A417 Missing Link

Preliminary Environmental Information Report

Chapter 7 Landscape and Visual Effects

28 September 2020

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7 Landscape and visual

7.1 Introduction

7.1.1 This chapter sets out the preliminary environmental information relating to the potential landscape and visual effects likely to arise from the construction and operation of the A417 Missing Link (the proposed scheme), following the methodology set out in Design Manual for Roads and Bridges ("DMRB") volume 11, section 3, part 5 “landscape and visual effects”, revision two (LA107)[1].

7.1.2 This chapter sets out the methodology which will be used for the assessment of effects in the landscape and visual impact assessment, the legislative and policy framework related to landscape character and visual amenity, then describes the baseline characteristics and visual resource in the area surrounding the proposed scheme (the study area). Following this, the design, potential mitigation and likely residual effects of the proposed scheme are discussed, along with the limitations of the assessment. Finally, the report sets out suggested monitoring for all likely residual significant effects.

7.1.3 Although closely related, landscape and visual effects will be assessed separately. The landscape assessment will assess the likely changes to the features and characteristics of the landscape, while the visual assessment will assess changes to views and the visual amenity experienced by people.

7.1.4 The LVIA will be undertaken in the context of Highways England’s scheme vision, which looks to create “*a landscape-led highways scheme that would conserve and enhance the special character of the Cotswolds AONB*”. This includes “*reconnecting the landscape*” and “*bring about landscape benefits*”[2]. To help understand what effects the proposed scheme will have on the Cotswolds AONB, each of the AONB’s special qualities will be assessed against the scheme proposals, as part of the landscape assessment.

Definitions of landscape and visual receptors

7.1.5 The Landscape Institute and Institute of Environmental Management and Assessment’s Guidelines for Landscape and Visual Impact Assessment (GLVIA3) Third Edition[3] state:

- “landscape as a resource: “*landscape receptors, including the constituent elements of the landscape, its specific aesthetic or perceptual qualities and the character of the landscape in different areas*”; and
- visual amenity: “*visual receptors, that is, the people who would be affected by changes in views or visual amenity at different places*.”

7.1.6 DMRB LA107 defines landscape character and visual amenity as:

- landscape character: “*a distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse*.”
- visual amenity: “*overall enjoyment of a particular area, surroundings, or views in terms of people's activities - living, recreating, travelling through, visiting, or working*.”

7.2 Competent expert evidence

7.2.1 The landscape and visual specialist holds a BSc in Landscape Design and Ecology and a Master’s in Landscape Architecture. They have worked as a

professional landscape architect for 11 years and are a chartered member of the Landscape Institute. Full details of relevant project experience is provided in PEI report Appendix 1.2 Competent expert evidence.

7.3 Legislative and policy framework

7.3.1 As discussed in Chapter 1 Introduction, the primary basis for deciding whether to grant a Development Consent Order (DCO) is the National Policy Statement for National Networks (NPSNN)[4], which sets out policies to guide how DCO applications should be decided and how the effects of national networks infrastructure are considered. Table 7-1 NPSNN policies relevant to Landscape and Visual Impact Assessment (LVIA) identifies the NPSNN policies relevant to the LVIA and then specifies where in the PEI report chapter information is provided to address the policy.

Table 7-1 NPSNN policies relevant to LVIA

Relevant NPSNN paragraph reference	Requirement of the NPSNN	Where in the PEI report chapter is information provided to address this policy.
5.144	The NPSNN notes that where a development is subject to an Environmental Impact Assessment (EIA), an assessment of any significant landscape and visual impacts should be undertaken by the applicant within the EIA and described within the ES.	This policy is addressed by the assessment of landscape and visual effects within this chapter.
5.146-148	The Applicant's assessment should consider any relevant national and local development policies, significant effects during construction and operation, and visibility and conspicuousness.	This policy is addressed by the inclusion and consideration of existing relevant policies in the LVIA Policy and Guidance (Appendix 7.1).
5.147	Compliance with the respective duties in section 11A of the National Parks and Access to Countryside Act 1949[5] and section 85 of the Countryside and Rights of Way Act 2000[6] is required.	Section 11A of the National Parks and Access to Countryside Act 1949 states that "*fostering the economic and social well-being of local communities within the National Park*…" while also conserving and enhancing the natural beauty, wildlife and cultural heritage of the area. If a conflict arises, the greater weight shall be attached to conserving and enhancing the area. This is addressed in the landscape led Environmental Masterplan Figure 7.9). Section 85 of the Countryside and Rights of Way Act 2000[7] is addressed by conserving and enhancing the natural beauty of the Area of Outstanding Natural Beauty (AONB) through the design enhancements as part of the proposed scheme. See Environmental Masterplans (Figure 7.9).
5.148	*"Significant road widening or the building of new roads in an AONB should comply with the requirements set out in Defra's English national parks and the broads: UK government vision and circular 2010 or successor documents."*	These requirements link to s5(1) of the National Parks and Access to Countryside Act 1949 (conserving and enhancing the natural beauty, wildlife and cultural heritage). See Environmental Masterplan

Relevant NPSNN paragraph reference	Requirement of the NPSNN	Where in the PEI report chapter is information provided to address this policy.
		(Figure 7.9), and section 7.9 Mitigation and Enhancement Measures.
5.149	The NPSNN seeks careful design, having regard to siting, operational and other constraints, in order to avoid or reduce landscape harm and to provide reasonable mitigation where possible and appropriate.	The design of the proposed scheme is landscape led, as set out in sections 1 and 2. See Environmental Masterplans (Figure 7.9), and section 7.9 Mitigation and Enhancement Measures.
5.150-153	Great weight should be given to conserving landscape and scenic beauty in nationally designated areas. These areas have the highest status of protection in relation to landscape and scenic beauty. In decisions, the Secretary of State has a statutory duty to have regard to the statutory purposes which help ensure their continued protection. The Secretary of State should refuse development consent except in exceptional circumstances and where it can be demonstrated that it is in the public interest. For any significant road widening or the building of new roads in these areas, compelling reasons for the new or enhanced capacity are required, and with any benefits outweighing the costs significantly. The applicant should ensure the project would be carried out to high environmental standards and where possible include measures to enhance other aspects of the environment. Where necessary, the Secretary of State should consider the imposition of appropriate requirements to ensure these standards are delivered.	See Environmental Masterplans (Figure 7.9), and section 7.9 Mitigation and Enhancement Measures.
5.156	The NPSNN states that local landscape designations should not be used in themselves as reasons to refuse consent.	There are no relevant local landscape designations within the 3km study area, so have not been considered within the LVIA.
5.157	The NPSNN states: "*In taking decisions, the Secretary of State should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by reasonable mitigation*."	The scheme design vision, as agreed with stakeholders and consultees sets out how the proposed scheme should be judged, taking into account its setting within a designated landscape. The scheme vision has informed the design process throughout is the reason for including features such as the Cotswold Way crossing and Gloucestershire Way crossing, greened structures, the Air Balloon Way, landscape bunding and wider planting than would be expected on a typical road project, see Environmental Masterplans (Figure 7.9) and

Relevant NPSNN paragraph reference	Requirement of the NPSNN	Where in the PEI report chapter is information provided to address this policy.
		section 7.9 Mitigation and Enhancement Measures.
5.158	The NPSNN states: "*The Secretary of State would have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development*."	Communities and other sensitive visual receptors have been assessed in a transparent way to help the Inspectorate make an informed decision about the visual effects of the proposed scheme.
5.160	The NPSNN states: "*Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure, design (including choice of materials), and landscaping schemes, depending on the size and type of proposed project. Materials and designs for infrastructure should always be given careful consideration*."	DMRB LA107 acknowledges that road infrastructure can have environmental effects. Using the scheme vision to inform the design process has resulted in a proposed scheme that would have measurably reduced effects on the landscape and visual resource.
5.84	The NPSNN states: "*Where the development is subject to an Environmental Impact Assessment, the applicant should assess any likely significant effects on amenity from emissions of…artificial light and describe these in the Environmental Statement*."	Responding to the proposed schemes setting within the Cotswolds AONB and associated dark skies aspiration, the proposed scheme is unlit. A night-time assessment has also been carried out as part of the LVIA.
5.86	The NPSNN advises the applicant to consult the relevant local planning authority about the scope and methodology of the assessment.	The local authorities and statutory consultees have been consulted on the scope and methodology of the assessment at Technical Working Groups, during statutory consultation and in some circumstances on a one to one basis via email or meeting.

7.3.2 Other relevant national and local policies have been considered as part of the LVIA where these have helped identify receptors and their sensitivity; the assessment methodology; the potential for significant environmental effects; and required mitigation. These policies include:

- The National Planning Policy Framework (NPPF)[8] –outlines how development should contribute to conserving, protecting and enhancing the natural, built and historic environment. The NPPF states that developments should protect and enhance public rights of way and access (paragraph 98). On promoting sustainable transport, great weight is to be given to conserving landscape and scenic beauty (paragraph 172).
- A Green Future: Our 25-year plan to improve the environment[9] – introduces the goals for thriving wildlife and plants, enhanced beauty and engagement with the natural environment and mitigating climate change.
- Cotswold District Council[10] Local Plan 2011 – 2031 – Policy EN4 The Wider Natural and Historic Landscape, policy EN5 Cotswolds AONB, and policyEN6 Special Landscape Areas. These policies outline where development should

be sensitive to their surroundings and enhance significant landscape features including key views, settlement patterns and the special qualities of the AONB.

- Joint Core Strategy[11] – Policy SD4 outlines design requirements so that material choice enhance local distinctiveness and establish a strong sense of place. Policy SD5 ensures the green belt continues to serve its function. Policies SD6, SD7, SD8 and INF3 combine to state that development should seek to protect the landscape character and environment.
- Pre-submission Tewkesbury Borough Plan[12] - provides site options for future development and draft policies for those areas not covered by national guidance or the Joint Core Strategy [13].
- Cotswolds AONB Management Plan 2018 – 2023[14] – sets out the Cotswolds Conservation Board vision and the outcomes to achieve these.

7.3.3 Appendix 7.1 LVIA Policy and Guidance will provide full details of all relevant policies and guidance.

7.4 Assessment methodology

7.4.1 The method for assessing landscape and visual effects is based on the principles set out in the Design Manual for Roads and Bridges (DMRB) LA107 Landscape and Visual Effects, Rev 0. Guidance is also taken from the Landscape Institute's Guidelines for Landscape and Visual Impact Assessment, 3rd edition (GLVIA3), summary of combined method is as follows:

- defining the purpose and scope of assessment, including the study area;
- establishing the baseline;
  - undertaking a desk-based study;
  - undertaking a field study to support the assessment;
- identification of the receptors - classification/description of landscape character types/areas, establishing the visual amenity and view as experienced by people;
- identification and description of likely significant effects on the receptors (landscape character, visual amenity and views);
- make judgements on sensitivity and magnitude of effect to the proposals;
- identification of mitigation;
- combine the mitigation with the scheme proposals to systematically and transparently assess the level (and significance) of landscape and visual effects, by combining the receptor's sensitivity (its susceptibility and value) and the magnitude of effect (a combination of the scale of effect, geographical extent, duration and reversibility); and
- make judgements on the likely significance of effects identifying them as either adverse or beneficial.

7.4.2 In addition to the DMRB LA107 and GLVIA3, the LVIA also follows guidance set out in the following documents:

- Highways England, July 2019. The Design Manual for Roads and Bridges LA101 Introduction to environmental assessment, Rev 0;
- Highways England, July 2019. The Design Manual for Roads and Bridges LA104 Environmental assessment and monitoring, Rev 1;
- Landscape Institute (2017) Visual representation of development proposals, Technical Guidance Note 06/19; and
- Natural England (2014). An approach to Landscape Character Assessment.

7.4.3 Where different approaches to undertaking the LVIA are available, between DMRB LA107 and GLVIA3, as DMRB LA107 has been based on GLVIA3, in most cases, GLVIA3 will take precedence.

Approach to identification of the study area

7.4.4 DMRB LA107 states that in establishing the study area, it should be suitable and proportionate for this specific project.

