120) Views and visual receptors within the detailed study area which could be subject to significant short-term effects are described below. Refer to Figure 6.2 for viewpoint locations and Appendix 6.5 Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7.

121) Residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/05b, T3/07, T3/07a, T3/08, T3/10, T3/16a and T3/16b) would be close to the compound with views to the enabling works seen across the skyline, although partially screened by the gently undulating topography, and some filtering provided by the few surrounding hedgerows. Short-distance views would include site clearance of a small section of hedgerow, hoarding and fencing installation, and visual disturbance from the movement of plant and equipment for the soil stripping, forming of soil storage mounds and constructing the construction access track. Enabling works would become the dominant feature in the view and would result in a substantial change to the character of the view. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

122) There are no moderate adverse effects recorded during the enabling works phase.

123) Representative viewpoints not significantly affected – Residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/02, T3/09 and T3/17) would have open or partially screened middle to long-distance views towards the Lower Houses Compound enabling works. A group of trees west of the Lower Houses farm and the surrounding gently undulating topography would filter or screen a part the ground level activities within the construction compound although the taller parts of moving plant and equipment would be seen against the rising

moorland. The construction compound would be apparent in a small proportion of open and elevated long-distance views to the west from viewpoint T3/17. Specific changes during the enabling works would result from the visual disturbance associated with constructing the construction access track, hoarding and fencing installation, site preparation and localised soil stripping and soil storage mound formation. The enabling works activity would be perceptible but would not alter the balance of features or elements that comprise the existing view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

124) There would be no change to the view during the enabling works phase, due to intervening topography, built form and vegetation, from the following viewpoint locations: T3/01, T3/03, T3/04, T3/05a, T3/06, T3/11, T3/12, T3/13, T3/14, T3/15, T3/18 and T3/19.

Visual Effects – Newton-in-Bowland Compound

125) Views and visual receptors within the detailed study area, which could be subject to significant short-term effects are described below. Refer to Figure 6.2 for viewpoint locations and Appendix 6.5 Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7.

126) Residential viewers and recreational users of footpaths (T3/29, T3/30, T3/33) would be very close to the Newton-in-Bowland Compound, which would be seen on the nearby rising hillside and would be the dominant feature of the view. Residential viewers and recreational users of footpaths (T3/34, T3/35) would have views to the Newton-in-Bowland Compound on the rising hillside to the north in a large proportion of the middle-distance views, and also to the construction access track along the River Hodder valley. Specific changes during the enabling works would result from the visual disturbance associated with constructing the construction access track, hoarding and fencing installation, removal of sections of dry stone walls and hedgerows, site preparation, localised soil stripping and soil storage mound formation. Construction activities for the construction access track along the River Hodder valley would also be noticeable although partially obscured by topography or filtered by vegetation. The enabling works would become the dominant feature of views and would be seen on the rising hillside to the north on the skyline to the north and would result in a substantial change to the character of the view. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

127) Recreational users of footpaths, including the Hodder Way long distance footpath, and travellers on the main road (T3/36) would have direct and open views to the construction of the Newton-in-Bowland construction access track. Specific changes would result from the visual disturbance associated with clearance of small areas of trees and vegetation and formation of a new access to the B6478 and resultant removal of a section of dry stone wall. Activities would include site preparation, soil stripping and soil storage mound formation, construction of the tarmac construction access track, bridge erection and fencing installation. Moving plant and vehicles along the construction access track would cause visual disturbance. The enabling works would be partially filtered by vegetation and partially hidden by the undulating landform. The enabling works would become the dominant feature and would result in a substantial change to the character of the view. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

128) Recreational users of a footpath (T4/03) would have views of the enabling works at the Newton-in-Bowland Compound and the construction access track within the River Hodder valley, which would be apparent in a moderate proportion of long-distance views to the north-west. The enabling works would be a noticeable feature of the view. The high sensitivity visual receptor would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

129) Residential viewers and recreational users of footpaths (T3/24) would have middle-distance views to the Newton-in-Bowland Compound in a small proportion the view, partially filtered by intervening vegetation. Recreational users of footpaths, including the Pendle Witches Way long distance footpath (T3/32) would have open middle-distance views to the Newton-in-Bowland Compound and construction access track within the River Hodder valley. Recreational users of footpaths and travellers on local roads (T4/05) would have open long-distance views to the Newton-in-Bowland Compound construction access track. The Newton-in-Bowland Compound would be visible from T4/05. Specific

changes during the enabling works would result from the visual disturbance associated with site preparation and constructing the construction access track, including hoarding and fencing installation, localised soil stripping and soil storage mound formation, and clearance of short sections of hedgerow. The enabling works would result in a noticeable alteration to key characteristics of the view and would introduce uncharacteristic features across part of the view. These high sensitivity visual receptors would therefore experience a minor or moderate magnitude of effect, resulting in a moderate adverse significance of effect.

130) Residential viewers, recreational users of footpaths, including the Hodder Way long distance footpath, and travellers on the local road (T3/28, T3/37, T3/38, T3/39 and T4/04) would have focussed or filtered short- to medium-distance views to the Newton-in-Bowland Compound construction access track along the River Hodder valley. Specific changes during the enabling works would result from the visual disturbance from construction vehicle movements, and from activity associated with constructing a new access point from the B6478 Hallgate Hill and resultant removal of sections of hedgerow on the road. There would also be views to a part of the tarmac construction access track construction including site preparation, localised soil stripping and soil storage mound formation. The construction activities would result in a noticeable alteration to key characteristics of the view and the introduction of uncharacteristic features across a moderate part of the view. These high sensitivity visual receptors would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

131) Representative viewpoints not significantly affected – Recreational users within Open Access Land (T3/20) would have open and elevated long-distance views to the south-east to the Newton-in-Bowland Compound in a small proportion of the view. The upper part of the Newton-in-Bowland Compound would be visible before the land drops away to the River Hodder valley obscuring construction activity and the construction access tracks on the south-facing slope. Specific changes during the enabling works would result from the visual disturbance associated with constructing the construction access track, site preparation, localised soil stripping and soil storage mound formation within the two compounds. Enabling works activities would result in a perceptible change which would alter the key characteristics across a small part of the rural view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

132) Residential viewers, recreational users of a footpath and travellers on a local road (T3/26) would have partially filtered, short-distance views south-west to the Newton-in-Bowland Compound in a small proportion of the view. The locally rising topography would partially obscure views into the compound, although the taller parts of moving plant and equipment would be seen on the skyline. Most of the compound would be hidden as the land drops away to the River Hodder valley. Residential viewers, recreational users of footpaths, including the Tops of the North (Three Shire Heads to Carlisle) long distance path, Open Access Land at Standridge Hill, and travellers on the local road (T3/42, T3/43, T3/44, T4/01 T4/03) would have open and elevated long-distance views to the north-west or north-east to the Newton-in-Bowland Compound in a small proportion of the view. Viewpoint locations (T3/43, T3/44, T4/01 and T4/03) would also have views to the Newton-in-Bowland construction access track. Specific changes during the enabling works for the construction compound and for the construction access track would result from the visual disturbance associated with constructing the construction access track within the compound, hoarding and fencing installation, site preparation, localised soil stripping and soil storage mound formation. The enabling works at the Newton-in-Bowland Compound would be perceptible but would not alter the overall balance of features that comprise the existing view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

133) There would be no change to the view during the Enabling Works Phase due to a combination of intervening topography, built form and vegetation, from the following viewpoint locations: T3/21, T3/22, T3/25, T3/27, T3/31, T3/40, T3/41, T3/45.

Table 6.10: Summary of Enabling Works Landscape Effects

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
G3. Upper Hodder LCA	High	A noticeable and uncharacteristic change to a moderate proportion of the landscape.	Short-term / reversible	Moderate	Major Adverse (Significant)
4d. Bowland Gritstone Fringes LCA 5a. Upper Hodder Valley LCA D13. Park House LCA I3. Hindburndale LCA	High	A noticeable and uncharacteristic change to a small proportion of the landscape.	Short-term / reversible	Minor	Moderate Adverse (Significant)
2b. Central Bowland Fells LCA 10b. North Bowland Valleys LCA D5. Beatrix to Collyholme LCA 4e. Bowland Limestone Fringes LCA	High	A minor and uncharacteristic change to a small or very small proportion of the landscape.	Short-term / reversible	Minor	Slight Adverse
B9. Goodber Common LCA	High	A barely perceptible or minor and uncharacteristic change to a moderate proportion of the landscape.	Short-term / reversible	Minor	Slight Adverse
s1b. High Bowland Plateaux LCA 5j. North Bowland Fringes LCA C3. Easington LCA C9. Newton and Birkett LCA D2. Tatham LCA E3. Forest of Mewith LCA	High	A barely perceptible and uncharacteristic change to a small or very small proportion of the landscape.	Short-term / reversible	Negligible	Slight Adverse

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
L1. Harrop Fold LCA 2d. Waddington Fell LCA	High	A minor and uncharacteristic change to a very small proportion of the landscape.	Short-term / reversible	Negligible	Negligible
13b. Bentham-Clapham LCA 14a. Slaidburn-Giggleswick LCA B7. Langdon LCA B8. Crossdale to Lythe LCA I2. Roeburndale LCA I6. Upper Hodder LCA K2. Lower Tatham LCA	High	No discernible change to the landscape.	N/A	No Change	No Change

Table 6.11: Summary of Enabling Works Visual Effects – Lower Houses Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/05b Lower Houses Farm, North Bowland Traverse Long distance path, Lancaster FP 21 T3/07 North Bowland Traverse Long distance path, Lancaster FP 23 T3/07a North Bowland Traverse Long distance path, Lancaster PRoW FP22, FP23 and FP44, Park House Lane T3/08 Lancaster FP 22	High	A dominant and uncharacteristic change across a large proportion of the view.	Short-term / reversible	Major	Major Adverse (Significant)

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/10 North Bowland Traverse Long distance path, Lancaster FP 21, Local moor road T3/16a Open Access Land T3/16b Overhouses (farm) Lancaster FP 22, FP 25, FP 26					
T3/02 The Hill Farmhouse, Grade II Listed, Spen Lodge, Lancaster FP 64, FP 34, Spen Brow T3/09 Lancaster FP 19 T3/17 Higher Stock Bridge Farmhouse, Grade II Listed, Lancaster FP 29 and surrounding footpath network, High Road	High	A perceptible and uncharacteristic change across a small part of the view	Short-term / reversible	Minor	Slight adverse
T3/01 Residential properties Oak Head, Oakhead Bank and surrounding properties, Lancaster FP 33, FP 34 and the surrounding footpath network T3/03 Birks Farmhouse, Grade II Listed, Lancaster FP 18 T3/04 Park House Farm, High Park House Farmhouse, both Grade II Listed. T3/5a Lancaster FP 18, un-named moor road T3/06 Lancaster FP 40 T3/11 Leyland Farm, North Bowland Traverse Long distance path, Lancaster FP 1 and FP3	High	There would be no view of the construction activities from the viewpoint due to intervening topography and / or vegetation.	N/A	No Change	No Change

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/12 North Bowland Traverse Long distance path, Scale Farm, Lancaster FP 1 and FP 2 T3/13 Outhwaite Farmhouse, Grade II Listed, Lancaster FP 6 T3/14 Barkin Gate (farm) Back Farm and surrounding residential properties, Lancaster FP 10, Moor Lane, T3/15 Stauvin Farmhouse, Lancaster FP 1 T3/18 Settlement of Lowgill, including Low Gill Hall and other Grade II Listed buildings, Lancaster FP 56, FP 56a, FP 57, Lowgill Lane T3/19 Ivah Farmhouse, Grade II Listed, Lowgill Lane					

Table 6.12: Summary of Enabling Works Visual Effects – Newton-in-Bowland Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/29 The Heaning (Farm), Ribble Valley FP 15 T3/30 Fober Farm, Dunsop Road T3/33 The Hodder Way and the Pendle Witches Way Long distance paths, Ribble Valley FP 31 and the surrounding footpath network	High	A dominant and uncharacteristic change across a large proportion of the view.	Short-term / reversible	Major	Major Adverse (Significant)