7.4.5 To establish the study area, a desk study was undertaken to review mapping and literature in order to gather an understanding of the context which surrounds the proposed scheme – the landscape character, visual resources, key features or views, and who or what might be affected by the proposed scheme. This included a review of Ordnance Survey mapping, several Landscape Character Assessments at a regional and local level, and the identification of any key designations that may be impacted by the proposed scheme.

7.4.6 Digital data was collected for a wide area around the proposed scheme including topography, woodland cover, landscape, ecological and heritage designations, historic landscape characterisation, landscape character and land uses.

7.4.7 The topographic data, in the form of a digital surface model was used in combination with a 3D model of the proposed scheme to establish the extent of areas where views of the proposed scheme might be experienced. This process, known as the Zone of Theoretical Visibility (ZTV) helps to identify areas that may experience visibility of the proposed scheme. This analysis informed the extent of the study area, as illustrated in Figure 7.1 Visibility and Viewpoints (Consultation). Using the ZTV, in addition to thorough desk-study and field work, it was determined that significant effects would more likely occur within approximately 3 kilometres from the site. Beyond this distance, significant effects are unlikely to arise.

7.4.8 The study area includes the site and the wider landscape around it, up to 3 kilometres from the mainline of the proposed scheme, which may be potentially influenced in a significant manner.

Approach to identification of baseline conditions

7.4.9 The landscape and visual baseline was established by initially undertaking a literature review of relevant legislation, policy, guidelines and published landscape character assessments, along with developing a Zone of Theoretical Visibility for the 3km study area, based on the topography of the receiving landscape and the scheme proposals. The ZTV highlighted areas within the study area which were likely to experience the greatest visual change as a result of the proposed scheme. This allowed representative viewpoints to be selected in consultation with the project stakeholders and statutory consultees.

7.4.10 A programme of site visits was undertaken to establish and confirm the baseline condition for both landscape and visual receptors. This involved site surveys recording landscape character descriptions and features of importance using digital survey sheets linked to a database and recording the available visual resource from the selected viewpoints.

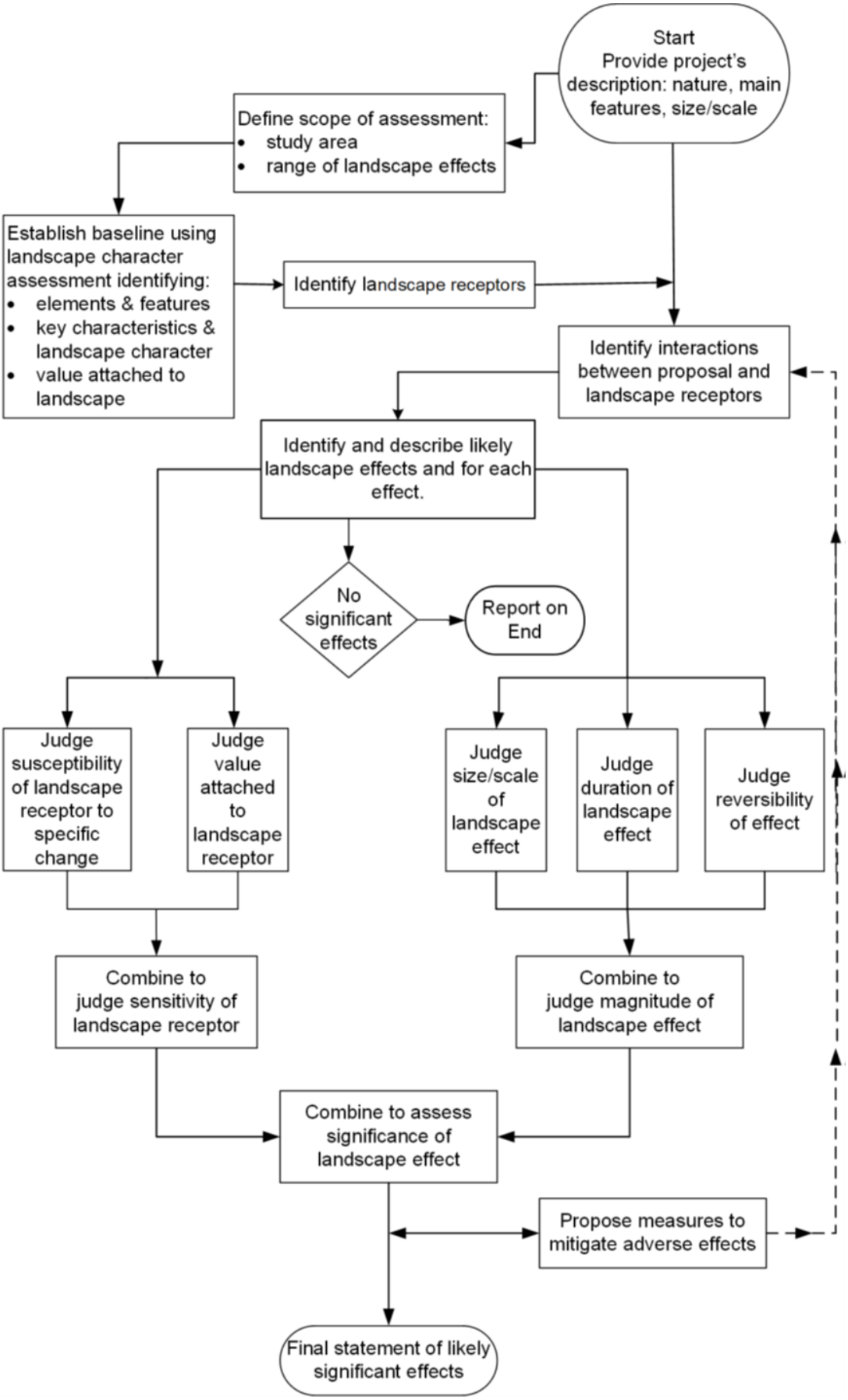
7.4.11 Please refer to section 7.7 for full details of the baseline conditions.

7.4.12 The following baseline studies have been carried out to inform the LVIA:

- desk study and computer based visual analysis (ZTV as detailed below in section 1.11);
- consultation with statutory consultees, stakeholders and members of the public (refer to Chapter 1, section 1.6 Stakeholder Engagement for further information);
- field studies to familiarise and record existing site conditions (landscape character, views and visual resource), establish and identify receptors and characterise the landscape within the study area, including identifying constituent elements, condition of landscape features, experience, and geographical extent and value of the landscape and visual resource;
- preparation of figures, based on data obtained during both the desk and field studies, including:
  - Figure 7.1 Visibility and Viewpoints;
  - Figure 7.3 Designations;
  - Figure 7.4 AONB Landscape Character Types;
  - Figure 7.5 Historic Landscape Characterisations;
  - Figure 7.7 CPRE Dark Skies Mapping;
  - Figure 7.8 CPRE Tranquillity Mapping;
  - Figure 7.9 Environmental Masterplan; and
  - Figure 7.10 Photosheets.

Landscape assessment methodology

7.4.13 To make judgments on the likely significance of effect on landscape receptors requires consideration of the nature of the receptor (sensitivity) and the nature of the effect on those receptors (magnitude of effect), and how sensitivity and magnitude of effect interrelate to form a professional judgement on the overall level of effect and if this is judged to be significant or not. This process is shown in the following flow diagram taken from DMRB LA107:



Extract 7-1 Steps in assessing landscape effects (DMRB LA107 figure 3.17)

Landscape sensitivity

7.4.14 As stated in DMRB LA107, sensitivity is a combination of a landscape receptor's susceptibility to change and the value attributed to the receptor.

Susceptibility of landscape receptors

7.4.15 DMRB LA107 comments that the assessment of susceptibility to change should be tailored to the proposed scheme. GLVIA3 defines susceptibility as:

"the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed scheme without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies" (GLVIA3 paragraph 5.40).

7.4.16 The LVIA will focus on the landscape receptor's ability to accommodate to construction activities and operational effects of large-scale road infrastructure, including a multi lane dual carriageway, junctions, sideroads, loss of existing landscape features including woodland, hedgerows, field boundaries, the A436 link road and associated features. Effects of decommissioning are not being assessed, as once built the road infrastructure will be present of over 40 years, considered permanent.

7.4.17 Judgements on susceptibility of receptors will be recorded as high, medium or low, as set out in Table 7-2 susceptibility of landscape receptors. Note that a receptor's sensitivity can be attributed to any of the typical descriptions below and do not need to meet all within the category.

Table 7-2 Susceptibility of landscape receptors

Susceptibility	Typical description
High	The landscape receptor is less able to accommodate large scale road infrastructure, such as road widening, dual carriage way, overbridges and junctions, without undue adverse consequences for landscape character. Attributes that make up the character of the landscape offer limited opportunities for accommodating such features. Landscapes with no or limited ability to accommodate change of the type being proposed without incurring substantial loss/gain.
Medium	The landscape receptor has some ability to accommodate large scale road infrastructure, such as road widening, dual carriage way, overbridges and junctions, without undue adverse consequences for landscape character. Attributes that make up the character of the landscape offer some opportunities for accommodating such features. Landscapes which are able to accommodate some change of the type being proposed.
Low	The landscape receptor is more able to accommodate large scale road infrastructure, such as road widening, dual carriage way, overbridges and junctions, without undue adverse consequences for landscape character. Attributes that make up the character of the landscape are more resilient to being changed by these features. Local landscape areas or receptors with ability to accommodate change of the type being proposed.

Table based on guidance set out in GLVIA3 – para 5.40 susceptibility to change

Landscape value

7.4.18 The second part of judging a receptor's sensitivity is to determine its value. This will be done with reference to designation and the level of policy importance that they signify and the application of criteria that indicates value, such as landscape or scenic quality, conservation interest, recreational value, or perceptual and cultural associations.

7.4.19 Judgements on value will be recorded as being of national, regional or community value. Although the proposed scheme is situated within the Cotswolds AONB, designated for its quality landscapes and aesthetic beauty at a national level - it this does not mean that all parts of the AONB are of equally high quality/condition or that they have an equally high susceptibility to all types of change. Some parts of the AONB can be of lower quality, condition and aesthetic appeal. Note that a receptor's value can be attributed to any of the typical descriptions in Table 7-3 and do not need to meet all within the category.

Table 7-3 Definitions of landscape value

Value	Typical description
National value	Landscapes of international/national importance and rarity or value with no or limited ability to accommodate change without substantial loss/gain (i.e. national parks, Areas of Outstanding Natural Beauty (AONB), internationally acclaimed landscapes - UNESCO World Heritage Sites), such as the Cotswolds AONB or areas of strong sense of place.
Regional/district value	Landscapes of regional/district recognition of medium importance able to accommodate some change (i.e. features worthy of conservation, some sense of place or value through use/perception), such as registered parks and gardens (RPG), country parks, including Crickley Hill Country Park and Cowley Manor RPG.
Community value	Local landscape areas or receptors of low importance and rarity (i.e. non-designated areas of local recognition or areas of little sense of place), such as brownfield sites or areas of existing development.

7.4.20 To determine the degree of sensitivity a receptor has to the type of change being proposed, each composite landscape element or characteristic of receptor must be considered. This judgement of each receptor will be informed by a study of the individual landscape element, feature or set of characteristics and in particular its:

- importance;
- quality/condition;
- rarity;
- value;
- scale of contribution to the landscape character; and
- degree to which it can be protected, mitigated, replaced or substituted.

7.4.21 Once the level of susceptibility and value for each landscape characteristic has been establish, they can be combined to provide a judgement on their level of sensitivity to the proposed scheme. These will be reported as either very high, high, medium, low or negligible, as per Table 7-4.

Table 7-4 Landscape sensitivity

Landscape sensitivity (susceptibility and value) of receptor/resource	Typical description
Very high	Landscapes of international/national importance and rarity or value with no or very limited ability to accommodate change without substantial loss/gain of unique or rare features (i.e. national parks, Areas of Outstanding Natural Beauty (AONB), internationally acclaimed landscapes - UNESCO World Heritage Sites), such as the Cotswolds AONB, or irreplaceable features which cannot be mitigated for or substituted.
High	Landscapes of national importance containing distinctive features/elements with limited ability to accommodate change without incurring large loss/gain of special or rare features (i.e. designated areas (National Parks or AONB), areas of strong sense of place - registered parks and gardens (RPG), country parks), including Crickley Hill Country Park and Cowley Manor RPG, or features which cannot be protected and have limited opportunity for replacement or substitution.
Medium	Landscapes of local or regional recognition of medium importance able to accommodate some change (i.e. features worthy of conservation, some sense of place or value through use/perception) or features which can be partially protected or have some opportunity to be replaced and overtime effectively substitute for the loss, or parts of designated landscapes which have degrading features, are in poor quality, or where parts of the landscape do not fit with the key characteristics of the wider area.
Low	Local landscape areas or receptors of low importance with ability to accommodate change (i.e. non-designated areas of local recognition or areas of little sense of place) or features which to some extent can be protected or similar replaced to match the baseline.
Negligible	Landscapes of very low importance and rarity able to accommodate change, such as brownfield sites or area of existing development, or features which can be protected or if lost be easily replaced or substituted (e.g. stone walls, fencing or other man-made features).

Table taken from DMRB LA107 – Landscape sensitivity and typical descriptions and amended to reflect the local context

Magnitude of landscape effect

7.4.22 To report on the nature of effect, or magnitude of effect (change), for each landscape receptor judgements will be made in terms of the size and scale of effect of the proposed change, the geographical extent over which change will be experienced, duration, and reversibility. Magnitude of effect will be determined for each phase of the proposed scheme during construction and operation (year 1 and year 15).

Size/scale of landscape change

7.4.23 The size and scale of change will depend on the degree to which a landscape receptor is changed by the proposed scheme, such as the removal or addition of new features within the landscape, and whether these are perceived as typical. The assessment of size and scale will be described as being imperceptible, small, medium or large as per Table 7-5. Of particular concern is how the changes affect the 'key characteristics' of the landscape.

Table 7-5 Size or scale of landscape change

Size/scale	Typical description
Large	Loss of landscape elements and features or addition of new ones which result in obvious changes to landscape characteristics and character.
Medium	Loss of landscape elements and features or addition of new ones which result in discernible and distinct changes to landscape characteristics and character.
Small	A perceptible but small change to landscape characteristics and character as a result of the loss of landscape elements and features or addition of new ones.
Imperceptible	A barely perceptible/imperceptible change to landscape character and characteristics.

Geographical extent of landscape effect

7.4.24 To establish the geographical extent of an effect, a judgement about how far ranging the effect will be made. These will be described as local (small extent) with limited effects on wider landscape character; where changes are perceived across a wider area (medium extent); or where changes have a widespread influence and are perceived across a wide area (large extent). This is judged on both the length or extent of the road infrastructure changes and the distance the effect extends from the proposal.

Duration of landscape effect

7.4.25 The duration will be reported as short term (0-2 years) the length of the construction phase, medium term (2-15 years) is the duration between year 1 opening year to year 15 design year and long term (over 15 years) is year 15 opening year and beyond, refer to section temporal scope below.

Reversibility of landscape effect

7.4.26 Reversibility relates to whether the change is likely to be reversed, such as construction effects which could mostly be recorded as 'reversible'. Where this is achieved through the replanting of vegetation or rebuilding a stone wall, the landscape may be restored to something similar, however as it is not directly equivalent to the original, it could be recorded as 'partially reversible'. Or the permanent presence or removal of built structures would be considered 'not reversible'.

7.4.27 Levels of magnitude of effect (change) and nature of effect are set out in Table 7-6. Note that a receptors magnitude of effect can be attributed to any of the typical descriptions below and do not need to meet all within the category.

Table 7-6 Magnitude of effect - landscape

Magnitude of effect (change)		Typical description
Major	Adverse	Total loss or large-scale damage to existing landscape character or distinctive features or elements; and/or addition of new uncharacteristic, conspicuous features or elements (i.e. road infrastructure).
	Beneficial	Large scale improvement of landscape character to features and elements; and/or addition of new distinctive features or elements, or removal of conspicuous road infrastructure elements (i.e. extensive woodland planting or earthworks which integrate fit with the local landscape character).
Moderate	Adverse	Partial loss or noticeable damage to existing landscape character or distinctive features or elements; and/or addition of new uncharacteristic, noticeable features or elements (i.e. road infrastructure).
	Beneficial	Partial or noticeable improvement of landscape character by restoration of existing features or elements; or addition of new characteristic features or elements or removal of noticeable features or elements (i.e. small-scale tree and shrub planting or earthworks which at some degree fit with the local landscape character).
Minor	Adverse	Slight loss or damage to existing landscape character of one (maybe more) key features and elements; and/or addition of new uncharacteristic features and elements.
	Beneficial	Slight improvement of landscape character by the restoration of one (maybe more) key existing features and elements; and/or the addition of new characteristic features (i.e. individual tree planting or minor changes to field boundaries such as gapping up of hedgerows or rebuilding of stone walls).
Negligible	Adverse	Very minor loss, damage or alteration to existing landscape character of one or more features and elements.
	Beneficial	Very minor noticeable improvement of character by the restoration of one or more existing features and elements.
No change		No noticeable alteration or improvement, temporary or permanent, of landscape character of existing features and elements.

Table taken from DMRB LA107 (Table 3.24 Magnitude and nature of effect on the landscape and typical descriptions).

7.4.28 The susceptibility and value (sensitivity) of each receptor to the proposed changes will then be combined with judgements on size and scale, geographical extent, duration and reversibility of effects (magnitude of effect) to provide an

overall judgement for each identified effect. This will involve making an informed professional assessment of the overall level of each effect, as set out in GLVIA3.

Significance of effect on landscape receptors

7.4.29 Significance of effect is assessed in the same way for both landscape and visual receptors, please refer to section 7.4.55 below where this approach is set out.

7.4.30 A full list of landscape receptors that have been assessed can be found below in sections 7.7 and 7.10.

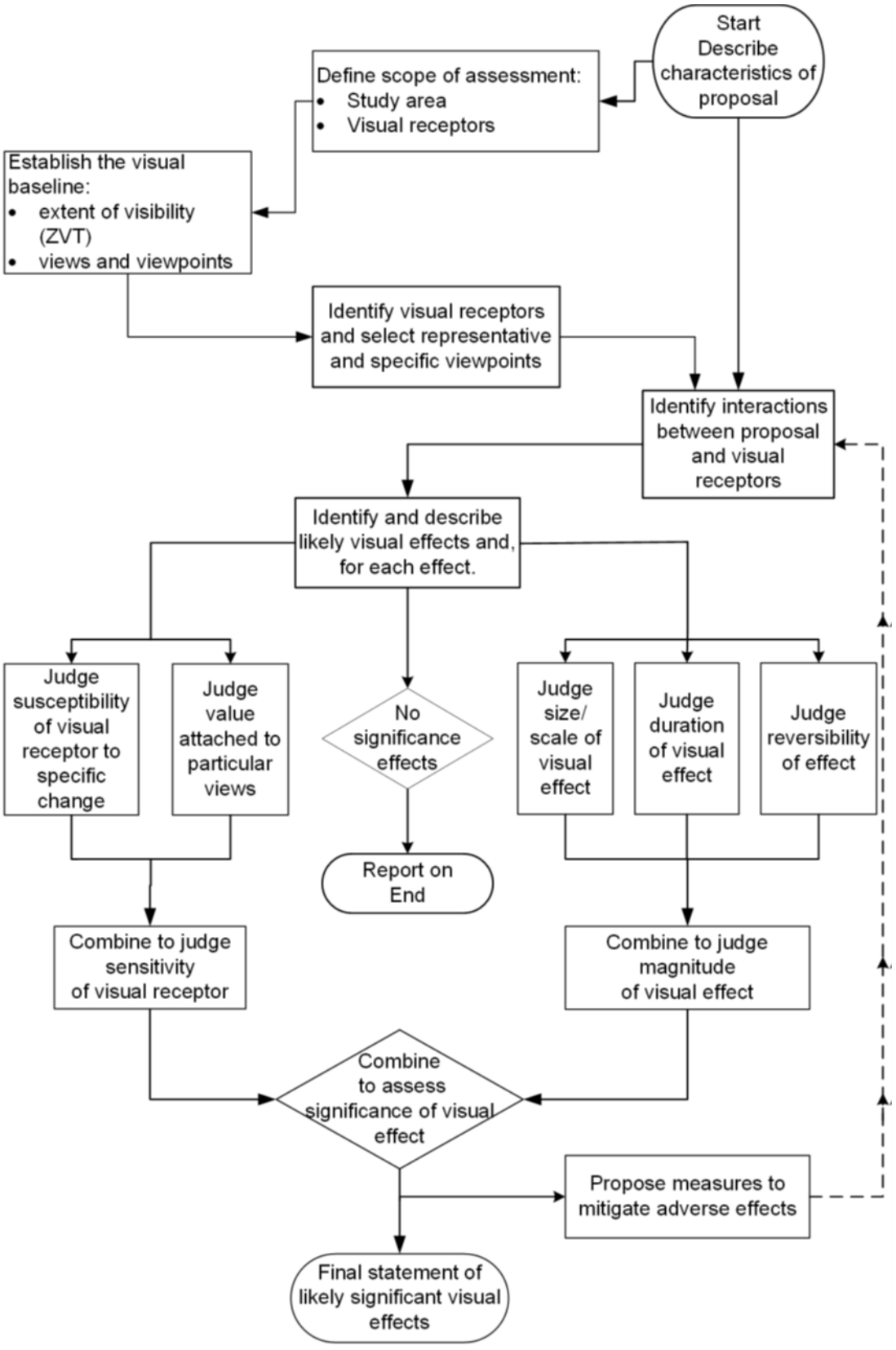
Visual assessment methodology

7.4.31 The visual baseline will be recorded in terms of the different groups of people (receptors) who may experience views of the proposed scheme. The nature of their existing views and visual amenity will be described.

7.4.32 To aid with the visual assessment, viewpoints have been selected (including representative viewpoints, specific viewpoints and illustrative viewpoints), in consultation with stakeholder, from where the proposal will be seen by the receptor group. These include public viewing points, transport or recreational routes and places where people visit.

7.4.33 Panoramic photography has been undertaken for each viewpoint (46 locations in total), refer to Figure 7.10. This records the baseline situation and details a judgement on the extent of likely visibility of the proposed scheme, as experienced by people at these locations. At a number of these viewpoint locations, verified photography and survey information was also undertaken, to aid in the production of photomontages of the proposed scheme. These locations were discussed with stakeholders at Technical Working Groups.

7.4.34 As with assessing landscape effects, making judgements on the likely significance of effect on visual receptors requires consideration of the nature of the receptor (sensitivity) and the nature of the effect on those receptors (magnitude of effect (change)), which are combined using professional judgement. This process is shown in Extract 7-2.



Extract 7-2 Steps in assessing visual effects (DMRB LA107 figure 3.38)

Visual sensitivity

7.4.35 Visual sensitivity is a combination of a visual receptor's susceptibility to change and its value, with magnitude of effect being recorded as a combination of the size/scale, geographical extent and duration of the proposed change [DMRB LA107 para 3.4].

Susceptibility of visual receptor

7.4.36 DMRB LA107 comments that the assessment of susceptibility to change should be tailored to the proposed scheme. GLVIA3 states that the susceptibility of different visual receptors to changes in views and visual amenity relates to:

"*the occupation or activity of people experiencing the view at particular locations; and the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations*" (GLVIA3 paragraph 6.32).

7.4.37 The LVIA will focus on a visual receptor's ability to accommodate changes as a result of the construction and operation of large-scale road infrastructure in their view or visual resource. These changes include a multi lane dual carriageway, junctions, loss of existing features, or changes in the composition of the view or visual resource, such as through the loss of woodland and hedgerows, changes in topography or inclusion of new features such as the A417 dual carriage way, the A436 link road and associated features.