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/34 Long Stripes Farmhouse, Grade II Listed, Ribble Valley FP 26 and the surrounding footpath network T3/35 Residential properties Farrowfield and surrounding properties, the Hodder Way Long distance path, Ribble Valley FP 35, FP 40, FP 43 and the surrounding footpath network, Easington Road T3/36 The Hodder Way Long distance path, Ribble Valley FP 26, Hallgate Hill					
T3/24 Crawshaw Farm, Ribble Valley FP 11 T3/28 Newton settlement edge, Newton Road to Dunsop Bridge T3/32 The Pendle Witches Way Long distance path, Ribble Valley FP 31 and the surrounding footpath network T3/37 Newton Hall, Grade II* Listed, Hodderbank, Newton settlement T3/38 The Hodder Way Long distance path, Ribble Valley FP 26 T3/39 Ribble Valley FP 36 T4/03 Newlaithe Farm, Ribble Valley FP 43 T4/05 B4678 Slaidburn Road	High	A noticeable and uncharacteristic change across a moderate part of the view.	Short-term / reversible	Moderate	Moderate adverse (Significant)
T3/20 Beatrix Fell, Burn Fell, Open Access Land	High	A perceptible and uncharacteristic change	Short-term / reversible	Minor	Slight adverse

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/26 Brown Hills Farm, Ribble Valley FP 14, Back Lane T3/42 Smelthwaites Farm, Standridge Barn, Ribble Valley FP 36 and surrounding footpath network T3/43 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T3/44 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T4/01 Wyndfell Farm, B4678 Slaidburn Road T4/04 Ing Barn, Easington Road		across a small part of the view.			
T3/21 Burn House Farm, Burn House Cottage, and surrounding farms Ribble Valley FP 1 and the surrounding footpath network T3/22 Hay Farm, The Hay Barn and surrounding farms, Ribble Valley FP 1 and the surrounding footpath network T3/25 Gamble Hole Farm, Ribble Valley FP 10 T3/27 Ribble Valley FP 12, FP14	High	There would be no view of the construction activities from the viewpoint due to intervening topography and / or vegetation.	N/A	No Change	No Change

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/31 Ribble Valley FP 27 and the surrounding footpath network T3/40 Properties within Easington, Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17, FP 18 T3/41 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17 T3/45 Hillhouse Farm					

6.6.2 Construction Phase

134) The predicted construction effects are set out in the following section and also summarised in Table 6.13, Table 6.14 and Table 6.15. Construction works effects would be temporary (short to medium-term), lasting only for the duration of these activities. It is anticipated that construction phase would last for approximately 5 years.

135) Effects during the Construction Phase have been described in Appendix 6.4: Schedule of Landscape Effects and Appendix 6.5: Schedule of Visual Effects.

Predicted Impacts

136) The tunnel between the Lower Houses Compound and the Newton-in-Bowland Compound would be approximately 16.4 km in length.

137) The Construction Phase activities for the Lower Houses Compound and the Newton-in-Bowland Compound described below are considered relevant to the assessment of landscape and visual effects:

- Construction of access tracks, plant compounds, laydown areas, temporary car parks and temporary office accommodation
- Construction of tunnel shafts
- Continuous construction activity during the tunnelling phase at the Newton-in-Bowland Compound
- Construction of new valve house buildings
- Construction of a portal trench approximately 150 m in length at Newton-in-Bowland Compound
- Construction of approximately 170 m of open-cut section within the Lower Houses Compound
- Construction of approximately 160 m of open-cut section within the Newton-in-Bowland Compound
- Partial reinstatement of temporary compound areas
- Reinstatement of tunnel shafts at ground level
- Topsoiling and grass seeding of reinstated areas
- Reinstatement of the boundary stone wall at bypass access points.

138) The main effects on landscape character and people's views that would arise during the Construction Phase due to the construction activities are:

- Visual effects from moving plant including a tall crane and construction equipment within compounds, including transport of sections of tunnel lining
- Visual effects from movement of haulage vehicles on the access tracks. The majority of surplus material would be removed from the Newton-in-Bowland Compound
- Visual effects and disruption from temporary storage of excavated materials
- Landscape effects from the placement of surplus material within the compound area
- Disruption from creation of the construction compounds, laydown areas and material storage areas for plant, machinery, equipment, construction materials and offices
- Disruption from the reinstatement of topsoil
- Visual effects from task lighting.

Landscape Effects

139) LCAs 4d. Bowland Gritstone Fringes, 5a. Upper Hodder Valley, D13. Park House, G3. Upper Hodder and I3. Hindburndale would be directly and indirectly affected by the construction works at the Lower Houses and Newton-in-Bowland compounds.

140) The movement of plant and machinery, along with the introduced construction works activities, would increase the perception of disruption and further contrast with the rural character of the landscape. At the launch and reception shafts, this would include activities to support the tunnel boring operations and the presence of the tunnel boring machine and cranes. The Newton-in-Bowland Compound would also require the creation of the working platform and tunnel portal, involving excavation and land reprofiling. Tall cranes at these shafts would be prominent within the assessment area and would represent incongruous, large-scale features within several outward views. Construction activities at the compounds would also include open-cut trenching to connect to the existing aqueduct, the storage of excavated materials and the establishment of temporary water management systems.

141) The overall impact would also be more evident due to works undertaken for the Enabling Works Phase, including continued use of temporary access roads, laydown areas and construction compounds, landform alterations, loss of existing vegetation and disruption to the existing field pattern. The temporary diversions to the PRoW network undertaken at the enabling phase would also continue.

142) Reinstatement would occur within sections of the compounds during the Construction Phase, although the construction compound, laydown areas and temporary access roads would remain. Reinstatement of the tunnel portal would also occur at the Newton-in-Bowland Compound at the end of the construction phase. Any areas of localised re-seeding would have limited impact at this stage.

143) Placement of surplus material within the Lower Houses Compound, excavated from the vertical tunnel shaft, would be located in a pre-agreed location where the local topography is slightly hollowed. The placed material would be carefully formed within the hollow to tie-in with the existing falling contours to help integrate with the surrounding slightly undulating and falling topography. The area would be topsoiled, and the grass sward reinstated.

144) Due to the direct disturbance from the construction works, there would be a substantial and uncharacteristic change to a moderate or large proportion of the landscape, which would be experienced over the short to medium term. These high sensitivity landscape receptors would therefore experience a moderate or major magnitude of effect, resulting in a major adverse significance of effect.

145) LCAs 2b. Central Bowland Fells, 4e. Bowland Limestone Fringes, 10b. North Bowland Valleys, B9. Goodber Common and D5. Beatrix to Collyholme would be indirectly affected by the construction works at the Lower Houses and Newton-in-Bowland compounds within their immediate landscape setting. This would include the tunnel boring operation and open-cut trenching, as well as the storage and removal of excavated materials. Tall cranes stationed at the launch and reception shafts would be visible within the setting of these landscapes and would represent incongruous, large-scale features within a small number of outward views. There would also be a notable or slight detectable loss of existing vegetation and field boundaries, and landform alterations undertaken at the enabling works phase.

146) Construction activity would be uncharacteristic and would slightly contrast with the predominantly rural character and setting of these landscapes. Due to the proximity of the disturbance from the construction activity, there would be a noticeable and uncharacteristic change to a moderate or small part of the landscape, which would be experienced over the short to medium term. These high sensitivity landscape receptors would therefore experience a moderate or minor magnitude of effect, resulting in a moderate adverse significance of effect.

147) LCAs 5j. North Bowland Fringes and D2. Tatham would also be indirectly affected by the construction activity at the Lower Houses and Newton-in-Bowland compounds within their landscape setting; however, the impact would be experienced at a greater distance and across a much larger proportion of the landscape. Specific changes would include the tunnel boring operation and open-cut trenching, and the storage and removal of excavated materials. Tall cranes stationed at the launch and reception facilities would be visible within the setting and would represent incongruous, large-scale features within outward views. There would also be a barely perceptible or slight detectable loss of existing vegetation and field boundaries, and landform alterations undertaken at the enabling works phase.

148) Due to the greater distance from the construction activity and broader geographical extent of the impact, there would be a minor and uncharacteristic change to a large or moderate proportion of the landscape, which would be experienced over the short to medium term. These high sensitivity landscape receptors

would therefore experience a moderate or minor magnitude of effect, resulting in a moderate adverse significance of effect.

149) LCAs I2. Roeburndale, C3. Easington, C9. Newton and Birkett and E3. Forest of Mewith would also be indirectly affected by the construction works within their landscape setting. However, the impact would be experienced at a greater distance and across a much smaller proportion landscape. There would also be barely perceptible loss of existing vegetation and field boundaries, and landform alterations undertaken at the enabling works phase.

150) Due to the greater distance from the construction activity and smaller geographical extent of the impact, there would be a minor and uncharacteristic change to a small proportion of the landscape, which would be experienced over the short to medium term. These high sensitivity landscape receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

151) LCAs 1b. High Bowland Plateaux, 13b. Bentham-Clapham, 14a. Slaidburn-Giggleswick, B7. Langdon, B8. Crossdale to Lythe and K2. Lower Tatham would be indirectly affected by the construction works, which would be experienced over the medium to short term. These landscapes would have occasional or barely perceptible long-distance views of the tall cranes positioned at the launch and reception shafts; these would represent incongruous, large-scale features within a small or very small number of outward views. These high sensitivity landscape receptors would therefore experience a negligible magnitude of effect, resulting in a slight adverse significance of effect.

152) LCAs 2d. Waddington Fell. I6. Upper Hodder and L1. Harrop Fold would experience no discernible change to their landscape during the Construction Phase due to a combination of intervening topography and vegetation. These high sensitivity landscape receptors would therefore continue to experience no significant effect.

Visual Effects – Lower Houses Compound

153) Views and visual receptors within the detailed study area, which could be subject to significant short to medium-term effects are described below. Refer to Figure 6.2 for viewpoint locations and Appendix 6.5 Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7. Construction Phase photomontages are shown on Figures 6.8 and 6.9.

154) Residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/05b, T3/07, T3/07a, T3/08, T3/10, T3/16a and T3/16b) would be close to the compound with views to the construction seen across the skyline, although partially screened by the gently undulating topography, and with some filtering provided by the few surrounding hedgerows. There would be direct and generally open views of the tunnel shaft construction, land reprofiling for the working platform and temporary site access tracks, and the open cut-section of pipeline. Visual disturbance would occur from the ongoing construction activities for the tunnel boring, including crane operation at the tunnel shaft, materials movement including tunnel linings, construction traffic and the removal and storage of excavated materials. The 45 m high crane operating at the tunnel shaft would be silhouetted against the sky. Reinstatement activities would occur within sections of the compound used as laydown areas. The construction activities would become the dominant feature in the view and would result in a substantial change to the character of the view. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

155) Recreational users of the footpath (T3/09) would have open middle-distance views to the construction compound which would be seen in a small proportion of views to the south-east, although topography would obscure the main construction compound and ground level activities. There would be visual disturbance from moving plant and machinery undertaking reprofiling for the working platform and tunnel shaft construction, excavation for the open-cut works, crane operation at the tunnel shaft, construction traffic and the removal and storage of excavated materials. The operating crane at the tunnel shaft would be the dominant feature silhouetted against the sky. Reinstatement activities would occur within sections of the compound used as laydown areas. These activities would be seen in a moderate part of the view and would result in a noticeable change to the rural character. This high

sensitivity visual receptor would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

156) Representative viewpoints not significantly affected – Residential viewers, recreational users of footpaths and road travellers (T3/02 and T3/17) would have open or partially screened long-distance views towards a part of the Lower Houses Compound construction activities. The physical changes to the landform and the compound's presence, and visual disturbance from movement from the tall crane and other plant and equipment would result in a perceptible change which would alter the key characteristics across a small part of the rural view. In some locations for residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/03, T3/04, T3/05a, T3/06, T3/11 and T3/12) only the crane jib which would be perceptible whilst the lower elements of construction works would be screened by intervening topography. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

157) There would be a negligible effect during the Construction Phase due to a combination of intervening topography and vegetation, and distance from the compound, with views of only a small or very small part of the crane visible, for the following viewpoint locations: T3/01, T3/13, T3/14, T3/15, T3/18, T3/19.

Visual Effects – Newton-in-Bowland Compound

158) Views and visual receptors within the detailed study area, which could be subject to significant short to medium-term effects are described below. Refer to Figure 6.2 for viewpoint locations and Appendix 6.5 Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7. Construction Phase photomontages are shown on Figures 6.10 and 6.11.