7.4.38 GLVIA3 (para 6.33) sets out that visual receptors most susceptible to change include residents or communities where views contribute to the landscape setting enjoyed by residents in the area, people engaging in outdoor recreation (such as users of PRoW) whose attention or interest is likely to be focused on the landscape and on particular views, and visitors to heritage assets, or other attractions where views of the surrounding are an important contributor to the experience.

7.4.39 Visual receptors with lower susceptibility to change include travellers on roads, rail and other transport routes, people engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape, and people at their place of work.

7.4.40 Views or the visual amenity from individual residential properties have not be assessed as private viewpoints as it is impractical to visit all properties that might be affected by the proposed scheme. A residential amenity assessment has not been carried out as part of this PEI Report, as it was not requested by the stakeholders during consultation. However, the combined effects on several properties have been considered by aggregating properties within settlements and reported against community groups.

7.4.41 It is notable that there is no right in planning law to a private view. This has been accepted by various appeal decisions determined by the Planning Inspectorate. Therefore, views from private properties will not form part of the LVIA.

7.4.42 Judgements on susceptibility of receptors will be recorded as high, medium or low as per Table 7-7.

Table 7-7 Susceptibility of visual receptors

Susceptibility	Typical description
High	Receptor groups with no or limited ability to accommodate change of the type being proposed without incurring substantial loss/gain, such as: communities where views contribute to the landscape setting enjoyed by residents; people engaged in outdoor recreation (including users of public rights of way (PRoW) and National Cycle Routes whose interest is likely to be focussed on the landscape); visitors to heritage assets or other attractions where views of surroundings are an important contributor to experience.
Medium	Receptor groups which are able to accommodate some change of the type being proposed, such as travellers on road, rail or other transport routes.
Low	Receptor groups with ability to accommodate change of the type being proposed, such as: people engaged in outdoor sport or recreation, which does not involve or depend upon appreciation of views of the landscape; people at their place of work whose attention is not on their surroundings.

Table based on guidance set out in GLVIA3 – para 6.32 Susceptibility of visual receptors to change

Visual value

7.4.43 The second part of judging a receptor's sensitivity is to determine its value. GLVIA3 (para 6.37) suggests This will be done with reference to designated views, identified viewpoints on maps such as Ordnances Survey (OS) 1:25,000 mapping, or where mentioned in local policy documents or management plans that indicate value, such as aesthetic or scenic quality, special qualities or key characteristics of the AONB or landscape, recreational value and cultural associations, such as the Cotswolds Way National Trail and Gloucestershire Way long distance footpath.

7.4.44 Other indicators of visual value include the inclusion of viewpoints in guidebooks or tourist maps, or through the provision of facilities for their enjoyment (such as parking places, sign boards and interpretive materials) or reference to them in literature or art.

7.4.45 Judgements on value will be recorded as of national, regional/district or community value. Whilst views within the study area may be located within the Cotswolds AONB, which is designated at national level for its outstanding natural beauty and accorded the highest value, it does not mean that all views within the AONB are of high quality/condition, or that all people within the AONB will have a high susceptibility to all types of change. Note that a receptor's value can be attributed to any of the typical descriptions in Table 7-8 and do not need to meet all within the category.

Table 7-8 Definitions of value attached to views

Value	Typical description
National value	Views identified in the Cotswolds AONB management plan or AONB landscape character assessments. Designed views recorded in citations for historic parks and gardens or views from historic landscape features (e.g. scheduled monuments). Views from National Trails, Long Distance Trails, 'Recreational Routes'[1], National Cycle Network (NCN), used in guidebooks to the UK, marked on OS maps (as a blue viewpoint symbol) or scenic routes (published on maps or online).
Regional/district value	Views identified in regional/district designation documents or local authority landscape/townscape assessments. Views recorded as of importance in Conservation Area Appraisals. Views from the District's PRoW (that are not National Trails, 'Recreational Routes' or NCN).
Community value	Views that are not documented as important in national or local documents but nevertheless are valued at a community level. This might include views from local green spaces, informal local footpaths or roads.

7.4.46 Once the level of susceptibility and value for each visual receptor has been established, they can be combined to provide a judgement on their level of sensitivity to the proposed scheme. These will be reported as either very high, high, medium, low or negligible, as set out in Table 7.9. Note that a receptor's sensitivity can be attributed to any of the typical descriptions below and do not need to meet all within the category.

Table 7-9 Visual sensitivity

Visual sensitivity (susceptibility and value) of receptor/resource	Typical description
Very high	i. Static views from and of major tourist attractions; ii. views from and of very important national/international landscapes, cultural/historical sites (e.g. National Parks, Areas of Outstanding Natural Beauty (AONB), UNESCO World Heritage sites) such as from the Cotswolds AONB; and iii. receptors engaged in specific activities for enjoyment of dark skies or scheduled monuments which have specific value related to views towards or from the monument, including Crickley Hill, Great Witcombe Romano-British villa, Coopers Hill and Leckhampton Hill.
High	i. Views experienced by users of nationally important PRoW / recreational trails (e.g. national trails, long distance footpaths), such as the Cotswolds Way or Gloucestershire Way;

[1] Green diamond symbol marked on OS maps

Visual sensitivity (susceptibility and value) of receptor/resource	Typical description
	ii. views by users of public open spaces for enjoyment of the countryside (e.g. country parks), including Crickley Hill Country Park; iii. static views from dense residential areas, longer transient views from designated public open space or recreational areas, such as from Brockworth; and iv. Views from and of rare designated landscapes of national importance (e.g. Registered Parks and Gardens), such as Cowley Manor.
Medium	i. Views experienced by uses of local PRoW network; ii. static views from less populated residential areas, schools and other institutional buildings and their outdoor areas, such as Birdlip, Stockwell and Cowley or National Star College; iii. views by outdoor workers, such as farm workers; iv. transient views from local/regional areas such as public open space, scenic roads, railways or waterways, users of local/regional designated tourist routes of moderate importance; and v. views from and of landscapes of regional importance.
Low	i. views by users of main roads or passengers in public transport on main arterial routes; ii. views by indoor workers; iii. views by users of recreational/formal sports facilities where the landscape is secondary to enjoyment of the sport; and iv. views by users of local public open spaces of limited importance with limited variety or distinctiveness.
Negligible	i. quick transient views such as from fast moving vehicles on motorways or trunk roads, such as the A417; ii. views from industrial area or land awaiting re-development; and iii. views from landscapes of no importance with no variety or distinctiveness.

Table taken from DMRB LA107 – Visual sensitivity and typical descriptions, with minor amendments to reflect project specific context.

Magnitude of visual effect

7.4.47 To report on the nature of effect, or magnitude of effect, for each visual receptor judgements will be made in terms of the size and scale of effect, its geographical extent, duration and reversibility.

7.4.48 DMRB LA107 states that when reporting on the magnitude of visual effects, judgements should be informed by the following:

- scale of change;
- nature of change;
- duration of change;
- distance;
- screening;
- direction and focus of the view;
- year 1 (opening year) and year 15 (design year) including summer and winter;
- removal of past mitigation or existing vegetation; and
- whether the receptor is static or moving.

Size/scale of visual change

7.4.49 The size and scale of change will depend on the degree to which the view or visual amenity is changed by the proposed scheme, such as through the removal or addition of new features and whether these are perceived as typical. The assessment of size and scale will be described as being imperceptible, small, medium or large. Note that the size or scale experience by a receptor can be attributed to any of the typical descriptions as per Table 7-10 and do not need to meet all within the category.

Table 7-10 Size or scale of visual change

Size/Scale	Typical description
Large	Large change in view, perhaps where the proposed scheme is in close proximity, in a direct line of vision, affecting a substantial part of the view, or providing contrast with the existing view.
Medium	Clearly perceptible change in views, perhaps where the proposed scheme is relatively close but at an oblique angle, or further away in the direct line of vision, creating a noticeable change to baseline conditions.
Small	Small change in views, perhaps where the proposed scheme is at a distance or oblique angle, or where there is little change to baseline conditions.
Imperceptible	Change in view which is barely perceptible.

Geographical extent of visual effect

7.4.50 To establish a geographical extent for an effect, a judgement will be made about how far ranging the effects are likely to be. These will be described as: locally (small extent), where there are only a few locations from where the proposed scheme can be glimpsed, or changes are experienced by few people; wider area (medium extent), where there are several locations where similar views can be gained, or changes are experienced by a moderate number of people; or widespread (large extent), where there are many locations where similar views can be gained, or changes are experienced by a large number of people.

Duration of visual effect

7.4.51 The duration will be reported as short term (0-2 years) the length of the construction phase, medium term (2-15 years) is the duration between year 1 opening year to year 15 design year and long term (over 15 years) is year 15 opening year and beyond, refer to section temporal scope below.

Reversibility of visual effect

7.4.52 Reversibility relates to whether the change is likely to be reversed, for instance most construction effects could be recorded as ‘reversible’. Where this is achieved through the replanting of vegetation or the rebuilding of a stone wall, these may restore typical features within a view or return the view to something similar as the baseline. However, as this would not be equivalent to the original, it

could be recorded as ‘partially reversible’. The permanent presence or removal of built structures would be considered ‘not reversible’.

7.4.53 Levels of magnitude of effect (change) are set out in Table 7-11. Note that a receptor’s magnitude of effect can be attributed to any of the typical descriptions below and do not need to meet all within the category.

Table 7-11 Magnitude of effect - visual

Magnitude of effect (change)		Typical description
Major	Adverse	The proposed scheme, or a part of it, would become the dominant feature or focal point of the view, resulting in an obvious change in the view, likely affecting a visual receptor with a high susceptibility to that type of change, and/or affecting a valued view. The effect is likely to be long term and affect a relatively large part of the receptor or affect a large number of people.
	Beneficial	
Moderate	Adverse	The proposed scheme, or a part of it, would form a noticeable feature or element of the view, which is readily apparent to the receptor, likely affecting a visual receptor with a moderate susceptibility to that type of change, or one that is locally valued. This level of effect may also occur when a smaller scale of effect acts on a more widely valued view, or a larger scale of effect acting on a view valued at a more local level. This level of effect may also occur when a large scale of effect occurs over a relatively short period or over a small area.
	Beneficial	
Minor	Adverse	The proposed scheme, or a part of it, would be perceptible but not alter the overall balance of features and elements that comprise the existing view, resulting in a small change in a relatively lower value view, or one with lower susceptibility to change. This level of effect may also occur when a larger scale of effect is of short duration or affects a small part of the visual receptor/ affects few people.
	Beneficial	
Negligible	Adverse	Only a very small part of the proposed scheme work or activity would be discernible or would be at such a distance it would form a barely noticeable feature or element of the view.
	Beneficial	
No change		No part of the proposed scheme work or activity would be discernible.

Table taken from DMRB LA107 (Table 3.43 Magnitude of visual effect and typical descriptions) with amendments made to the typical descriptions to make it relevant for this project.

7.4.54 Finally, the nature of effect will be determined in relation to whether the change is typical or whether it is deemed to fit with the baseline character or view, this judgement will be recorded as either adverse, beneficial or neutral.

Significance of effect

7.4.55 Significance of effect is assessed in the same way for both landscape and visual receptor and is set out below.

7.4.56 The susceptibility and value (sensitivity) of each receptor to the proposed changes will then be combined with judgements on size and scale, geographical extent, duration and reversibility of effects (magnitude of effect) to provide an overall judgement for each identified effect. This will involve making an informed professional assessment of the overall level of each effect, as set out in GLVIA3.

7.4.57 Levels of effect will be identified as either no change, negligible, minor, moderate or major. Major and moderate effects will be judged to be significant, any effect assessed to have a level of effect less than moderate is considered not to be significant.

7.4.58 DMRB LA107 states that the approach to deriving impact significance should be "*based on the significance matrix included in the Environmental assessment methodology section of LA104 and include evidence to support any professional judgements that have been made".* This table has been replicated in Table 7-12 Significance matrix refers to 'magnitude of impact', this is taken to mean magnitude of effect (change) in the LVIA.

Table 7-12 Significance matrix

	Magnitude of impact/effect(degree of change)					
Environmental value (sensitivity)		**No change**	**Negligible**	**Minor**	**Moderate**	**Major**
	Very high	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Table taken from DMRB LA 104 (Table 3.8.1 Significance Matrix).

7.4.59 DMRB LA104, paragraph 3.8.1, states that where Table 7-12 Significance matrix indicates two significance categories, evidence should be provided to support the reporting of a single significance category. However, GLVIA3, paragraph 8.10, states that where tables or matrices are used in relation to making judgements of significance, that they should be used to support and to summarise narrative descriptive text, rather than to replace it.

7.4.60 For this report, the significance matrix will only be referred to provide a high-level indication of level of effect but will not be relied on to make the final judgement. The level of effect for each receptor will be clearly described and explained providing transparency in the exercise of professional judgement.

Night-time 'darkness' assessment

7.4.61 The proposed scheme is not proposed to be lit. However, the visual assessment includes a qualitative assessment of the predicted changes in light levels/ light pollution due to traffic movement along the proposed scheme.

7.4.62 DMRB LA107 requires both day and night-time situation to be documented as part of the baseline studies, using Campaign to Protect Rural England (CPRE) published Night Blight: Mapping England's light pollution and dark skies report (2016)[15]. Light pollution includes skyglow, glare and light intrusion.

7.4.63 Night-time 'darkness' survey was undertaken to establish the effects of the existing A417 and other sources of light pollution on visual receptors within the three-kilometre wider study area. Night-time photography was undertaken for 10 viewpoint locations that people would visit or be present at during the hours of darkness were also surveyed.

7.4.64 Night-time 'darkness' photography was undertaken in January and February 2020 to record the baseline condition and document extent of light pollution as a result of the existing A417 road infrastructure. Despite that the proposed scheme would not be lit, the visual assessment includes a qualitative assessment of the predicted changes in light levels/ light pollution as a result of traffic moving along the proposed scheme.

Temporal scope

7.4.65 The landscape and visual effects of the proposed scheme would vary through time. The assessment therefore considers the effects on landscape character and visual amenity arising over the life of the project, through its construction and operation:

- construction phase: short-term temporary effects during the two-year construction phase, (2 years including any standard construction mitigation measures, and 9 months of environmental mitigation works);
- operational phase at year 1: medium-term operational effects which would occur at completion in the winter of the first year of operation before landscape mitigation would have established (without mitigation, but considering measures designed into the proposed scheme to reduce effects at source); and
- operational phase at year 15: long-term residual effects with mitigation from the 15th year after opening (2039) for the project life of the proposed scheme up to 40 years, in accordance with GLVIA3 and LI TGN 06/19. However, once the proposed scheme is operational it will be permanent. This allows the assessment to take account of the mitigating effect of the proposed landscape mitigation once established.

Site surveys and fieldwork

7.4.66 The assessment is based on a worst-case scenario in terms of visibility, but also considers the more 'visually-contained' landscape during summer months, as a result of trees being in full leaf restricted visibility in some instances.

7.4.67 Field survey work was carried out to record landscape character, the existing visual resource including the availability and opportunity to gain views towards the site. This work included visits to site, viewpoint locations and designated landscape throughout the 3km study area to consider potential effects on landscape character and on views of the proposed scheme.

7.4.68 Summer and winter site visits were undertaken by Chartered Landscape Architects on 23 May, 24 May, 4 June, 28 June, 9, 19 and 26 September, 21 and 28 November 2019, and 28 January 2020 with verified viewpoint photography and surveys being carried out on 15 and 23 January and 4 February 2020. The baseline was also informed through consultation with stakeholders.

7.4.69 Site visit walkovers undertaken in May 2019 focused on familiarisation of the site, identify viewpoint locations and visibility and ground truth information provided. In

addition, visits were undertaken to gain an understanding of the scheme in the context of the landscape and to check viewpoint locations.

7.4.70 A further three summer site visits were undertaken on 9, 19 and 26 September 2019 to undertake viewpoint photography, record the visual baseline and landscape character and assess potential landscape and visual effect of the proposed scheme. Information was recorded using digital survey sheets linked to a project database. Details of the existing landscape features and characteristics were recorded, in addition to the available visual resource.

7.4.71 Winter viewpoint photography was carried out on 21 and 28 November 2019, and 28 January 2020 with verified viewpoint photography and surveys being carried out on 15 and 23 January 2020, and 4 February 2020.

7.4.72 Further surveys will be carried out between winter 2020 (end of consultation) and Spring 2021 (submission of the ES).

Stakeholder engagement

7.4.73 The scope and content of the LVIA has been consulted-on during the screening and scoping stages, with details discussed at stakeholder events such as the Technical Working Groups (TWG). TWG workshops were attended by representatives from Gloucestershire County Council, Cotswolds District Council, Tewkesbury Borough Council, Environmental Agency, Historic England, Natural England, the National Trust, Gloucestershire Wildlife Trust and Cotswolds Conservation Board. These discussions were particularly helpful in the development of the 'greened' crossings, the de-trunked route and proposed landscape mitigation, along with the selection of representative viewpoints. Further details of the consultation are available in Chapter 1 Introduction.

7.4.74 The scope of the landscape and visual assessment was set out in the scoping report[16] for which the Planning Inspectorate provided a Scoping Opinion, refer to The Planning Inspectorate Scoping Opinion (Appendix 4.1).

7.4.75 A consultation meeting was held with Cotswolds Conservation Board and Highways England in July 2019 to discuss the most appropriate methodology that the LVIA should follow and to share thoughts on indicative viewpoint locations.

7.4.76 LVIA viewpoint locations were agreed with key stakeholders via attendance at Technical Working Groups and exchange of emails.

7.5 Assessment assumptions and limitations

7.5.1 Photomontages will be prepared for the ES using verified photography and based on the digital proposed scheme design information.

7.5.2 It is not possible to fully assess the diverted PRoW including the Cotswold Way National Trail and the Gloucestershire Way long distance footpath where the diversion falls on some areas of private land, as it was not possible to gain access to these areas during the field survey work. Although representative views and viewpoints, from locations nearby, will be used in these cases.

7.5.3 The ZTV is a tool to aid assessment and shows the theoretical visibility of the proposed scheme including projections for the effects of vehicular movements (cars at 1.9m and lorries at 4.7m) across the proposed scheme. Additional vertical structures such as gantries or signage have not been included in the projected ZTV because their location or number are not known at this stage. Their final location, design and number would be confirmed as part of the detailed design of

the proposed scheme. It is unlikely that the addition of these features would materially alter the findings of the assessment, given their size compared to the overbridges which have been included as part of the ZTV and assessment.

7.5.4 The ZTV does include the main structures, such as the Cotswold Way crossing, Gloucestershire Way crossing, Shab Hill and Cowley junctions, Stockwell and Cowley overbridges, adjoining roads (B4070 and A436 as amended by the proposed scheme), cut slopes and landscape embankments. It also includes new stonewall boundaries to field and the edge of the proposed scheme.

7.5.5 A limitation of the ZTV is that in using digital surface model data, the projections pick out areas of tree cover or buildings as having higher visibility than would be expected or experienced on the ground, such as VP7 The Peak. This is because the 3D model assumes that a visual receptor e.g. person, could be stood at 1.6m on top of the trees or buildings. This has been reflected in the descriptions in Visual Assessment. To overcome this, woodland blocks could have been cut out or excluded from the model but may have resulted in inconsistencies across the projected ZTV making it more difficult to interpret. The approach taken therefore overestimates the extent of visibility and reflects a 'worst-case' scenario.

7.5.6 The LVIA field work and photography have been undertaken from publicly accessible areas i.e. PRoW or pavements adjacent to residential properties or roads.

7.5.7 Viewpoint photography has not been undertaken from private properties, the combined effects on several properties have been considered by aggregating properties within settlements and reported against community receptor groups.

7.5.8 Field work has been carried out during daylight for summer and winter, with trees in and out of leaf, with a selection visited hours of darkness. The assessment has therefore been carried out with a robust understanding of the landscape through the seasons and at different times of the day. Viewpoint photography figures present a complete set of baseline views, available for all viewpoints, refer to Figure 7.10. Ten viewpoint locations were selected as suitable locations for photomontages of the proposed scheme. From these ten locations verified photography and surveys were carried out for day and night-time scenarios.

7.5.9 The assessment of night-time landscape and visual effects within the LVIA will be based on the proposed scheme being unlit.

7.5.10 The LVIA has been informed using an arboricultural survey and impact assessment. In addition, an understanding of the landscape through field work and the use of Google Earth has enabled a robust assessment to be carried out on the effects on existing vegetation.

7.5.11 The construction assumptions are set out in Chapter 2 The Project, with additional LVIA assumptions of:

- topsoil stockpiles are 2m in height, subsoil and geological stockpiles are 10-15m in height, the main office compounds and site offices are one storey in height;
- cranes and piling rigs would be used for the construction and, implementation of the over bridges;
- temporary construction lighting, would be intermittently used throughout the construction phase for select operations in isolated locations only; and
- the Gloucestershire Way crossing in the region 25m in width and in the location as shown on the Environmental Masterplans (Figure 7.9).

7.5.12 At year 1 of operation and with the establishment of the new planting:

- new tree planting would range in height between 0.6m to 0.8m for whips/transplants and hedgerow planting, 3-5m for feathered and standard trees, and 7-10m for extra-heavy standard and semi-mature trees;
- in locations where visual screening is critical, woodland mixes would contain a high percentage of feathered trees with a percentage of larger species to boost this function. Faster growing species would also be included in some mixes that can provide earlier visual screening. These species would then be managed out as the dominant climax species develop in height.
- new calcareous grassland areas would be in the establishment phase, and some areas may not yet have full grassland coverage;
- areas returned to agriculture would consist of agricultural topsoil; and
- materiality of structures would be Cotswold stone or similar.

7.5.13 At year 15 of operation and with the establishment of the new planting:

- with an approximate annual tree and shrub growth likely to be between 0.3-0.5m per year (although this would vary from species to species), trees are likely to range in height between 5m to 15m with the potential for some species to be taller;
- hedgerows would reach heights between 1.2m and 2m, to appear a similar height to existing hedges and form that would complement the character of existing field boundaries within the AONB landscape; and
- the calcareous grassland would have established such that overall the sward would be successfully knitted together. The exception may be where the design intention for specific areas of ecological management would retain exposed limestone or support a thinner sward to create habitat diversity. Areas returned to agriculture would be fully established and in regular use.

7.5.14 The worst-case scenario has been considered within the Landscape and Visual impact assessment in accordance with the approach laid out in Chapter 4, section 4.4 Dealing with uncertainty. All Limits of Deviation (LOD) are within the Rochdale Envelope approach. The proposed LOD might lead to negligible changes to the composition of views or incrementally increase or decrease the loss or retention of landscape features immediately adjacent to the scheme proposed scheme within the scope of change. These potential changes are not considered to give rise to any new effects, or to any materially worse adverse or better beneficial landscape or visual effects, from those predicted in the assessment.

7.5.15 The assessments will therefore take into consideration what can be regarded as a realistic ‘worst case’ assessment of the impacts associated with the proposed scheme.

7.6 Study area

7.6.1 DMRB LA107 states that in establishing the study area, it should be suitable and proportionate for this specific project - the following was considered:

- DCO boundary (area of proposed scheme including temporary construction compounds and activities), shown as a red line boundary on the Environmental Masterplan;
- the wider landscape setting and extent where visibility of the proposed scheme may be gained as shown on Figure 7.1 Visibility and Viewpoints;
- full extent of landscape and visual receptors of special value whose setting may be influenced by the proposed scheme; and

- the wider visual envelope of influence from the proposed scheme.

7.6.2 The study area includes the site and the wider landscape around it, up to 3-kilometres from the mainline of the proposed scheme, which may be potentially influenced in a significant manner. A desk study review helped to establish the baseline conditions of the study area. These include land use data and policies detailed in relevant documents, sources cited above, and the additional sources listed below:

- National Character Area 106 - Severn and Avon Vales[17];
- National Character Area 107 – Cotswolds[18];
- Gloucestershire Landscape Character Assessment[19];
- Gloucestershire Landscape Character Typology[20];
- Cotswolds AONB Character Assessment[21];
- Cotswolds AONB Landscape Strategy and Guidelines[22];
- the Landscape of the Cotswolds[23];
- Ordnance Survey – 1:50,000 and 1:25,000 scale maps;
- Digital surface model;
- Google Earth Pro and Street View;
- Bing Maps; and
- GIS designation data sets.