159) Residential viewers, recreational users of footpaths (T3/29, T3/30, T3/33) would be very close to the Newton-in-Bowland Compound which would be seen on the nearby rising hillside and would be the dominant feature of the view. Residential viewers and recreational users of footpaths (T3/34, T3/35) would have views to the Newton-in-Bowland Compound on the rising hillside to the north, and also to the construction access track along the River Hodder valley. Specific changes would result from the visual presence of the construction compound, materials laydown areas and hoarding. Visual disturbance would include excavations and land reprofiling for the tunnel portal and working platform, excavation for the open-cut works, crane operation at the tunnel portal, construction traffic and the removal and storage of excavated materials. The operating crane at the tunnel portal would be a dominant feature silhouetted against the sky. Moving plant and equipment along the construction access track within the River Hodder valley would be visible. Reinstatement activities for the tunnel portal and within sections of the compound used as laydown areas would occur at the end of the construction phase and would be prominent across a large part of the view. The construction activities would become the dominant feature of the view and would be seen on the skyline. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

160) Recreational users of footpaths, including the Hodder Way long distance footpath, and travellers on the main road (T3/36) would have direct and open views to the construction of the Newton-in-Bowland construction access track. Specific changes would result from the visual presence of the construction access track, earth storage mounds and the bridge. Visual disturbance, which would be seen in the direct frame of view, would include moving HGVs along the construction access track, at the access from the B6478, and HGVs travelling along the B6478 Hallgate Hill. The construction activity would become the dominant feature within the view. The construction activities would become the dominant feature of the view and would be seen on the skyline. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

161) Residential viewers and recreational users of the footpath (T3/24) would have middle-distance views to the Newton-in-Bowland Compound in a small proportion the view, partially filtered by intervening vegetation. Recreational users of footpaths, including the Pendle Witches Way long distance footpath (T3/32) would have open middle-distance views to the Newton-in-Bowland Compound and

construction access track within the River Hodder valley. Recreational users of footpaths and travellers on local roads (T4/03 and T4/05) would have open long-distance views to the Newton-in-Bowland Compound construction access track. The Newton-in-Bowland Compound would be visible from T4/05. Specific changes at the Newton-in-Bowland Compound would result from the visual presence of the construction compound, materials laydown areas and hoarding. Visual disturbance, which would be seen in the middle distance, would include land reprofiling for the working platform and excavation of the tunnel portal, excavation for the open-cut works, crane operation at the tunnel portal, construction traffic and the removal and storage of excavated materials. The operating crane at the tunnel portal would be a noticeable feature and silhouetted against the sky in the middle distance. Reinstatement activities for the tunnel portal and within sections of the compound used as laydown areas would occur at the end of the construction phase and would be noticeable across a moderate part of the view. The construction activities would result in a noticeable alteration to key characteristics of the view and the introduction of uncharacteristic features across a moderate part of the view. These high sensitivity visual receptors would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

162) Residential viewers, recreational users of footpaths, including the Hodder Way long distance footpath, and travellers on the local road (T3/28, T3/37, T3/38 and T3/39) would have focussed or filtered short-distance views to the Newton-in-Bowland construction access track along the River Hodder valley. The moving plant and equipment and HGVs travelling along the construction access track to the A6478 Hallgate Hill and travelling along the B6478 Hallgate Hill to the south would be apparent in short-distance views and would result in a noticeable alteration to key characteristics of the view. These high sensitivity visual receptors would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

163) Residential viewers and recreational users of footpaths (T3/25 and T3/27) would see a moderate part of the 45 m high crane jib silhouetted against the sky in the middle distance, introducing an uncharacteristic feature across a small part of the view. Residential viewers and recreational users of the footpath (T3/26) would experience visual disturbance on the skyline in short-distance views, including moving plant and equipment within the laydown areas to the east of the compound and a moderate part of the operating crane at the tunnel portal which would be silhouetted against the sky in short-distance views. Visual disturbance on the skyline would also include reinstatement within sections of the compound used as laydown areas at the end of the construction phase. The construction activity and crane jib would result in a noticeable alteration to key characteristics of the view and the introduction of uncharacteristic features across a moderate part of the view. These high sensitivity visual receptors would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

164) Representative viewpoints not significantly affected – recreational users within Open Access Land (T3/20) would have open and elevated long-distance views to the south-east to the Newton-in-Bowland Compound in a small proportion of the view. The upper part of the compound would be visible before the land drops away to the River Hodder valley obscuring construction activity and construction access tracks on the south-facing slope. Specific changes would result from the visual presence of the construction compound, materials laydown areas and hoarding. Visual disturbance, which would be seen in the long distance, would include excavations and land reprofiling for the working platform and tunnel portal, excavation for the open-cut works, crane operation at the tunnel portal, construction traffic, and the removal and storage of excavated materials. The operating crane at the tunnel portal would be a perceptible feature and seen against the backdrop of the distant hillside. Reinstatement activities for the tunnel portal and within sections of the compound used as laydown areas would occur at the end of the construction phase although the construction compound would remain. The construction activities would be perceptible but not alter the overall balance of features that comprise the existing view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect, although nearby woodland at T4/04 would provide screening.

165) Residential viewers, recreational users of footpaths, including the Tops of the North (Three Shire Heads to Carlisle) long distance path, Open Access Land Standridge Hill, and travellers on the local road (T3/42, T3/43, T3/44, T4/01 and T4/04) would have open and elevated long-distance views to the

north-west to the Newton-in-Bowland Compound in a small proportion of the view. Viewpoint locations (T3/43, T3/44 and T4/01) would also have views to the Newton-in-Bowland construction access track. Specific changes would result from the visual presence of the construction compound, launch logistics compound, materials laydown areas and hoarding. Visual disturbance, which would be seen in the long distance, would include excavations and land reprofiling for the tunnel portal and working platform, excavation for the open-cut works, crane operation at the tunnel portal, and the removal and storage of excavated materials. The operating crane at the tunnel portal would be a perceptible feature seen against the backdrop of the rising hillside. Reinstatement activities would occur within sections of the compound although the construction access track and construction compound would remain. The construction activities at the Newton-in-Bowland Compound would be perceptible but would not alter the overall balance of features that comprise the existing view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

166) Representative viewpoints not significantly affected – Residential viewers within Easington, recreational users of footpaths and the Tops of the North (Three Shire Heads to Carlisle) long distance path (T3/40 and T3/41) would have long-distance views to a small part of the 45 m high crane jib at the Newton-in-Bowland Compound, which would be perceptible and seen against a backdrop of rising hillsides but would not alter the balance of features that comprise the existing view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

167) There would be a negligible effect during the Construction Phase due to a combination of intervening topography and vegetation, and distance from the compound, for the following viewpoint locations: T3/19, T3/21, T3/22, T3/45.

Table 6.13: Summary of Construction Phase Landscape Effects

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
G3. Upper Hodder LCA	High	A substantial and uncharacteristic change to a large proportion of the landscape.	Short- to medium-term / reversible Adverse	Major	Major Adverse (Significant)
4d. Bowland Gritstone Fringes LCA 5a. Upper Hodder Valley LCA D13. Park House LCA I3. Hindburndale LCA	High	A substantial and uncharacteristic change to a moderate proportion of the landscape.	Short- to medium-term / reversible Adverse	Moderate	Major Adverse (Significant)
10b. North Bowland Valleys LCA B9. Goodber Common LCA 4e. Bowland Limestone Fringes LCA	High	A noticeable and uncharacteristic change to a moderate proportion of the landscape.	Short- to medium-term / reversible Adverse	Moderate	Moderate Adverse (Significant)
D5. Beatrix to Collyholme LCA 2b. Central Bowland Fells LCA	High	A noticeable and uncharacteristic change to a small proportion of the landscape.	Short- to medium-term / reversible Adverse	Minor	Moderate Adverse (Significant)
5j. North Bowland Fringes LCA D2. Tatham LCA	High	A minor and uncharacteristic change to a moderate proportion of the landscape.	Short- to medium-term / reversible Adverse	Minor	Moderate Adverse (Significant)
I2. Roeburndale LCA C3. Easington LCA C9. Newton and Birkett LCA E3. Forest of Mewith LCA	High	A minor and uncharacteristic change to a small proportion of the landscape	Short- to medium-term / reversible Adverse	Minor	Slight Adverse

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
1b. High Bowland Plateaux LCA 13b. Bentham-Clapham LCA 14a. Slaidburn-Giggleswick LCA B7. Langdon LCA B8. Crossdale to Lythe LCA K2. Lower Tatham LCA	High	A barely perceptible and uncharacteristic change to a small or very small proportion of the landscape.	Short- to medium-term / reversible Adverse	Negligible	Slight Adverse
2d. Waddington Fell LCA I6. Upper Hodder LCA L1. Harrop Fold LCA	High	A minor and uncharacteristic change to a very small proportion of the landscape.	Short-term / reversible Adverse	Negligible	Negligible

Table 6.14: Summary of Construction Phase Visual Effects – Lower Houses Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/05b Lower Houses Farm, North Bowland Traverse Long distance path, Lancaster FP 21 T3/07 North Bowland Traverse Long distance path, Lancaster FP 23 T3/07a North Bowland Traverse Long distance path, Lancaster PRoW FP22, FP23 and FP44, Park House Lane T3/08 Lancaster FP 22	High	A dominant and uncharacteristic change across a large proportion of the view.	Short- to medium-term / reversible	Major	Major Adverse (Significant)

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/10 North Bowland Traverse Long distance path, Lancaster FP 21, local moor road T3/16a Open Access Land T3/16b Overhouses (farm) Lancaster FP 22, FP 25, FP 26					
T3/09 Lancaster FP 19	High	A noticeable and uncharacteristic change across a moderate part of the view.	Short- to medium-term / reversible	Moderate	Moderate adverse (Significant)
T3/02 The Hill Farmhouse, Grade II Listed, Spen Lodge, Lancaster FP 64, FP 34, Spen Brow T3/03 Birks Farmhouse, Grade II Listed, Lancaster FP 18 T3/04 Park House Farm, High Park House Farmhouse, both Grade II Listed. T3/5a Lancaster FP 18, un-named moor road T3/06 Lancaster FP 40 T3/11 Leyland Farm, North Bowland Traverse Long distance path, Lancaster FP 1 and FP 3 T3/12 North Bowland Traverse Long distance path, Scale Farm, Lancaster FP 1 and FP 2	High	A perceptible and uncharacteristic change across a small part of the view.	Short- to medium-term / reversible	Minor	Slight adverse

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/17 Higher Stock Bridge Farmhouse, Grade II Listed, Lancaster FP 29 and surrounding footpath network, High Road					
T3/01 Residential properties Oak Head, Oakhead Bank and surrounding properties, Lancaster FP 33, FP 34 and the surrounding footpath network T3/13 Outhwaite Farmhouse, Grade II Listed, Lancaster FP 6 T3/14 Barkin Gate (farm), Back Farm and surrounding residential properties, Lancaster FP 10, Moor Lane, T3/15 Stauvin Farmhouse, Lancaster FP 1 T3/18 Settlement of Lowgill, including Low Gill Hall and other Grade II Listed buildings, Lancaster FP 56, FP 56a, FP 57, Lowgill Lane T3/19 Ivah Farmhouse, Grade II Listed, Lowgill Lane	High	A barely noticeable change across a small part of the view.	Short- to medium-term / reversible	Negligible	Negligible

Table 6.15: Summary of Construction Phase Visual Effects – Newton-in-Bowland Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/29 The Heaning (Farm), Ribble Valley FP 15	High	A dominant and uncharacteristic change	Short- to medium-term / reversible	Major	Major Adverse (Significant)

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/30 Fober Farm, Dunsop Road T3/33 The Hodder Way and the Pendle Witches Way Long distance paths, Ribble Valley FP 31 and the surrounding footpath network T3/34 Long Stripes Farmhouse, Grade II Listed, Ribble Valley FP 26 and the surrounding footpath network T3/35 Residential properties Farrowfield and surrounding properties, the Hodder Way Long distance path, Ribble Valley FP 35, FP 40, FP 43 and the surrounding footpath network, Easington Road T3/36 The Hodder Way Long distance path, Ribble Valley FP 26, Hallgate Hill		across a large proportion of the view.			
T3/24 Crawshaw Farm, Ribble Valley FP 11 T3/25 Gamble Hole Farm, Ribble Valley FP 10 T3/26 Brown Hills Farm, Ribble Valley FP 14, Back Lane T3/27 Ribble Valley FP 12, FP 14 T3/28 Newton settlement edge, Newton Road to Dunsop Bridge	High	A noticeable and uncharacteristic change across a moderate part of the view.	Short- to medium-term / reversible	Moderate / minor	Moderate adverse (Significant)