7.6.3 To help determine the study area a Zone of Theoretical Visibility (ZTV) was created to establish the extent of likely visibility of the proposed scheme, refer to Figure 7.1 Visibility and Viewpoints. Using the ZTV, in addition to thorough desk-study and field work, it was determined that significant effects would more likely occur within 3 kilometres from the site.

7.6.4 It is accepted that visual effect decreases with increased distance between the receptor and source of impact, DMRB LA107 states: "*Actual visibility can depend on such visual obstructions as buildings, topography, tree cover, as well as elevation, direction and distance of views and light and weather conditions, GLVIA3 [reference 2.I].*"

7.6.5 It may be possible that sensitive features lie beyond 3-kilometres; however, visual effects from this distance are unlikely to be significantly affected by the proposed scheme because of the size and scale of change to a small part of a wider view such as to make it perceptible or discernible but not dominant or obvious. And where distance between the proposed scheme and the receptor is such that the receptors perception of the change in not as immediate. Therefore, receptors beyond 3-kilometres will not be assessed as part of the LVIA.

7.6.6 Having identified the visual receptors, suitable viewpoint locations were selected in consultation with stakeholders for each receptor group, using the ZTV and supported by field work. The locations of the selected representative viewpoints and the ZTV are shown on Figure 7.1 visibility and viewpoints.

7.6.7 The viewpoint locations have been visited to record the baseline photography, with viewpoint photographs presented in the Visual Baseline.

7.6.8 The desk-based assessment identified areas of higher ground along the escarpment including Leckhampton Hill (VP18 & VP19), Crickley Hill (VP15 & VP16), Barrow Wake (VPs 9-11), The Peak (VP7) Shab Hill (VP31-35) and Coopers Hill (VP2). All areas are included within the Cotswolds AONB and are subject to a number of landscape and heritage designations including Open Access Land at Crickley Hill Country Park and the Cotswold Way National Trail

which traverses the escarpment. In addition, several scheduled monuments at Leckhampton Hill, Shurdington Hill, Crickley Hill, Copper's Hill and Barrow Wake. Additional areas of high ground, within the AONB include Brimpsfield (VP43 & 44), Cowley Wood (VP42) and Coberley (VP29).

7.7 Baseline conditions

Current baseline

7.7.1 The current baseline is taken to be between 2018-2020 when the desk-based studies and field survey work were carried out.

Nationally designated sites

7.7.2 Nationally designated sites which are located within the three-kilometre study area will be considered as part of the LVIA. The proposed scheme is situated entirely within the Cotswolds AONB. A small part to the west of the study area is not within the AONB. The Cotswolds AONB is characterised by the presence of low-lying vales, steep escarpment, high wold and valleys. The escarpment also provides the setting for the Cotswold National Trail.

7.7.3 Within the study area, there are also ecological and heritage assets which contribute to the character of the landscape. Adjacent to the existing A417, on the slopes of the escarpment is Crickley Hill and Barrow Wake Special Site of Scientific Interest (SSSI). South-west of the study area is Cotswold Commons and Beechwood Special Area of Conservation (SAC). Further south on the High Wold is Bushley Muzzard SSSI at Brimpsfield and to the east is Cowley Manor, a Grade II* Registered Park and Garden (RPG). Several scheduled monuments are dotted throughout the three-kilometre study area including Crickley Hill Camp, Emma's Grove, Brimpsfield Castle and mound, Coberley Long Barrow, Coberley Roman Villa, Cotswold Beechwoods, Bowl Barrow and Great Witcombe Roman Villa.

7.7.4 These designations reflect the conservation value of the region, and its rich heritage of human settlement. Heritage and ecological designation are assessed separately in Chapters 6 and 8 of the PEI Report.

7.7.5 Of particular interest to the LVIA are the special qualities of the Cotswolds AONB as listed in the Cotswolds AONB Management Plan 2018 – 2023:

- the unifying character of the limestone geology – its visible presence in the landscape and use as a building material;
- the Cotswold escarpment, including views from and to the AONB;
- the high wolds – a large open, elevated predominately arable landscape with commons, 'big' skies and long-distance views;
- river valleys, the majority forming the headwaters of the Thames, with high-quality water;
- distinctive dry-stone walls;
- internationally important flower-rich grasslands, particularly limestone grasslands;
- internationally important ancient broadleaved woodland, particularly along the crest of the escarpment;
- variations in the colour of the stone from one part of the AONB to another which add a vital element of local distinctiveness;

- the tranquillity of the area, away from major sources of inappropriate noise, development, visual clutter and pollution;
- extensive dark sky areas;
- distinctive settlements, developed in the Cotswold vernacular, high architectural quality and integrity;
- an accessible landscape for quiet recreation for both rural and urban users, with numerous walking and riding routes, including the Cotswolds Way National Trail;
- significant archaeological, prehistoric and historic associations dating back 6,000 years, including Neolithic stone monuments, ancient drove roads, Iron Age forts, Roman villas, ridge and furrow fields, medieval wool churches and country estates and parks;
- a vibrant heritage of cultural associations, including the Arts and Crafts movement of the 19th and 20th centuries, famous composers and authors and traditional events such as the Cotswolds Olympicks, cheese rolling and woolsack races.

7.7.6 Each of the AONB's special qualities will be assessed to establish the likely change or level of effect they may experience as a result of the scheme proposals, refer to the assessment of Cotswolds AONB special qualities in section 7.10.

Landscape character

7.7.7 This section provides a description of landscape character drawing on published studies and previous work and was supplemented and verified during multiple site visits.

7.7.8 Landscape character is defined as the *"distinct, recognisable and consistent pattern of elements in the landscape that* makes *one landscape different from another"*[24]*.* Landscape character type/area boundaries generally represent transitional zones and where the proposed scheme is located close to/on/across the boundary between character areas, the 'key characteristics' of adjacent areas would also be considered.

7.7.9 Landscape Character Assessments are a method of identifying and describing variations in the character of the landscape, and *'seek to identify and explain the unique combination of elements and features (*characteristics*) that make landscapes distinctive*'[25]. They can be carried out at several scales, from national (National Character Areas), to regional and local (Landscape Character Types or Areas).

7.7.10 The principal sources of information about the landscape character of the three-kilometre wide study area are:

- National Landscape Character Assessment, Character Area 106 - Severn and Avon Vales[26], (Natural England);
- National Landscape Character Assessment, National Character Area 107 – Cotswolds[27], (Natural England);
- Cotswolds AONB Character Assessment[28];
- Cotswolds AONB Management Plan[29], supporting guidance for the Cotswolds AONB Character Assessment;
- Cotswolds AONB Landscape Strategy and Guidelines[30], supporting guidance for the Cotswolds AONB Landscape Character Assessment;

- Cotswolds Local Distinctiveness Guide, supporting guidance for the Cotswolds AONB Landscape Character assessment[31];
- Cotswolds Conservation Board's Position Statements - Tranquillity[32], Dark Skies and artificial light[33];
- Gloucestershire County Council (2006) Gloucestershire Vales Landscape Character Assessment (LDA) [34];
- Gloucestershire County Council (2002) Gloucestershire Landscape Character Typology[35];. Supporting Guidance for the Gloucestershire Landscape Character Assessment; and
- Joint Core Strategy (2013) The Gloucester-Cheltenham-Tewkesbury Joint Core Strategy Landscape Characterisation Assessment and Sensitivity Analysis[36].

7.7.11 Table 7-13 below lists the seven Cotswolds AONB Landscape Character Areas (LCAs) and one Gloucestershire LCA which cover the three-kilometre wide study area and have been used to inform the landscape assessment.

Table 7-13 Landscape character types and related landscape character areas

Cotswolds AONB landscape character type	Cotswolds AONB landscape character area	Source	Corresponding Gloucestershire Vales Landscape Character Type
LCT 2 Escarpment	LCA 2D Coopers Hill to Winchcombe	Cotswolds AONB Landscape Character Assessment	LCT 26 Escarpment
LCT 7 High Wold	LCA 7B Bisley Plateau	Cotswolds AONB Landscape Character Assessment	LCT 22 High Wold
	LCA 7C Cotswold High Wold Plateau	Cotswolds AONB Landscape Character Assessment	
LCT 8 High Wold Valley	LCA 8A Toadsmoor, Holy Brook and Upper Frome Valleys	Cotswolds AONB Landscape Character Assessment	LCT 27 Secluded Valleys
	LCA 8C Upper Churn Valley	Cotswolds AONB Landscape Character Assessment	LCT 27 Secluded Valleys
LCT 10 High Wold Dip-Slope Valley	LCA 10A Middle Churn Valley	Cotswolds AONB Landscape Character Assessment	LCT 22 High Wold
LCT 18 Settled Unwooded Vale	LCA18A Vale of Gloucester Fringe	Cotswolds AONB Landscape Character Assessment	LCT 18 Settled Unwooded Vale
	SV6B Vale of Gloucester	Gloucestershire Vales Landscape Character Assessment	

7.7.12 Key characteristics of the relevant published landscape character assessments are set out within Published Landscape Character Assessments. This literature review is supplemented with field surveys and follows consultation with statutory and non-statutory consultees. These have been used to identify important

characteristics which have been considered as part of the landscape assessment such as elements and features of the landscape, key characteristics and the value attached to the landscape, as per DMRB LA107.

National Trails, long distance paths and PRoW

7.7.13 Within the study area there is an extensive network of PRoW from infrequently used footpaths connection historic villages to the local church through to the Cotswolds Way National Trail, through its popularity is visited by walkers and runners from all over the country with specialist events are held annually.

7.7.14 Guidance documents produced by Cotswolds Conservation Board on PRoW[37] provide development advice on enhancing the PRoW network. The Cotswold' Conservation Board's position statement states that:

"The public rights of way network is the main way for residents and visitors to explore and enjoy the Cotswolds and is important to the area's economy."

PRoW

7.7.15 An extensive network of PRoW traverse the 3km study area. The LVIA assesses changes to the users' experience focused around the vale settlements of Little and Great Witcombe, across the escarpment at Birdlip and on the wold at Shab Hill, Stockwell, Upper Coberley, Nettleton Bottom, Brimpsfield and Elkstone. During site visits it was evident that several PRoW are less frequently used with paths overgrown or ploughed over.

Cotswold Way National Trail

7.7.16 The Cotswold Way National Trail is 102 miles (164 kilometres) long and runs for most of its length along the Cotswold escarpment. A large section of the National Trial crosses the western side of the study area, south to north, between Cooper's Hill and Leckhampton Hill. Along this section, the route traverses the escarpment, transitioning from dense beech woodland to open pastures, rich with calcareous wildflowers, passing locally valued landmarks such as The Peak, Barrow Wake and Crickley Hill. The site would be intermittently visible from elevated advantage points for a shorter section of the Trail, between the Peak and Crickley Hill, with some longer distance views available from Coopers Hill and Leckhampton Hill. Between Barrow Wake and Crickley Hill users of the trail must come off the escarpment edge to cross the busy existing A417, before ascending back to the trail on the escarpment. The experience for users here is more intimidating compared to the otherwise tranquil, rural setting of the trail. The LVIA assesses the changes to its setting as experienced by walkers and runners and how views from or the users' visual resource is likely to change as a result of temporary and permanent diversions or changes to its alignment.

Gloucestershire Way long distance footpath

7.7.17 The Gloucestershire Way is a long-distance walking path that runs east to west through the three-kilometre wide study area, between the settlements of Badgeworth and Upper Coberley. This section of the route, within the study area, passes through contrasting landscapes from the low-lying vale between Gloucester and Cheltenham, across the steep escarpment edge at Crickley Hill where it temporarily aligns with the Cotswolds Way National Trial following the same route down to the Ullenwood junction before diverging east towards Shab Hill over the wolds. The Gloucestershire Way is not as popular as the Cotswolds

Way, with some sections not as well used, particularly east of the existing A417. Users of the footpath would experience a variety of views along this section of the route, from large-scale arable farmland with views of busy roads in the east, to dramatic panoramic views from Crickley Hill, to enclosed rural scene in the west.

7.7.18 The LVIA assesses changes in the setting and experience along the Gloucestershire Way long distance footpath in the immediate setting of the road infrastructure. Where possible it also assesses the PRoW along the proposed diverted route, however there would be limitations and subject to landowner access to currently privately-owned land.

7.7.19 The LVIA assesses effects on people using the Cotswold Way National Trail and Gloucestershire Way long distance footpath, as agreed during consultation with key stakeholders.

Common land and Open Access land

7.7.20 Registered Common Land made publicly accessible under the Countryside and Rights of Ways Act 2000 (CROW Act) and with the right to roam on foot, within the study area are:

- Crickley Hill;
- Cold Slad;
- Barrow Wake;
- South Hill;
- Brimpsfield Common;
- Leckhampton Hill;
- Bucklewood Common;
- Buckle Wood, Cranham Wood and Cranham Common;
- Buckholt Wood; and
- Brockworth Wood, Upton Wood and Coopers Hill.

7.7.21 Not all areas of Open Access Land were visited due to the lack of intervisibility with the site because of intervening landform, vegetation or buildings, including Cold Slad, Brimpsfield Common, Cranham Wood/Common or Brockworth Wood, Upton Wood.

7.7.22 A description of Crickley Hill is provided below under Country Parks. Barrow Wake is a popular location with visitors and the local community to park up and taking in the dramatic views from the edge of the escarpment. Views from Barrow Wake are of a similar nature to Crickley Hill.

7.7.23 South Hill is an area of woodland which is managed by the Woodland Trust and can be accessed on foot via the Gloucestershire Way or Byway, west of Coberley, or via the Woodland Trust car park at Ullen Wood. Given is location on the northern and western side of the hill, views are predominantly focused to the north and west along the narrow stream valley away from the site.

7.7.24 Leckhampton Hill provides opportunities for informal recreation and can be accessed via the Cotswolds Way National Trail or from several car parks and an extensive network of PRoW. From the top of the hill, wide panoramic views can be gained in all directions, including to the north towards the site. From several locations, distant, intermitted views can be gained of the existing A417.

Other recreational spaces

Country Park

7.7.25 Crickley Hill Country Park is designated for people to visit and enjoy recreation in a countryside environment. Part of the Park is also designated as a scheduled monument for its archaeological interest due to human occupation since Neolithic times, as well as being a Site of Special Scientific Interest (SSSI) for its species rich grassland, scrub, and semi-natural woodland, together with nationally important rock exposures. The proposed scheme runs just south of the Crickley Hill, on the same alignment as the existing A417.

7.7.26 Ullen Wood (Ullenwood) Cricket ground is an open sports ground located by the existing Air Balloon roundabout.

National Cycle Network

7.7.27 The nearest National Cycle Network route is route 41, which is located outside of the 3km study area and connects Gloucester to Cheltenham north of M5 Junction 11.

Dark skies

7.7.28 In 2016, Campaign to Protect Rural England (CPRE) published their Night Blight: Mapping England's light pollution and dark skies[38] report and created detailed interactive maps to present the levels of light pollution across England. Light pollution covering skyglow, glare and light intrusion. With CPRE's permission their data was used to reproduce the Dark Skies (Figure 7.7) for the study area. This highlights the existing A417 which can be picked out at the Cowley and Air Balloon roundabouts, as areas of 1-2 and 2-4 brightness value (nanowatts/CMs/SR), compared to the darker rural landscape.

7.7.29 CCB have prepared a Position Statement to promote common standards and help establish practical measures to reduce light pollution and enhance the Dark Skies of the Cotswolds AONB. Dark skies within the AONB contribute to the its special character. It is acknowledged that inappropriate lighting associated with new development can negatively affect an area's dark skies. Currently, within the study area the A417 has two lit junctions at Cowley and Air Balloon roundabout which contribute to reducing dark skies within the AONB.

7.7.30 A night-time assessment was undertaken to establish the existing sources of lighting, including the current effect of car headlights along the existing A417.

Tranquillity

7.7.31 CPRE's Tranquillity mapping[39] (2007 dataset) was used to establish baseline levels of tranquillity across the study area. As with dark skies, the existing A417 can be located within areas of increased disturbance compared to the surrounding rural landscape, areas away from the main roads and settlements. The least tranquil part of the proposed scheme is currently the uphill section of the A417 south of Crickley Hill. Lower levels of tranquillity exist at Nettleton Bottom, Cowley roundabout, Birdlip and towards the edge of Brockworth and Gloucester. The highest levels of tranquillity are within Cold Well Bottom and at Shab Hill and Cowley Wood.

7.7.32 CCB has published a Position Statement on Tranquillity within the AONB, as this characteristic contributes to the area's special qualities. It sets out how tranquillity

should be conserved and enhanced with fewer areas being affected by noise pollution and other aural and visual disturbance. The position statement make reference to the current effect of the existing A417 on the area's level of tranquillity, particularly around the existing Air Balloon roundabout, with an acknowledgement that "th*e proposed upgrading of this road provides an opportunity to reduce noise levels* (increase tranquillity) *along this section of the A417*" [text in brackets added].

7.7.33 *"For such schemes, specific consideration should be given to the fact that the AONB is an area that is particularly valued for its tranquillity."*

7.7.34 Site visits confirmed that the existing A417 negatively effects levels of perceived tranquillity across the study area. This is particularly noticeable at Barrow Wake, Crickley Hill, Shab Hill, Stockwell and Nettleton Bottom where road noise is noticeable. Locations south of the A417 were audibly quieter due to prevailing winds pushing sounds from the road northeast away from the receptor. The A417 was most noticeable where visual and audible disturbance combine such as at Crickley Hill, Barrow Wake and Stockwell.

Landscape character summary

7.7.35 Figure 7.4 illustrates the landscape character types and areas (LCTs and LCAs) that are mentioned below, with full detailed description located in Published Landscape Character Assessment.

LCT 18 settled unwooded vale

7.7.36 The settled unwooded vale (LCT 18) forms the transitional area between the western escarpment fringe of the Cotswolds AONB and the vale landscape of the River Severn. The unwooded vale is low-lying and virtually flat, with land cover of large scale arable and smaller pasture fields neighbouring rural communities. Fields are bound with well-maintained hedgerows and some remnant dry stone walls. There is limited woodland cover and occasional orchards. Transport links present themselves as rural lanes that terminate at the escarpment, except for several main A and B classified roads, including the A417 which cross the escarpment along historic routes.

LCT 2 escarpment

7.7.37 The escarpment LCT is formed by a steep elevated west facing landform that runs northeast to southwest. Semi natural broadleaved woodland partially covers the upper escarpment slopes, defining the skyline when viewed from the west. Calcareous grassland is present on steeper scarp slopes and isolated sections such as at Barrow Wake, an Areas of Registered Common Land. Small scale settlement is confined to lower and shallower slopes of the escarpment, like at Cold Slad.

7.7.38 Transport links through the escarpment are limited, however the presence of the existing road at key points along the escarpment utilise natural breaks in the steep topography such as with the A417, which was likely a historic droves route.

7.7.39 The dramatic rise in topography from the neighbouring vale offers spectacular views out to the west, reaching as far as the Malvern's and the Forest of Dean. The Cotswolds Way National Trail follows the escarpment along most of its length.

LCT 7 high wold

7.7.40 The high wold LCT comprises a dramatic expanse of gently undulating plateau, characterised by frequent open long-distance views. The land use is primarily arable farming with large regular fields, bounded by degraded stone walls and hedgerows. Woodland cover is limited on the plateau except where the plateau is crossed by valleys where low lying woodland is present. Settlement is sparse. Radio masts are dominant man-made features on the western side of the landscape character type. The area is rich in human history, reflected in landscape such as Cowley Manor RPG and Emma's Grove.

LCT 8 high wold valleys

7.7.41 The high wold valleys LCT comprises shallow and broad valleys with extensive areas of mostly broadleaved woodland on valley sides. Areas of pastoral farmland extend between wooded slopes. The area is sparsely populated with only occasional farmsteads and isolated buildings and limited road network. These isolated and sheltered valleys are visually contained and have very little noise pollution penetrating within. Historic human elements in the landscape such as Coberley long barrow, in addition to historic field patterns, ridge and furrow, and historic tracks provide time depth and cultural richness to the landscape.

7.7.42 This LCT is sparsely developed with secluded villages within the valley bottoms. The confined landform, together with the lack of development, offer a high sense of seclusion and remoteness that contribute to the area's high level of tranquillity.

Summary of landscape receptors

7.7.43 The published landscape receptors have been summarised in Table 7-14 below. Landscape character types and key components are considered and assessed within the LVIA.

Table 7-14 Summary of landscape receptors

Landscape character area and AONB special qualities	Landscape character type	Key landscape components *(considers, landform, field boundaries, field pattern, land use (woodland, development, arable and pasture), heritage and conservation assets)*
AONB LCA 2D Coopers Hill to Winchcombe	LCT 2 Escarpment	Steep sloping escarpment and foot slopes Forms the highest stretch of the Cotswolds escarpment at over 300m AOD Freshwater springs Crickley Hill Camp Crickley Hill Country Park The Scrubbs woodland Cooper's Hill and wood Barrow Wake Leckhampton Camp and Tumulus Beech hangers High Brotheridge Camp Buckholt Wood Great Witcombe Roman Villa

Landscape character area and AONB special qualities	Landscape character type	Key landscape components *(considers, landform, field boundaries, field pattern, land use (woodland, development, arable and pasture), heritage and conservation assets)*
		Cotswold Way National Trail Gloucestershire Way long distance footpath Common land and Open Access Land at Barrow Wake Dryhill Roman Villa Crippet's Wood barrows Historic routes/tracks e.g. Greenway Lane Crossed by main roads Disused quarries Dispersed farms Predominantly woodland with some rough pasture Significant areas of calcareous grassland Small scale fields bound by a mix of fence, remnant hedgerows and broken drystone walls
AONB LCA 7B Bisley Plateau	LCT 7 High Wold	Upland plateau with complex and convoluted form 'Fingers' of elevated landform Gently undulating, and expansive upland plateau landform, dissected by dry valleys Open character and sparsely settled Brimpsfield Castle Brimpsfield Mound Brimpsfield conservation area Drystone wall field boundaries Large-scale open fields of predominately arable, intensively managed Infrequent woodland on steeper slopes or surrounding properties Scattered farmsteads and isolated residential properties
AONB LCA 7C Cotswold High Wold Plateau		Emma's Grove Gloucestershire Way long distance footpath Open character Large-scale open fields of predominately arable, intensively managed Hedge loss and dereliction of stretches of walls - neglected appearance Other development includes telecommunication masts at Shab Hill
AONB LCA 8A Toadsmoor, Holy Brook and Upper Frome Valleys	LCT 8 High Wold Valley	Deeply incised river valley sides Freshwater springs Slopes covered in deciduous woodland, with some coniferous stands Lack of development (roads or settlement)