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/32 The Pendle Witches Way Long distance path, Ribble Valley FP 31 and the surrounding footpath network T3/37 Newton Hall, Grade II* Listed, Hodderbank, Newton settlement T3/38 The Hodder Way Long distance path, Ribble Valley FP 26 T3/39 Ribble Valley FP 36 T4/03 Newlaithe Farm, Ribble Valley FP 43 T4/05 B4678 Slaidburn Road					
T3/20 Beatrix Fell, Burn Fell, Open Access Land T3/31 Ribble Valley FP 27 and the surrounding footpath network T3/40 Properties within Easington, Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17, FP 18 T3/41 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17 T3/42 Smelthwaites Farm, Standridge Barn, Ribble Valley FP 36 and surrounding footpath network T3/43 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble	High	A perceptible and uncharacteristic change across a small part of the view.	Short- to medium-term / reversible	Minor	Slight adverse

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
Valley FP 17 and surrounding footpath network T3/44 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T4/01 Wyndfell Farm, B4678 Slaidburn Road T4/04 Ing Barn, Easington Road					
T3/21 Burn House Farm, Burn House Cottage, and surrounding farms Ribble Valley FP 1 and the surrounding footpath network T3/22 Hay Farm, The Hay Barn, and surrounding farms, Ribble Valley FP 1 and the surrounding footpath network T3/45 Hillhouse Farm	High	A barely noticeable change across a small part of the view.	Short= to medium-term / reversible	Negligible	Negligible

6.6.3 Commissioning Phase

168) The following section describes the effects of the Proposed Bowland Section on landscape and visual receptors during the Commissioning Phase. The Commissioning Phase would use the construction compound created during the construction phase. Other activities would be similar although reduced in scale and duration for the connection of the new aqueduct to the existing pipelines.

169) Effects during the Commissioning Phase are described in Appendix 6.4: Schedule of Landscape Effects and Appendix 6.5: Schedule of Visual Effects.

170) The summary of Commissioning Phase effects is shown in Table 6.16, Table 6.17 and Table 6.18 below.

Predicted Impacts

171) Following the Commissioning Phase the land would be restored to its previous agricultural use.

172) The Commissioning Phase activities for the Lower Houses Compound and the Newton-in-Bowland Compound described below are considered relevant to the assessment of landscape and visual effects:

- Connection of the open-cut pipeline to the existing Haweswater Aqueduct
- Reinstatement of the section of open-cut pipeline and removal of construction access tracks
- Reinstatement of the section of open-cut pipeline and removal of temporary construction access roads
- Removal of all construction compound fencing and hoarding
- Topsoiling and seeding of areas and replanting of previously removed hedgerows and environmental mitigation works
- Reinstatement of compound areas to the original use.

173) The main effects on landscape character and people's views that would arise during the Commissioning Phase due to the construction activities are:

- Visual effects from moving plant and construction equipment within construction compounds
- Visual effects from movement of haulage vehicles on the access tracks
- Visual effects and disruption from temporary storage of excavated materials
- Disruption from the construction compounds, laydown areas and material storage areas for plant, machinery, equipment, construction materials and offices
- Disruption from the reinstatement of graded slopes and topsoil spreading
- Visual effects from task lighting.

Landscape Effects

174) LCAs 4d. Bowland Gritstone Fringes, LCA 5a. Upper Hodder Valley, D13. Park House, G3. Upper Hodder and I3. Hindburndale would be directly and indirectly affected by the commissioning works at the Newton-in-Bowland and Lower Houses compounds.

175) Specific disturbance would occur from open-cut trenching and pipeline laying, the presence and movement of plant and machinery, and the removal and storage of excavated materials. However, tall cranes located at the launch and reception shafts would no longer be present. The impact would also be evident due to the continued use and presence of the existing construction compounds, laydown areas and temporary access roads, as well as the remaining changes to landform, vegetation cover and field pattern introduced during the enabling works phase, and the presence of above-ground features introduced during the Construction Phase. The temporary diversions to the PRoW undertaken at the enabling works phase would also continue.

176) Reinstatement and restoration activities, including mitigation planting, the reinstatement of field boundaries, and land reprofiling, would be undertaken on completion of the Commissioning Phase.

However, due to the relatively short period of establishment, mitigation planting would not contribute to integration, screening or enclosure at this stage.

177) Commissioning activity would continue to be uncharacteristic and would contrast with the predominantly rural character and setting of this landscape; however, the scale of these effects would be reduced compared with the construction phase. Due to the direct disturbance from the commissioning works, there would be a noticeable and uncharacteristic change to a moderate or small proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a minor or moderate magnitude of effect, resulting in a moderate or major adverse significance of effect.

178) 2b. Central Bowland Fells, 4e. Bowland Limestone Fringes, 10b. North Bowland Valleys and D5. Beatrix to Collyholme would be indirectly affected by the commissioning works at the Newton-in-Bowland and Lower Houses compounds within their landscape setting. Specific changes would result from short sections of open-cut trenching, the movement and temporary storage of excavated material, and the presence of above-ground features introduced during the Construction Phase. The changes to landform, vegetation cover and field pattern arising during the enabling works would continue to be evident. Mitigation planting would not contribute to integration or screening at this stage.

179) Commissioning activity would continue to be uncharacteristic and would contrast with the predominantly rural character and setting of this landscape; however, the scale of these effects would be reduced compared with the construction phase. Due to the proximity of the disturbance and vegetation loss from the commissioning works, there would be a minor and uncharacteristic change to a small or very small proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

180) LCA B9. Goodber Common would also be indirectly affected by the enabling works at the Newton-in-Bowland and Lower Houses compounds within their landscape setting. However, the disturbance would be experienced across a much broader proportion of the landscape and from a much greater distance.

181) Due to the more distant disturbance from the commissioning works, there would be a minor or barely perceptible and uncharacteristic change to a moderate proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

182) LCAs 1b. High Bowland Plateaux, 5j. North Bowland Fringes, B7. Langdon, C3. Easington, C9. Newton and Birket, D2. Tatham and E3. Forest of Mewith would also be indirectly affected by the disturbance from the commissioning works within their landscape setting. These LCAs would have a barely perceptible and uncharacteristic change to a small or very small proportion of the landscape, which would be experienced over the short term. These high sensitivity landscape receptors would therefore experience a negligible magnitude of effect, resulting in a slight adverse significance of effect.

183) LCAs 2d. Waddington Fell, 13b. Bentham-Clapham, 14a. Slaidburn-Giggleswick, B8. Crossdale to Lythe, I2. Roeburndale, I6. Upper Hodder, K2. Lower Tatham and L1. Harrop Fold would experience a negligible or no discernible change to their landscape during the Commissioning Phase due to a combination of intervening topography and vegetation. These high sensitivity landscape receptors would therefore experience no significant effect.

Visual Effects – Lower Houses Compound

184) Views and visual receptors within the detailed study area, which could be subject to significant short - term effects are described below. Refer to Figure 6.2 for viewpoint locations and Appendix 6.5 Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7.

185) Residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/05b, T3/07, T3/08, T3/10, T3/16a, T3/16b and T3/05b) would be close to the compound with views to the commissioning activities seen across the skyline, although partially screened by the gently undulating topography, and with some filtering provided by the few surrounding hedgerows. Specific changes would result from the visual presence of the retained construction

compound and from the visual disturbance and movement associated with localised open-cut excavations and pipelaying near the existing valve house building. Reinstatement activities, including removal of fencing and hoarding, removal of the temporary compound surfacing, land reprofiling, and reinstatement of grassland, field boundaries and vegetation, would be noticeable across the extent of the construction compound. The commissioning activities would become the dominant feature of the view. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

186) Recreational users of footpaths and the North Bowland Traverse long distance path and road travellers (T3/07a) would be close to the compound, although views would be filtered by intervening hedgerows and partially screened by topography. Specific changes would result from the visual presence of the retained construction compound and from the visual disturbance and movement associated with localised open-cut excavations and pipelaying near the existing valve house building. Reinstatement activities, including removal of fencing and hoarding, removal of the temporary compound surfacing, land reprofiling, and reinstatement of grassland, field boundaries and vegetation, would be undertaken on completion of the commissioning activities. The commissioning activities would result in a noticeable alteration to key characteristics of the view and the introduction of uncharacteristic features across a moderate part of the view. These high sensitivity visual receptors would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

187) Representative viewpoints not significantly affected – Residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/02, T3/09 and T3/17) would have open or partially screened middle- to long-distance views towards the Lower Houses Compound commissioning activities. A group of trees west of the Lower Houses farm and the surrounding gently undulating topography would filter or screen a part of the ground-level activities within the construction compound although the taller parts of moving plant and equipment would be seen against the rising moorland. The construction compound would be apparent in a small proportion of open and elevated long-distance views to the west from viewpoint T3/17. Specific changes would result from the visual presence of the retained construction compound and construction access track and from the visual disturbance and movement associated with localised open-cut excavations and pipelaying. Reinstatement activities, including removal of fencing and hoarding, construction access tracks, removal of the temporary compound surfacing, land reprofiling, and reinstatement of grassland, field boundaries and vegetation, would be undertaken on completion of the commissioning activities. The commissioning activity would be perceptible but would not alter the balance of features or elements that comprise the existing view. Sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

188) There would be no change to the view during the Enabling works phase due to a combination of intervening topography, built form and vegetation, from the following viewpoint locations: T3/01, T3/03, T3/04, T3/05a, T3/06, T3/11, T3/12, T3/13, T3/14, T3/15, T3/18, T3/19.

Visual Effects – Newton-in-Bowland Compound

189) Views and visual receptors within the detailed study area, which could be subject to significant short - term effects are described below. Refer to Figure 6.2 for viewpoint locations and Appendix 6.5 Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7.

190) Residential viewers and recreational users of footpaths (T3/29, T3/30, T3/33) would be very close to the Newton-in-Bowland Compound which would be seen on the nearby rising hillside and would be the dominant feature of the view. Residential viewers and recreational users of footpaths (T3/34, T3/35) would have views to the Newton-in-Bowland Compound on the rising hillside to the north in a large proportion of the middle-distance views, and also to the construction access track along the River Hodder valley. Specific changes would result from the visual presence of the retained construction compound and from the visual disturbance and movement associated with localised open-cut excavations, pipelaying near the existing valve house building, and vehicles travelling along the construction access road. Reinstatement activities, including removal of the construction access tracks, removal of fencing and hoarding, removal of the temporary compound surfacing, land reprofiling and

reinstatement of grassland, dry stone walls and hedgerow vegetation, would be undertaken on completion of the commissioning activities. The commissioning activities would become the dominant feature of views and would be seen on the rising hillsides and on the skyline to the north and would result in a substantial change to the character of the view. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

191) Recreational users of footpaths, including the Hodder Way long distance footpath, and travellers on the local road (T3/36) would have direct and open views to the Newton-in-Bowland construction access track and vehicles moving along the route. Specific changes would result from the visual presence of the construction access track, earth storage mounds and the bridge. Visual disturbance, which would be seen in the direct frame of view, would include HGVs moving along the route and along B6478 Hallgate Hill to the south, although vehicle traffic would be substantially reduced during the commissioning phase. Visual disturbance would also include the dismantling of the bridge, removal of the tarmac construction access track and reinstatement of fields. The commissioning activities would become the dominant feature of the view and would result in a substantial change to the character of the view. These high sensitivity visual receptors would therefore experience a major magnitude of effect, resulting in a major adverse significance of effect.

192) Residential viewers and recreational users of the footpath (T3/24) would have middle-distance views to the Newton-in-Bowland Compound in a small proportion the view, partially filtered by intervening vegetation. Recreational users of footpaths, including the Pendle Witches Way long distance footpath (T3/32), would have open middle-distance views to the Newton-in-Bowland Compound and construction access track within the River Hodder valley. Recreational users of footpaths and travellers on local roads (T4/03, T4/04 and T4/05) would have long-distance views to the Newton-in-Bowland Compound construction access track. The Newton-in-Bowland compound would be visible from T4/05 although screened by nearby woodland from T4/04. Specific changes, which would be seen in the middle distance, would result from the visual presence of the retained construction compound and from the visual disturbance and movement associated with localised open-cut excavations and pipelaying near the existing valve house building. Reinstatement activities, including removal of fencing and hoarding, removal of the temporary compound surfacing, land reprofiling, and reinstatement of grassland and field boundaries, would be undertaken on completion of the commissioning activities. The enabling works would result in a noticeable alteration to key characteristics of the view and would introduce uncharacteristic features across part of the view. These high sensitivity visual receptors would therefore experience a minor or moderate magnitude of effect, resulting in a moderate adverse significance of effect.

193) Residential viewers, recreational users of footpaths, including the Hodder Way long distance footpath, and travellers on the local road (T3/28, T3/37, T3/38 and T3/39) would have focussed or filtered short-distance views to the Newton-in-Bowland construction access track along the River Hodder valley. The moving plant and equipment and HGVs travelling along the construction access track and south along the B6478 Hallgate Hill would be apparent in short-distance views, although vehicle movements would be substantially reduced during the commissioning phase. Visual disturbance would also occur at the end of the commissioning phase due to the removal of the tarmac construction access track and other reinstatement activities including removal of fencing, land reprofiling, and reinstatement of grassland and field boundaries. The construction activities would result in a noticeable alteration to key characteristics of the view and the introduction of uncharacteristic features across a moderate part of the view. These high sensitivity visual receptors would experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

194) Representative viewpoints not significantly affected – Recreational users within Open Access Land (T3/20) would have open and elevated long-distance views to the south-east to the Newton-in-Bowland Compound in a small proportion of the view. The upper part of the compound would be visible before the land drops away to the River Hodder valley obscuring construction activity and construction access tracks on the south-facing slope. Specific changes, which would be seen in the long distance, would result from the visual presence of the retained construction compound on the ridge and from the visual disturbance and movement associated with localised open-cut excavations and pipelaying near the existing valve house buildings. Reinstatement activities, including removal of fencing and hoarding,

removal of the temporary compound surfacing, land reprofiling, and reinstatement of grassland and field boundaries, would be undertaken on completion of the commissioning activities. Enabling works activities would result in a perceptible change which would alter the key characteristics across a small part of the rural view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

195) Residential viewers, recreational users of a footpath and travellers on a local road (T3/26) would have partially filtered, short-distance views south-west to the Newton-in-Bowland Compound in a small proportion of the view. The locally rising topography would partially obscure views into the compound, although the taller parts of moving plant and equipment would be seen on the skyline. Most of the compound would be hidden as the land drops away to the River Hodder valley. Residential viewers, recreational users of local public footpaths, the Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, and travellers on the local road (T3/42, T3/43, T3/44 and T4/01) would have open and elevated long-distance views to the north-west to the Newton-in-Bowland Compound in a small proportion of the view. Viewpoint locations (T3/43, T3/44, T4/01 and T4/04) would also have views to the Newton-in-Bowland construction access track.

196) Specific changes during the enabling works for the construction compound and access track would result from the visual disturbance associated with the construction access track within the compound, hoarding and fencing installation, site preparation, localised soil-stripping and soil storage mound formation. The enabling works at the Newton-in-Bowland Compound would be perceptible but would not alter the overall balance of features that comprise the existing view. Specific changes would result from the visual presence of the construction access track and compound. Visual disturbance, which would be seen in the long distance, would result from the movement associated with localised open-cut excavations and pipelaying near the existing valve house building. Reinstatement activities would be perceptible across the compounds, including removal of the construction access track and reinstatement, removal of fencing and hoarding, and removal of the temporary compound surfacing. Land reprofiling and reinstatement of grassland and field boundaries would be undertaken on completion of the commissioning activities. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

197) There would be no change to the view during the Commissioning Phase, due to a combination of intervening topography, built form and vegetation, from the following viewpoint locations: T3/21, T3/22, T3/25, T3/27, T3/31, T3/40, T3/41, T3/45.

Table 6.16: Summary of Commissioning Phase Landscape Effects

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
G3. Upper Hodder LCA	High	A substantial and uncharacteristic change to a large proportion of the landscape.	Short- to medium-term / reversible Adverse	Major	Major Adverse (Significant)
4d. Bowland Gritstone Fringes LCA 5a. Upper Hodder Valley LCA D13. Park House LCA I3. Hindburndale LCA	High	A substantial and uncharacteristic change to a moderate proportion of the landscape.	Short- to medium-term / reversible Adverse	Moderate	Major Adverse (Significant)
10b. North Bowland Valleys LCA B9. Goodber Common LCA	High	A noticeable and uncharacteristic change to a moderate proportion of the landscape.	Short- to medium-term / reversible Adverse	Moderate	Moderate Adverse (Significant)
C9. Newton and Birkett LCA	High	A minor and uncharacteristic change to a large proportion of the landscape.	Short- to medium-term / reversible Adverse	Moderate	Moderate Adverse (Significant)
D5. Beatrix to Collyholme LCA 2b. Central Bowland Fells LCA	High	A noticeable and uncharacteristic change to a small proportion of the landscape.	Short- to medium-term / reversible Adverse	Minor	Moderate Adverse (Significant)
4e. Bowland Limestone Fringes LCA	High	A perceptible and uncharacteristic change to a small proportion of the landscape.	Short- to medium-term / reversible Adverse	Minor	Slight Adverse
1b. High Bowland Plateaux LCA 5j. North Bowland Fringes LCA	High	A barely perceptible and uncharacteristic change to a	Short- to medium-term / reversible	Negligible	Slight Adverse

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
B7. Langdon LCA C3. Easington LCA D2. Tatham LCA E3. Forest of Mewith LCA		small or very small proportion of the landscape.	Adverse		
2d. Waddington Fell LCA L1. Harrop Fold LCA	High	A barely perceptible and uncharacteristic change to a very small proportion of the landscape.	Short- to medium-term / reversible Adverse	Negligible	Negligible
13b. Bentham-Clapham LCA 14a. Slaidburn-Giggleswick LCA B8. Crossdale to Lythe LCA I2. Roeburndale LCA I6. Upper Hodder LCA K2. Lower Tatham LCA	High	No discernible change to the landscape.	N/A	No Change	No Change

Table 6.17: Summary of Commissioning Phase Visual Effects – Lower Houses Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/05b Lower Houses Farm, North Bowland Traverse Long distance path, Lancaster FP 21	High	A dominant and uncharacteristic change across a large proportion of the view.	Short-term / reversible	Major	Major Adverse (Significant)

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/07 North Bowland Traverse Long distance path, Lancaster FP 23 T3/08 Lancaster FP 22 T3/10 North Bowland Traverse Long distance path, Lancaster FP 21, local moor road T3/16a Open Access Land T3/16b Overhouses (farm) Lancaster FP 22, FP 25, FP 26					
T3/07a North Bowland Traverse Long distance path, Lancaster PRoW FP22, FP23, FP44, Park House Lane	High	A noticeable and uncharacteristic change across a moderate part of the view.	Short-term / reversible	Moderate / minor	Moderate adverse (Significant)
T3/02 The Hill Farmhouse, Grade II Listed, Spen Lodge, Lancaster FP 64, FP 34, Spen Brow T3/09 Lancaster FP 19 T3/17 Higher Stock Bridge Farmhouse, Grade II Listed, Lancaster FP 29 and surrounding footpath network, High Road	High	A perceptible and uncharacteristic change across a small part of the view.	Short-term / reversible	Minor	Slight adverse
T3/01 Residential properties Oak Head, Oak Head Bank and surrounding properties, Lancaster FP 33, FP 34 and the surrounding footpath network T3/03 Birks Farmhouse, Grade II Listed, Lancaster FP 18 T3/04 Park House Farm, High Park House Farmhouse, both Grade II Listed.	High	There would be no view of the commissioning activities due to intervening topography and / or vegetation.	N/A	No Change	No Change

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/5a Lancaster FP 18, un-named moor road T3/06 Lancaster FP 40 T3/11 Leyland Farm, North Bowland Traverse Long distance path, Lancaster FP 1 and FP3 T3/12 North Bowland Traverse Long distance path, Scale Farm, Lancaster FP 1 and FP 2 T3/13 Outhwaite Farmhouse, Grade II Listed, Lancaster FP 6 T3/14 Barkin Gate (farm) Back Farm and surrounding residential properties, Lancaster FP 10, Moor Lane, T3/15 Stauvin Farmhouse, Lancaster FP 1 T3/18 Settlement of Lowgill, including Low Gill Hall and other Grade II Listed buildings, Lancaster FP 56, FP 56a, FP 57, Lowgill Lane T3/19 Ivah Farmhouse, Grade II Listed, Lowgill Lane					

Table 6.18: Summary of Commissioning Phase Visual Effects – Newton-in-Bowland Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/29 The Heaning (Farm), Ribble Valley FP 15 T3/30 Fober Farm, Dunsop Road T3/33 The Hodder Way and the Pendle Witches Way Long distance paths, Ribble Valley FP 31 and the surrounding footpath network T3/34 Long Stripes Farmhouse, Grade II Listed, Ribble Valley FP 26 and the surrounding footpath network T3/35 Residential properties Farrowfield and surrounding properties, the Hodder Way Long distance path, Ribble Valley FP 35, FP 40, FP 43 and the surrounding footpath network, Easington Road T3/36 The Hodder Way Long distance path, Ribble Valley FP 26, Hallgate Hill	High	A dominant and uncharacteristic change across a large proportion of the view.	Short-term / reversible	Major	Major Adverse (Significant)
T3/24 Crawshaw Farm, Ribble Valley FP 11 T3/28 Newton settlement edge, Newton Road to Dunsop Bridge T3/32 The Pendle Witches Way Long distance path, Ribble Valley FP 31 and the surrounding footpath network	High	A noticeable and uncharacteristic change across a moderate part of the view.	Short-term / reversible	Moderate / minor	Moderate adverse (Significant)

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/37 Newton Hall, Grade II* Listed, Hodderbank, Newton settlement T3/38 The Hodder Way Long distance path, Ribble Valley FP 26 T3/39 Ribble Valley FP 36 T4/03 Newlaithe Farm, Ribble Valley FP 43 T4/05 B4678 Slaidburn Road					
T3/20 Beatrix Fell, Burn Fell, Open Access Land T3/26 Brown Hills Farm, Ribble Valley FP 14, Back Lane T3/42 Smelthwaites Farm, Standridge Barn, Ribble Valley FP 36 and surrounding footpath network T3/43 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T3/44 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T4/01 Wyndfell Farm, B4678 Slaidburn Road T4/04 Ing Barn, Easington Road	High	A perceptible and uncharacteristic change across a small part of the view.	Short-term / reversible	Minor	Slight adverse

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/21 Burn House Farm, Burn House Cottage, and surrounding farms, Ribble Valley FP 1 and the surrounding footpath network T3/22 Hay Farm, The Hay Barn, and surrounding farms, Ribble Valley FP 1 and the surrounding footpath network T3/25 Gamble Hole Farm, Ribble Valley FP 10 T3/27 Ribble Valley FP 12, FP14 T3/31 Ribble Valley FP 27 and the surrounding footpath network T3/40 Properties within Easington, Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17, FP 18 T3/41 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17 T3/45 Hillhouse Farm	High	There would be no view of the commissioning activities due to intervening topography and / or vegetation.	N/A	No Change	No Change

6.6.4 Operational Phase

198) The following section describes the effects of the Proposed Bowland Section on landscape and visual receptors during the operational phase.

199) Effects during the Operational Phase are more fully described in Appendix 6.4: Schedule of Landscape Effects and Appendix 6.5: Schedule of Visual Effects.

200) The summary of Operational Phase effects is shown in Table 6.19 to Table 6.24 below.

Predicted Impacts

201) The main impacts on landscape character and people's views that would arise during the Operational Phase are:

- Visual impacts of a new permanent valve house building located in the vicinity of the existing valve house building
- Changes to character and views locally due to removed trees, hedgerows and other vegetation.

Landscape Effects:

Year 1 of Operation

202) LCAs 4d. Bowland Gritstone Fringes, 4e. Bowland Limestone Fringe, 5a. Upper Hodder Valley, D13. Park House, G3. Upper Hodder and I3. Hindburndale would be directly and indirectly affected by the presence of above-ground features and vegetation loss at the Lower Houses and Newton-in-Bowland compounds.

203) At year 1, the commissioning works would have ceased, and the uncharacteristic elements introduced during the enabling Works, Construction and Commissioning phases would no longer be present in the landscape. Landscape features including stone walls and fences would be reinstated and new hedgerows would be establishing, restoring the original field pattern. The local landscape profiles would have been reinstated and the grass sward established, except where the permanent access tracks would be required for operational use. The diverted PRoW network at the affected compounds would be reinstated to its original alignment.

204) Through careful placement of surplus material within the Proposed Lower Houses Compound the new contouring would be integrated with the surrounding slightly undulating and falling topography and would not adversely alter the local topography. The grass seeding would have established sufficiently to integrate the area with the surrounding grass sward.

205) Changes within the assessment area would arise from the introduction of one additional valve house building at each of the Lower Houses and Newton-in-Bowland compounds. The new valve house buildings, located alongside the existing valve house buildings, would be built to an appropriate vernacular design. These would be similar to the existing valve house buildings and characteristic of the existing rural landscape. There would also be a requirement for new access roads and air valves, although these would be small and discreet new features.

206) Direct impacts due to the loss of existing vegetation, such as trees, shrubs and hedgerows, would remain. The mitigation planting introduced during the Commissioning Phase would not be fully established at this stage and would provide only limited contribution to integration, enclosure or screening at Year 1.

207) Due to the limited contribution of the mitigation planting, the presence of the above-ground features and the loss of vegetation undertaken at the enabling works phase, there would be a minor and predominantly characteristic change to a small proportion of the landscape, which would be experienced over the long term. These high sensitivity landscape receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

208) LCAs 2b. Central Bowland Fells, 10b. North Bowland Valleys, B9. Goodber Common and D5. Beatrix to Collyholme would be indirectly affected by the above-ground features at the Lower Houses and Newton-

in-Bowland compounds during the Operational Phase at year 1. This would include views towards the introduced valve house buildings, access roads and air valves within their landscape setting. Mitigation planting introduced during the commissioning phase would have a limited contribution to integration and screening at this stage.

209) Due to the proximity of the above-ground features and vegetation loss at ear 1, these LCAs would have a minor and predominantly characteristic change to a small or very small proportion of the landscape, which would be experienced over the long term. These high sensitivity receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

210) LCAs 1b. High Bowland Plateaux, 5j. North Bowland Fringes, B7. Langdon, C3. Easington, C9. Newton and Birkett , D2. Tatham and E3. Forest of Mewith would also be indirectly affected by the presence of above-ground features and vegetation loss within their landscape setting.

211) Due to the more distant presence of the above-ground features and vegetation loss at year 1, these LCAs would experience a barely perceptible and predominantly characteristic change to a small or very small part of the landscape, which would be experienced over the long term. These high sensitivity receptors would therefore experience a negligible magnitude of effect, resulting in a slight adverse significance of effect.

212) LCAs 2d. Waddington Fell, 13b. Bentham-Clapham, 14a. Slaidburn-Giggleswick, B7. Langdon, B8. Crossdale to Lythe, I2. Roeburndale, I6. Upper Hodder and K2. Lower Tatham, L1. Harrop Fold would continue to experience a negligible or no discernible change to their landscape during the Operation Phase at year 1. These high sensitivity landscape receptors would therefore be subject to no significant effect.

Year 15 of Operation

213) LCAs 4d. Bowland Gritstone Fringes, 4e. Bowland Limestone Fringe, 5a. Upper Hodder Valley, D13. Park House, G3. Upper Hodder and I3. Hindburndale would be directly and indirectly affected by the presence of the above-ground features at the Lower Houses and Newton-in-Bowland compounds, which would be experienced as a permanent change 15 years into operation.

214) Maturing mitigation planting would help to replace existing vegetation removed during the enabling works phase and would provide some integration, enclosure and screening of introduced structures and features into the surrounding landscape. However, some of the introduced above-ground structures, such as valve house buildings, air valves and access roads, would remain partially present within a very small proportion of the landscape. Restored pasture and reinstated hedgerows would have established sufficiently to restore the character locally, and the introduced above-ground features would be characteristic of the existing compounds. These high sensitivity landscape receptors would therefore experience a negligible magnitude of effect, resulting in a negligible significance of effect.

215) The remaining affected LCAs would continue to have barely perceptible views towards the above-ground features at the Lower Houses and Newton-in-Bowland compounds. At year 15, maturing mitigation planting would help to replace existing vegetation removed during the enabling works phase and would provide some integration of introduced features, such as the new valve house buildings, with the surrounding landscape. There would be a barely perceptible and characteristic change to a small or very small proportion of the landscape, which would be experienced as a permanent change. These high sensitivity landscape receptors would also experience a negligible magnitude of effect, resulting in a negligible significance of effect.

216) LCAs 1b. High Bowland Plateaux, 13b. Bentham-Clapham, 14a. Slaidburn-Giggleswick, B7. Langdon, B8. Crossdale to Lythe, I2. Roeburndale, K2. I6. Upper Hodder, Lower Tatham and L1. Harrop Fold would be subject to no significant effect.

Visual Effects: – Lower Houses Compound

Year 1 of Operation

217) Views and visual receptors within the detailed study area, which could be subject to significant effects, are described below. Refer to the ZTV and the viewpoint locations on Figure 6.1 and Figure 6.2. Additional detail on representative viewpoints is provided in Appendix 6.5: Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7.

218) Representative viewpoints not significantly affected – Residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/05b, T3/07a, T3/07, T3/08, T3/10, T3/16a and T3/16b) would be close to the compound with partially screened views and some filtering provided by the few surrounding hedgerows to the Lower Houses Compound. On completion of the construction and commissioning activities and reinstatement of agricultural field boundaries a perceptible change would remain while the grassland and rush characteristics establish. The small area of reinstated hedgerow would not be fully established at this stage and would provide only limited screening at Year 1. The new valve house building would be partially visible on the skyline from most locations and seen in the context of the existing valve house buildings on the skyline, and would be largely characteristic of the view. The changed views would result in a perceptible change which would alter the key characteristics across a small part of the rural view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

219) Residential viewers, recreational users of footpaths and the North Bowland Traverse long distance path, and road travellers (T3/02, and T3/17) would have open or partially screened middle- to long-distance views towards the Lower Houses Compound. A group of trees west of the Lower Houses farm and the surrounding gently undulating topography would filter or partially screen the Lower Houses Compound. On completion of the construction and commissioning activities and reinstatement of agricultural fields boundaries there would be a barely noticeable change in view from the viewing location. The small area of reinstated hedgerow would not provide integration at Year 1. The new valve house building would be filtered by trees and would be barely noticeable. There would be very limited views from T3/09 and no views to the new valve house building. The changed views would result in a barely noticeable change across a very small part of the rural view. These high sensitivity visual receptors would therefore experience a negligible effect, resulting in a negligible significance of effect.

220) There would be no change to the view due to a combination of intervening topography, built form and vegetation, from the following viewpoint locations: T3/01, T3/03, T3/04, T3/05a, T3/06, T3/11, T3/12, T3/13, T3/14, T3/15, T3/18, T3/19.

Year 15 of Operation

221) By summer of year 15, mitigation planting and grassland would be sufficiently established to reinstate the landscape pattern and provide integration. The new valve house building would be largely characteristic of the view. There would be a barely noticeable change from the following viewpoint locations: T3/02, T3/05b, T3/07a, T3/07, T3/08, T3/09, T3/10, T3/16a, T3/16b, T3/17.

222) There would continue to be no change to the view from the locations as described above.

Visual Effects: – Newton-in-Bowland Compound

Year 1 of Operation

223) Views and visual receptors within the detailed study area, which could be subject to significant effects, are described below. Refer to the ZTV and the viewpoint locations on Figure 6.1 and Figure 6.2. Additional detail on representative viewpoints is provided in Appendix 6.5: Schedule of Visual Effects. Representative viewpoint photographs are shown on Figure 6.7.

224) Residential viewers and travellers on Dunsop Road (T3/30) would be close to and would have open views to the Newton-in-Bowland Compound. Following reinstatement of the dry stone wall field boundary and

reinstatement planting of the hedgerow along Dunsop Road, a noticeable change in view would remain. Views towards the ridgeline would remain open due removal of hedgerow during enabling works, and the new valve house building would be seen on the skyline. The removed hedgerows along Dunsop Road would provide an open and a changed view towards the River Hodder valley. The sections of reinstated hedgerow would not be fully established at this stage and would provide only limited screening at Year 1. The new valve house building would be barely noticeable and, seen in the context of the existing valve house buildings, would be largely characteristic of the view. There would be a noticeable alteration to key characteristics of the view. These high sensitivity visual receptors would therefore experience a moderate magnitude of effect, resulting in a moderate adverse significance of effect.

225) Representative viewpoints not significantly affected – Residential viewers, recreational users of footpaths, including the Hodder Way and Pendle Witches Way long distance paths, and road travellers (T3/29 and T3/33) would have filtered views to the location of the Newton-in-Bowland Compound. The view would be perceptibly open due to the loss of hedgerow within the field and due to the presence of the new valve house building. Residential viewers and travellers along the local road (T3/34 and T3/35) would have short- to middle-distance views to the Newton-in-Bowland Compound. Areas of removed vegetation at the Newton-in-Bowland Compound would be viewed against a backdrop of the existing tree belts and hedgerows. The new valve house building would be perceptible on the skyline although seen in the context of the existing valve house buildings. The changed views would result in a perceptible change which would alter the key characteristics across a small part of the rural view. These high sensitivity visual receptors would therefore experience a minor magnitude of effect, resulting in a slight adverse significance of effect.

226) Residential viewers, recreational users of footpaths and the Tops of the North (Three Shire Heads to Carlisle) long distance path, and road travellers (T3/20, T3/24, T3/26, T3/28, T3/32, T3/36, T3/37, T3/38, T3/39, T3/42, T3/43, T3/44,T4/01, T4/03, T4/04 and T4/05) would generally have substantially screened and / or heavily filtered middle- to long-distance views towards the Newton-in-Bowland Compound. On completion of the construction and commissioning activities and reinstatement of agricultural field boundaries there would be a barely noticeable change in view. The new valve house buildings would be seen from a distance and in the context of the existing valve house buildings. The changed views would result in a barely noticeable change across a very small part of the rural view. These high sensitivity visual receptors would therefore experience a negligible effect, resulting in a negligible significance of effect.

227) There would be no change to the view due to a combination of intervening topography, built form and vegetation, from the following viewpoint locations: T3/21, T3/22, T3/25, T3/27, T3/31, T3/40, T3/41, T3/45.

Year 15 of Operation

228) Representative viewpoints not significantly affected – There would continue to be a slight adverse effect on views from the following locations due to the presence of the new valve house building close to and silhouetted above the skyline: T3/30, T3/33, T3/34.

229) By summer of year 15, mitigation planting and grassland would be sufficiently established to reinstate the landscape pattern and provide integration. The new valve house buildings would be largely characteristic of the view. There would be a barely noticeable change and a negligible effect from the following viewpoint locations: T3/20, T3/24, T3/26, T3/28, T3/29, T3/32, T3/35, T3/36, T3/37, T3/38, T3/39, T3/42, T3/43, T3/44, T4/01, T4/03, T4/04, T4/05.

230) There would continue to be no change to the view from the locations as described above.

Table 6.19: Summary of Operational Phase Landscape Effects (Year 1)

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
4d. Bowland Gritstone Fringes LCA 4e. Bowland Limestone Fringes LCA 5a. Upper Hodder Valley LCA D13. Park House LCA G3. Upper Hodder LCA I3. Hindburndale LCA 2d. Waddington Fell LCA 2b. Central Bowland Fells LCA 10b. North Bowland Valleys LCA B9. Goodber Common LCA D5. Beatrix to Collyholme LCA	High	A minor and predominantly characteristic change to a small or very small proportion of the landscape.	Long-term / reversible Adverse	Minor	Slight Adverse
1b. High Bowland Plateaux LCA 5j. North Bowland Fringes LCA B7. Langdon LCA C3. Easington LCA C9. Newton and Birkett LCA D2. Tatham LCA E3. Forest of Mewith LCA	High	A barely perceptible and predominantly characteristic change to a small or very small proportion of the landscape.	Long-term / reversible Adverse	Negligible	Slight Adverse
L1. Harrop Fold	High	A minor and uncharacteristic change to a very small proportion of the landscape.	Short-term / reversible Adverse	Negligible	Negligible

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
13b. Bentham-Clapham LCA 14a. Slaidburn-Giggleswick LCA B8. Crossdale to Lythe LCA I2. Roeburndale LCA I6. Upper Hodder LCA K2. Lower Tatham LCA	High	No discernible change to the landscape.	N/A	No Change	No Change

Table 6.20: Summary of Operational Phase Landscape Effects (Year 15)

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
2b. Central Bowland Fells LCA 2d. Waddington Fell LCA 4d. Bowland Gritstone Fringes LCA 4e. Bowland Limestone Fringes LCA 5a. Upper Hodder Valley LCA 5j. North Bowland Fringes LCA 10b. North Bowland Valleys LCA B9. Goodber Common LCA C3. Easington LCA C9. Newton and Birkett LCA D2. Tatham LCA D5. Beatrix to Collyholme LCA D13. Park House LCA E3. Forest of Mewith LCA G3. Upper Hodder LCA	High	A barely perceptible and characteristic change to a small or very small proportion of the landscape.	Permanent / irreversible Adverse	Negligible	Negligible

Environmental / Community Asset	Sensitivity	Effect	Nature of Effect	Magnitude	Significance of Effect (Pre-Mitigation)
I3. Hindburndale LCA					
1b. High Bowland Plateaux LCA 13b. Bentham-Clapham LCA 14a. Slaidburn-Giggleswick LCA B7. Langdon LCA B8. Crossdale to Lythe LCA I2. Roeburndale LCA I6. Upper Hodder LCA K2. Lower Tatham LCA L1. Harrop Fold LCA	High	No discernible change to the landscape.	N/A	No Change	No Change

Table 6.21: Summary of Operational Phase Visual Effects (Year 1) – Lower Houses Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/05b Lower Houses Farm, North Bowland Traverse Long distance path, Lancaster FP 21 T3/07 North Bowland Traverse Long distance path, Lancaster FP 23 T3/07a North Bowland Traverse Long distance path, Lancaster PRoW FP22, FP23 and FP44, Park House Lane T3/08 Lancaster FP 22	High	A perceptible and uncharacteristic change across a small part of the view.	Long-term / reversible	Minor	Slight adverse

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/10 North Bowland Traverse Long distance path, Lancaster FP 21, Local moor road T3/16a Open Access Land T3/16b Overhouses (farm) Lancaster FP 22, FP 25, FP 26					
T3/02 The Hill Farmhouse, Grade II Listed, Spen Lodge, Lancaster FP 64, FP 34, Spen Brow T3/09 Lancaster FP 19 T3/17 Higher Stock Bridge Farmhouse, Grade II Listed, Lancaster FP 29 and surrounding footpath network, High Road	High	A barely noticeable change across a small part of the view.	Long-term / reversible	Negligible	Negligible
T3/01 Residential properties Oak Head, Oak Head Bank and surrounding properties, Lancaster FP 33, FP 34 and the surrounding footpath network T3/03 Birks Farmhouse, Grade II Listed, Lancaster FP 18 T3/04 Park House Farm, High Park House Farmhouse, both Grade II Listed. T3/5a Lancaster FP 18, un-named moor road T3/06 Lancaster FP 40 T3/11 Leyland Farm, North Bowland Traverse Long distance path, Lancaster FP 1 and FP3	High	There would be no view of the compound due to intervening topography and / or vegetation.	N/A	No Change	No Change

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/12 North Bowland Traverse Long distance path, Scale Farm, Lancaster FP 1 and FP 2 T3/13 Outhwaite Farmhouse, Grade II Listed, Lancaster FP 6 T3/14 Barkin Gate (farm) Back Farm and surrounding residential properties, Lancaster FP 10, Moor Lane, T3/15 Stauvin Farmhouse, Lancaster FP 1 T3/18 Settlement of Lowgill, including Low Gill Hall and other Grade II Listed buildings, Lancaster FP 56, FP 56a, FP 57, Lowgill Lane T3/19 Ivah Farmhouse, Grade II Listed, Lowgill Lane					

Table 6.22: Summary of Operational Phase Visual Effects (Year 15) – Lower Houses Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/02 The Hill Farmhouse, Grade II Listed, Spen Lodge, Lancaster FP 64, FP 34, Spen Brow T3/05b Lower Houses Farm, North Bowland Traverse Long distance path, Lancaster FP 21	High	A barely noticeable change across a small part of the view.	Permanent / irreversible	Negligible	Negligible

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/07 North Bowland Traverse Long distance path, Lancaster FP 23 T3/07a North Bowland Traverse Long distance path, Lancaster PRoW FP 22, FP 23 and FP 44, Park House Lane T3/08 Lancaster FP 22 T3/09 Lancaster FP 19 T3/10 North Bowland Traverse Long distance path, Lancaster FP 21, Local moor road T3/16a Open Access Land T3/16b Overhouses (farm) Lancaster FP 22, FP 25, FP 26 T3/17 Higher Stock Bridge Farmhouse, Grade II Listed, Lancaster FP 29 and surrounding footpath network, High Road					
T3/01 Residential properties Oak Head, Oak Head Bank and surrounding properties, Lancaster FP 33, FP 34 and the surrounding footpath network T3/03 Birks Farmhouse, Grade II Listed, Lancaster FP 18 T3/04 Park House Farm, High Park House Farmhouse, both Grade II Listed. T3/5a Lancaster FP 18, un-named moor road T3/06 Lancaster FP 40	High	There would be no view of the compound due to intervening topography and / or vegetation.	N/A	No Change	No Change

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/11 Leyland Farm, North Bowland Traverse Long distance path, Lancaster FP 1 and FP 3 T3/12 North Bowland Traverse Long distance path, Scale Farm, Lancaster FP 1 and FP 2 T3/13 Outhwaite Farmhouse, Grade II Listed, Lancaster FP 6 T3/14 Barkin Gate (farm) Back Farm and surrounding residential properties, Lancaster FP 10, Moor Lane, T3/15 Stauvin Farmhouse, Lancaster FP 1 T3/18 Settlement of Lowgill, including Low Gill Hall and other Grade II Listed buildings, Lancaster FP 56, FP 56a, FP 57, Lowgill Lane T3/19 Ivah Farmhouse, Grade II Listed, Lowgill Lane					

Table 6.23: Summary of Operational Phase Visual Effects (Year 1) – Newton-in-Bowland Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/30 Fober Farm, Dunsop Road	High	A noticeable and uncharacteristic change	Long-term / reversible	Moderate	Moderate adverse

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
		across a moderate part of the view.			
T3/29 The Heaning (Farm), Ribble Valley FP 15 T3/33 The Hodder Way and the Pendle Witches Way Long distance paths, Ribble Valley FP 31 and the surrounding footpath network T3/34 Long Stripes Farmhouse, Grade II Listed, Ribble Valley FP 26 and the surrounding footpath network T3/35 Residential properties Farrowfield and surrounding properties, the Hodder Way Long distance path, Ribble Valley FP 35, FP 40, FP 43 and the surrounding footpath network, Easington Road T4/05 B4678 Slaidburn Road	High	A perceptible and uncharacteristic change across a small part of the view.	Long-term / reversible	Minor	Slight adverse
T3/20 Beatrix Fell, Burn Fell, Open Access Land T3/24 Crawshaw Farm, Ribble Valley FP 11 T3/26 Brown Hills Farm, Ribble Valley FP 14, Back Lane T3/28 Newton settlement edge, Newton Road to Dunsop Bridge	High	A barely noticeable change across a small part of the view.	Short to medium-term / reversible	Negligible	Negligible

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/32 The Pendle Witches Way Long distance path, Ribble Valley FP 31 and the surrounding footpath network T3/36 The Hodder Way Long distance path, Ribble Valley FP 26, Hallgate Hill T3/37 Newton Hall, Grade II* Listed, Hodderbank, Newton settlement T3/38 The Hodder Way Long distance path, Ribble Valley FP 26 T3/39 Ribble Valley FP 36 T3/42 Smelthwaites Farm, Standridge Barn, Ribble Valley FP 36 and surrounding footpath network T3/43 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T3/44 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T4/01 Wyndfell Farm, B4678 Slaidburn Road T4/03 Newlaithe Farm, Ribble Valley FP 43 T4/04 Ing Barn, Easington Road					

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/21 Burn House Farm, Burn House Cottage, and surrounding farms Ribble Valley FP 1 and the surrounding footpath network T3/22 Hay Farm, The Hay Barn, and surrounding farms, Ribble Valley FP 1 and the surrounding footpath network T3/25 Gamble Hole Farm, Ribble Valley FP 10 T3/27 Ribble Valley FP 12, FP14 T3/31 Ribble Valley FP 27 and the surrounding footpath network T3/40 Properties within Easington, Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17, FP 18 T3/41 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17 T3/45 Hillhouse Farm	High	There would be no view of the compound due to intervening topography and / or vegetation.	N/A	No Change	No Change

Table 6.24: Summary of Operational Phase Visual Effects (Year 15) – Newton-in-Bowland Compound

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/30 Fober Farm, Dunsop Road T3/33 The Hodder Way and the Pendle Witches Way Long distance paths, Ribble Valley FP 31 and the surrounding footpath network T3/34 Long Stripes Farmhouse, Grade II Listed, Ribble Valley FP 26 and the surrounding footpath network	High	A perceptible and uncharacteristic change across a small part of the view.	Permanent / irreversible	Minor	Slight adverse
T3/20 Beatrix Fell, Burn Fell, Open Access Land T3/24 Crawshaw Farm, Ribble Valley FP 11 T3/26 Brown Hills Farm, Ribble Valley FP 14, Back Lane T3/28 Newton settlement edge, Newton Road to Dunsop Bridge T3/29 The Heaning (Farm), Ribble Valley FP 15 T3/32 The Pendle Witches Way Long distance path, Ribble Valley FP 31 and the surrounding footpath network T3/35 Residential properties Farrowfield and surrounding properties, the Hodder Way Long distance path, Ribble Valley FP 35, FP 40, FP 43 and the	High	A barely noticeable change across a small part of the view.	Permanent / irreversible	Negligible	Negligible

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
surrounding footpath network, Easington Road T3/36 The Hodder Way Long distance path, Ribble Valley FP 26, Hallgate Hill T3/37 Newton Hall, Grade II* Listed, Hodderbank, Newton settlement T3/38 The Hodder Way Long distance path, Ribble Valley FP 26 T3/39 Ribble Valley FP 36 T3/42 Smelthwaites Farm, Standridge Barn, Ribble Valley FP 36 and surrounding footpath network T3/43 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T3/44 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Open Access Land Standridge Hill, Ribble Valley FP 17 and surrounding footpath network T4/01 Wyndfell Farm, B4678 Slaidburn Road T4/03 Newlaithe Farm, Ribble Valley FP 43 T4/04 Ing Barn, Easington Road T4/05 B4678 Slaidburn Road					

Environmental / Community Asset	Sensitivity	Effect	Duration	Magnitude	Significance of Effect (Pre-Mitigation)
T3/21 Burn House Farm, Burn House Cottage, and surrounding farms Ribble Valley FP 1 and the surrounding footpath network T3/22 Hay Farm, The Hay Barn, and surrounding farms, Ribble Valley FP 1 and the surrounding footpath network T3/25 Gamble Hole Farm, Ribble Valley FP 10 T3/27 Ribble Valley FP 12, FP14 T3/31 Ribble Valley FP 27 and the surrounding footpath network T3/40 Properties within Easington, Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17, FP 18 T3/41 Tops of the North (Three Shire Heads to Carlisle) Long distance path, Ribble Valley FP 17 T3/45 Hillhouse Farm	High	There would be no view of the compound due to intervening topography and / or vegetation.	N/A	No Change	No Change

Dark Skies

231) The Proposed Newton-in-Bowland Compound is situated in a rural location with occasional residential properties, and within the AONB, and has low levels of artificial lighting. The closest village is Newton-in-Bowland, which is located approximately 500m east of the Proposed Newton-in-Bowland Compound. The village roads are lit with a limited number of 5m post top lights. The Dunsop Bridge Road approaching the compound from Newton-in-Bowland is unlit.

232) The Proposed Lower Houses Compound is situated in a rural location with occasional residential properties, and within the AONB, and has low levels of artificial lighting. The closest village is Wray, which is located approximately 3.8 km north-west of the Proposed Lower Houses Compound. The surrounding moorland roads are unlit.

233) Both compounds are within an area identified by CPRE, The Countryside Charity, as an area with the least amount of 'light blight'. i.e. darkest skies, and within Environmental Zone E1, as described in the International Commission on Illumination. More detail can be found in the Bowland Section Lighting Management Plan. Two 'Dark Sky Discovery Sites' fall within the assessment area; one of them is located at a private business called Clerk Laithe Lodge in Newton-in-Bowland, approximately 700 m from the Proposed Newton-in-Bowland Compound, with the other, Slaidburn visitor car park, located approximately 3 km from the compound. There are no 'Dark Sky Discovery Sites' within the assessment area of the Proposed Lower Houses Compound.

234) The primary objective of lighting during construction activities is to provide a safe illuminated working environment and to provide security lighting. The 45 m high crane at the Proposed Lower Houses Compound would have specific luminaires to light the crane hook when in operation which would be tilted at 0° to light the hook. Aircraft warning lights would also be required on the crane. A full description of mitigation measures to address the potential impact from the construction phase lighting have been set out in the Bowland Section Lighting Management Plan. These range from equipment choice, use of site topography and competent design and site management. The required lighting would be designed to minimise impacts on the surrounding environment, with specific measures described to minimise the impacts on surrounding habitats. This includes limiting the hours of lighting where practicable and directing luminaires into the area to be lit (light from the boundary inwards) and use of cowls to minimise light spill into surrounding areas including watercourses and trees.

6.7 Mitigation and Residual Effects

235) Mitigation is most effective if considered as an integral part of the Proposed Bowland Section design in order to avoid, reduce or offset any adverse effects on the landscape or wider environment. Landscape and visual considerations have been a key input to the iterative design process, and a range of mitigation measures are proposed (refer to Section 6.4.3 and shown on Figure 20.1: Environmental Masterplan). These would include keeping hedges and woodland within compound areas where practicable and narrowing the working width at intersections with field boundaries, tracks, roads, woodland and vegetation belts. This would maintain some benefits of screening by preserving existing features and increase opportunities for protection of root zones of trees to be retained. There is also some flexibility built into the working area to allow for further avoidance of features.

236) Whilst all embedded mitigation and good practice measures described above in Section 6.4.3 would reduce or offset Landscape and Visual effects, some residual effects would remain significant. This is in part due to the location, scale, nature and duration of the Proposed Bowland Section, which means it is only practicable to reduce rather than eliminate significant effects.

237) Major or moderate effects would relate to a detectable loss of nearby vegetation; the presence of temporary construction compounds, construction access tracks and laydown areas; movement of machinery required to manage and operate the activities to support the tunnel boring operations; the presence of 45 m high cranes, and open-cut operations to tie in with the existing Haweswater Aqueduct. Landscape and visual receptors experiencing minor adverse or negligible effects would have some of the views of elements such as construction compounds, construction access tracks and laydown areas.

However, these would not be their primary focus due to a combination of distance, intervening topography and vegetation and, therefore, the effects are typically considered to be less significant.

238) Through careful placement of surplus material within the Proposed Lower Houses Compound the new contouring would be integrated with the surrounding slightly undulating and falling topography, and would not adversely alter the local topography.

239) Due also to the relatively short duration of the construction activities, there is no opportunity to provide additional mitigation that would be beneficial to the Proposed Bowland Section. As such, the level of residual effects assessed for all landscape and visual receptors are the same as those assessed prior to the application of additional mitigation.

240) No further essential mitigation is proposed, and the residual effects are therefore as set out in Section 6.6.

6.8 Cumulative Effects

6.8.1 Inter-development Effects

241) This section provides an overview of the potential cumulative effects from different proposed developments and land allocations, in combination with the Proposed Bowland Section (i.e. inter-project cumulative assessment). Data on proposed third party developments and land allocations contained in development plan documents were obtained from various sources, including local planning authority websites, online searches, and consultations with planning officers. Proposed development data were then reviewed with a view to identifying schemes or land allocations whose nature, scale and scope could potentially give rise to significant environmental effects when considered in combination with the likely effects arising from the Proposed Bowland Section.

242) Intra-project cumulative impacts, i.e. two or more types of impact acting in combination on a given environmental receptor, property or community resource, are considered in Chapter 14: Communities and Health.

243) The over-arching cumulative effects of the Proposed Programme of Works i.e. the five proposed replacement tunnel sections in combination, are considered in Chapter 19: Cumulative Effects. In addition, Chapter 19 examines the cumulative effects associated with the outcomes from Volume 2 (delivery and operation of the main construction compounds, tunnel, and construction traffic routes), Volume 5 (proposed off-site highways works and satellite compounds), and Volume 6 (Proposed Ribble Crossing).

244) Based on professional judgement, it was concluded that there is potential for environmental effects associated with the Proposed Bowland Section to act cumulatively with the Proposed Marl Hill Section development. The following section describes the outcome of this cumulative assessment.

Table 6.25: Summary of Cumulative Effects

Proposed Development	Nature / Scope of Effects	Commentary on Cumulative Effects
Planning application: Ribble Valley Borough Council Proposed Marl Hill Section	Potential for cumulative effects during construction.	<u>Landscape character</u> The Proposed Bowland Section would give rise to a significant landscape effect on 4e. Bowland Limestone Fringes LCA during construction. The combined effects from both schemes would give rise to a greater significance of effect. The Proposed Bowland Section would give rise to a non-significant landscape effect on C9. Newton and Birkett LCA during construction. The combined effects from both schemes would give rise to a significant effect. <u>Visual amenity</u>

Proposed Development	Nature / Scope of Effects	Commentary on Cumulative Effects
		The Proposed Bowland Section would give rise to significant and non-significant effects on visual amenity from viewpoints in the vicinity of the Proposed Newton-in-Bowland Compound. Some residents of rural properties, farmsteads, users of the PRoW, including Long distance paths: The Pendle Witches Way, The Hodder Way, Tops of the North (Three Shire Heads to Carlisle); and travellers on the local road network would have combined views of the Proposed Newton-in-Bowland Compound and the Proposed Bonstone Compound in the foreground, the middle distance or long-distance views. The users of the local road network would have sequential cumulative effects of the two schemes from short sections. From some viewpoints, the combined effects from proposed developments would give rise to a significant effect or greater significance of effect.

6.8.2 **Proposed Bowland Section**

245) The Proposed Bowland Section comprises geographically distinct elements of permanent and temporary infrastructure: the construction compounds (described in this volume of the ES); off-site highways works (Volume 5); and the Proposed Ribble Crossing (Volume 6). This section provides a short summary of the combined effects of these elements of infrastructure on the environment and local communities. Further details are provided in the respective volumes of the ES.

246) Likely significant effects have been identified for the proposed off-site highways works, main construction areas and (for the southern end of the proposed section) the Ribble Crossing. Cumulative effects are envisaged when taking account of the main construction compounds, construction access routes on the local public highway and off-site highways works. It is envisaged that off-site highways works would account for an additional cumulative landscape and visual effects in a broader landscape context.

247) The combination of construction activity and construction traffic movement within the main compounds, proposed off-site highways works and the Ribble Crossing would result in disruption across a wider area of the AONB. The construction compounds and highways improvement works would also result in disturbance to the wider landscape area from vegetation loss and removal of boundary features such as trees, hedgerows and dry stone walls.

248) The disruption caused by the Lower Houses construction compound would affect a small part of the Forest of Bowland AONB. However, in combination with the highways improvement works between the compound and Wray, the disruption from construction activity and the movement of construction vehicles and the loss of landscape features along the off-site highways routes, there would be a greater combined adverse effect landscape quality. Effects from off-site improvement works would be particularly pronounced on open moorland areas near the Proposed Lower Houses Compound and along rural lanes and within wooded valleys where features such as trees and hedgerows would be lost, adversely affecting perceived tranquillity, remoteness and rural character.

249) Disruption caused by the Proposed Newton-in-Bowland Compound, within the River Hodder valley, would affect a small part of the Forest of Bowland AONB. However, in combination with the highways improvement works and the Proposed Ribble Crossing between the compound and Clitheroe, the disruption from construction activity, movement of construction vehicles and the loss of landscape features along the off-site highways routes would have greater combined adverse effect landscape quality. Effects on landscape quality would be particularly pronounced near the settlement of Newton-in-Bowland due to the construction and operation of the Proposed Newton-in-Bowland construction access track and off-site highways improvement works and vehicle traffic on the B6478 Slaidburn Road. The combined effects from off-site highways improvement works and the construction and operation of the Ribble Crossing, located just outside the AONB, would also adversely affect landscape

quality locally, and adversely affect the setting of the AONB. The movement of plant and machinery, along with the construction activities, would reduce the perceived tranquillity, remoteness and rural character, introducing uncharacteristic features and affecting the landscape quality in the short to medium term. These effects would be reversible however, and the landscape areas would be returned to their original uses; trees would be planted and landscape features would be reinstated once construction activity ceases.

250) Visual receptors, both static, e.g. residents, and transient, e.g. footpath users and road travellers would experience a noticeable change in views within the wider area due to the construction related activity and vehicle movement, and removal of features such as trees, hedgerows and dry stone walls. The visual change would be most evident for travellers through the rural areas such as along the B6478 Slaidburn Road and near Waddington due to the frequency of both construction related activity for the highways improvement works and compounds, and the frequency of construction traffic movement during the construction phase. For example, the construction activity and vehicle movement would be seen in combination in the vicinity of the Lower Houses Compound and on open moorlands within the north of the AONB and would adversely affect views and the tranquillity of the wider settled rural area over the short to medium term. At the end of the construction phase, after the reinstatement of highways improvement areas and compound areas, construction vehicle movement would cease and landscape features would be reinstated.

251) Construction activity and vehicle movements would also be seen in combination in the area of the Proposed Newton-in-Bowland Compound and to the south of the AONB in the area of Waddington. The construction activity, which would occur over the short to medium term, would adversely affect views and the tranquillity of the wider settled rural area. For instance, residential properties near Newton-in-Bowland and along the B6478 Slaidburn Road, and footpath users with views of the River Hodder valley to the north would have views of moving construction traffic and the Proposed Newton -in-Bowland Compound, the Proposed Bonstone Compound which would adversely affect views and perceived tranquillity within the settled River Hodder valley.

252) Residential properties within Waddington, along the B6478 Slaidburn Road and along West Bradford Road, and footpath users with views towards the River Ribble valley would have views of moving construction traffic, the Proposed Braddup Compound and the construction and operation of the Ribble Crossing which would adversely affect views and perceived tranquillity to the south of Easington Fell.

6.9 Conclusions

253) This chapter of the ES considered likely significant effects on landscape character and visual amenity associated with construction of the Proposed Bowland Section.

254) The Proposed Bowland Section would have a direct or indirect effect on LCAs and alter people's views during the enabling works phase, the Construction Phase, the Commissioning Phase and the Operational Phase. It is anticipated that due to the scale and nature of the Proposed Bowland Section, there would be significant impacts on landscape character and visual amenity during the construction phases.

255) These effects would reduce once construction activity ceases, although residual significant effects would continue into Year 1 of the Operational Phase for viewers near the Newton-in-Bowland compound at Fober Farm and for users of Dunsop Road (T3/30), as reinstatement of landscape features including hedgerows and trees would not have sufficiently established. The new valve house buildings located alongside existing facilities at the Lower Houses Compound and Newton-in-Bowland Compound would be perceptible new features, keeping in scale and building style to the existing buildings. These new buildings would result in a non-significant change to landscape character and visual amenity. By Year 15, it is anticipated that the reinstated vegetation and other landscape features would be sufficiently established that there would be no residual significant effects.

6.10 Glossary and Key Terms

256) Key phrases and terms used within this technical chapter relating to Landscape and Arboriculture are defined within Appendix 1.2: Glossary and Key Terms.