Landscape character area and AONB special qualities	Landscape character type	Key landscape components *(considers, landform, field boundaries, field pattern, land use (woodland, development, arable and pasture), heritage and conservation assets)*
AONB LCA 8C Upper Churn Valley		Steep sloping river and dry valleys Open and with a gentle valley form Freshwater springs feed into the river Churn, and ornamental lakes at Cowley Frequent roads cross and run along the valley slopes Large-scale open arable of flatter land, with some pasture in smaller fields next to settlement Attractive stone-built settlements of Seven Springs, Coberley and Cowley, with other development including the National Star College and Cotswolds Hills Golf Course Woodland, including conifer plantation on upper slopes, particularly noticeable in Cold Well Bottom Coberley Long Barrow and conservation area Cowley Manor RPG, conservation area and wood Elevated levels of tranquillity within the valleys
AONB LCA 10A Middle Churn Valley	LCT 10 High Wold Dip Slope Valley	Broad valley form with shallow slope profiles Predominantly pasture with occasional areas of arable Sparse woodland cover with some riparian vegetation Main roads cross or run along the valley
AONB LCA18A Vale of Gloucester Fringe	LCT 18 Settled Unwooded Vale	Gently undulating landform, and lower escarpment slopes Mixed arable and pasture farmland Strong field pattern with well-maintained hedgerows Limited woodland cover Relatively well settled Major transport corridors through the vale
GLCA SV6B Vale of Gloucester		Moat and fishpond at Bentham Manor
Special Qualities of the Cotswolds AONB	N/A	Cotswolds AONB Special Qualities: • the unifying character of the limestone geology – its visible presence in the landscape and use as a building material; • the Cotswold escarpment, including views from and to the AONB; • the high wolds – a large open, elevated predominately arable landscape with commons, ‘big’ skies and long-distance views; • river valleys, the majority forming the headwaters of the Thames, with high-quality water; • distinctive dry-stone walls; • internationally important flower-rich grasslands, particularly limestone grasslands;

Landscape character area and AONB special qualities	Landscape character type	Key landscape components *(considers, landform, field boundaries, field pattern, land use (woodland, development, arable and pasture), heritage and conservation assets)*
		• internationally important ancient broadleaved woodland, particularly along the crest of the escarpment; • variations in the colour of the stone from one part of the AONB to another which add a vital element of local distinctiveness; • the tranquillity of the area, away from major sources of inappropriate noise, development, visual clutter and pollution; • extensive dark sky areas; • distinctive settlements, developed in the Cotswold vernacular, high architectural quality and integrity; • an accessible landscape for quiet recreation for both rural and urban users, with numerous walking and riding routes, including the Cotswolds Way National Trail; • significant archaeological, prehistoric and historic associations dating back 6,000 years, including Neolithic stone monuments, ancient drove roads, Iron Age forts, Roman villas, ridge and furrow fields, medieval wool churches and country estates and parks; and • a vibrant heritage of cultural associations, including the Arts and Crafts movement of the 19th and 20th centuries, famous composers and authors and traditional events such as the Cotswolds Olympicks, cheese rolling and woolsack races.
Cotswolds AONB Tranquillity (Position Statement and CPRE Tranquillity Map)	N/A	Tranquillity is a special quality of the AONB Calm and quietude associated with peace Natural or historic features with little modern influence Free of man-made noise and other aural and visual disturbance Areas of greatest disturbance on A417 south of Crickley Hill and on edge of settlements. Highest levels of tranquillity within rural valleys. Development should seek to avoid and reduce noise pollution and visual disturbance and remove or reduce existing sources of noise pollution and visual disturbance.
Cotswolds AONB Dark Skies (Position Statement and CPRE Dark Skies Map)	N/A	A special quality of the AONB Large areas of naturally dark night skies Roads and settlement greatly increase light pollution, particularly around Birdlip, A417 junctions at Cowley and Air Balloon roundabouts. Darker valleys and isolated rural locations away from main roads.

Landscape character area and AONB special qualities	Landscape character type	Key landscape components *(considers, landform, field boundaries, field pattern, land use (woodland, development, arable and pasture), heritage and conservation assets)*
		The dark skies of the Cotswolds AONB would have been conserved and enhanced, with fewer areas being affected by light pollution. Development should avoid and reduce light pollution and remove or reduce existing sources of light pollution.

Visual context

7.7.44 Visibility across the study area varies from dramatic views from the upper slopes of the escarpment and open high wolds, to more enclosed, contained views within the wold valleys or where strong field boundaries or woodland limit views on the wold, such as at Shab Hill.

7.7.45 46 baseline viewpoints have been identified, in consultation with statutory consultees, to record the visual context of the three-kilometre wide study area and views towards the proposed scheme (Figure 7.1 Visibility and Viewpoints).

7.7.46 Summer and winter photography, is presented in Figure 7.10 Photosheets, with a description of views provided in Landscape Assessment.

Visual receptors

7.7.47 The ZTV was used to help identify visual receptors, indicating areas of potential visibility of the proposed scheme. The ZTV highlights elevated landform such as The Peak, Barrows Wake, Crickley Hill, Shab Hill, Leckhampton Hill and the upper slopes of the Churn Valley, particularly at Hill Barn. The extent of visibility is reduced due to sharp changes in topography such as in steep sided valleys of the River Frome Valley at Nettleton Bottom or on the far side of high points such as north of Crickley Hill or south-west of the Peak, or where woodland and settlement prevent views.

7.7.48 Each viewpoint was visited during field surveys with the existing character and features of the view record. For the assessment individual viewpoints have been grouped together to represent receptor groups such as recreational users (walkers, cyclists and horse riders), communities, visitors and road users. These are set out in table 7-15.

Table 7-15 Summary of surveyed viewpoints and visual receptors

Receptor group	Representative viewpoint number	Receptor
Outdoor recreation	VP1, VP7; VP8; VP9; VP10; VP11; VP15; VP16; VP17; VP18; VP19; and VP23	Walkers on the Cotswold Way National Trail
	VP15, VP16, VP23, VP25, VP27 & VP28	Walkers on the Gloucestershire Way long distance footpath
	VP1, VP2, VP5, VP6, VP7, VP8, VP9, VP15, VP16, VP18, VP19, VP23, VP25,	Walkers on the local public rights of way network.

Receptor group	Representative viewpoint number	Receptor
	VP27, VP28, VP32, VP33, VP35, VP36, VP37, VP40, VP41, VP42 & VP44	
	N/A	Cyclists on National Cycle Network Route 41 – (scoped out)
	VP17, VP24, VP45 & VP46	Cyclists and horse riders on the local bridleway network
	VP5, VP12	Cyclists using the FlyUp Downhill trails (scoped out – see table 7-16)
	VP26, VP30, VP31, VP34, & VP38	Users of (restricted) byway or green lanes
Community	VP4	Brockworth (scoped out – see table 7-16)
	VP3, VP4, VP5 & VP6	Little Witcombe and Great Witcombe
	VP39	Birdlip
	VP43 & VP44	Brimpsfield
	VP41 & VP44	Nettleton Bottom
	VP34	Cowley (scoped out – see table 7-16)
	VP35, VP36, VP37 & VP38	Stockwell
	VP24, VP25, VP26, VP27, VP31, VP32 & VP33	Shab Hill
	VP29	Coberley and Upper Coberley (scoped out – see table 7-16)
	VP21	Ullenwood (scoped out– see table 7.16)
	VP6	Bentham (scoped out – see table 7.16)
	VP13 & VP14	Cold Slad Lane
	VP46	Elkstone (scoped out – see table 7.16)
Visitor attraction or place of interest	All VPs	Visitors to the Cotswolds AONB.
	VP 15, VP16, VP 20, VP21 & VP22	Visitors to Crickley Hill Country
	VP1 & VP2	Visitors to Great Witcombe Roman Villa
	VP8, VP9, VP10 & VP11	Visitors to Barrow Wake car park - Visitors to Barrow Wake (including the car park and viewing point as marked on a 1:25k OS map)
	VP17	Visitors to Dryhill roman villa and Crippet's Wood round barrows scheduled monument (scoped out – see table 7.16)

Receptor group	Representative viewpoint number	Receptor
	VP18 & VP19	Visitors to Leckhampton Hill, Devil's Chimney, Leckhampton camp scheduled monument -
	VP23 & VP25	Visitors to Emma's Grove round barrows scheduled monument
	VP28 & VP29	Visitors to Coberley long barrow and Coberley roman villa scheduled monuments
	VP43 & VP 44	Visitors to Brimpsfield Castle scheduled monument (scoped out – see table 7.16)
	VP42	Visitors to Cowley Manor Registered Park and Garden (scoped out – see table 7.16)
Transport	VP6, VP13, VP23, VP41 & VP46	Motorists travelling on the A417, A436 and B4070
	VP21	Motorists on the A436
	VP4	Motorists on the A46 (scoped out – see table 7.16)
	VP28 & VP29	Motorists on the A435 (scoped out – see table 7.16)
	N/A	Motorists on the B4070
	VP3, VP6, VP13, VP14, VP21, VP38, VP39 & VP42	Motorists on the minor road

7.7.49 Full details for each viewpoint are recorded in Visual Baseline, including information on their location, elevation and brief description of the view.

Future baseline

7.7.50 Chapter 4 Environmental Assessment Methodology, the 'Do Minimum' and 'Do Something' scenarios have been set out, with the 'Do Minimum' scenario representing the future baseline with minimal interventions and without new infrastructure. Potential changes to landscape and visual receptors in the future would not be noticeable i.e. tree and vegetation growth would not be extensive, landscape pattern or topography is unlikely to change, and the receptor groups are unlikely to be different to those whose identified in the baseline text above.

Construction year baseline (2023) and opening year baseline (2025)

7.7.51 Given the relatively short period of time between the baseline study and proposed construction (one year) and opening year baseline (five years) the features and characteristics of the landscape would remain as set out above. There would likely be no perceivable change to the landform, land cover, field pattern, vegetation presence during this time.

7.8 Potential impacts

Sources of landscape and visual impact

7.8.1 This section sets out the sources of landscape and visual impact from the proposed scheme. The impacts from the proposed scheme are considered with embedded mitigation and enhancements included.

Sources of demolition and construction impact

7.8.2 Construction and demolition activities associated with the proposed scheme would take place between 2023 to 2025.

7.8.3 To avoid double counting of effects, the assessment of landscape and visual construction effects identifies and assesses only temporary adverse effects which arise because of activities and elements that are unique to the construction phase.

7.8.4 For example, the permanent removal of built form or vegetation is assessed as part of the operational phase, but the works, such as the disruption caused by construction plant used during demolition and site clearance are assessed as part of the construction phase. A further example would be proposed landforms or structures, which would form permanent features have been assessed as part of the operational phase, but the earthworks required to form them, including excavation, aggregate, earth movements and stock piling are assessed as construction effects.

7.8.5 As the proposed scheme is gradually built throughout the construction phase, permanent effects would increasingly become part of the landscape and features in views. These effects are assessed as part of the operational phase. They include, for example, gradual introduction of transport infrastructure and the presence of the proposed built elements, such as the main structures up to completion.

7.8.6 Sources of construction impacts on landscape and visual receptors include:

- temporary construction compounds with associated fencing;
- temporary haul roads;
- stockpiling and storage of materials;
- excavation, large-scale earthworks and handling of materials;
- on- and off-site construction traffic;
- on-site plant, such as:
  - demolition plant and excavators for site clearance;
  - articulated dump trucks, excavators, dozers and rollers for bulk earthworks;
  - cranes, telescopic boom lifts, piling rigs and telescopic forklifts for construction of structures; and
- night-time security lighting year-round, such as:
  - isolated task lighting would be provided intermittently where required during the winter months only; or
  - lighting of construction site compounds.

7.8.7 A description of the construction phase is provided in Chapter 2 The Project.

Sources of operational impacts

7.8.8 The proposed scheme description can be found within Chapter 2 The Project.

7.8.9 Sources of landscape and visual effects are likely to occur because of the loss of or changes to existing landscape features or characteristics, or the addition of new infrastructure or features within the landscape or view, including:

- the presence of the widened road, change of vertical and horizontal alignment south of Crickley Hill;
- altered road access arrangements to accommodate the new road infrastructure;
- the Cotswolds Way crossing linking the National Trail Crickley Hill and Barrow Wake providing a traffic free WCH route over the proposed scheme;
- the presence of replacement or enhancement vegetation, particularly along the southern side of the A417 between Brockworth bypass and Ullenwood junction;
- Bat underpass at Ch1+100.
- loss of the Air Balloon pub and associated grounds;
- deep section of road cutting across the escarpment and through Shab Hill, creating exposed rock faces to accommodate six lanes of traffic;
- the realigned A436 between Shab Hill and Ullenwood junction and the rerouting of the B4070 between Shab Hill, Barrow Wake and Birdlip;
- the Gloucestershire Way crossing linking the long-distance footpath over the proposed scheme, providing a traffic free route for walkers, cyclists and horse riders, and a safe route for wildlife.
- ‘greened’ overbridges at Cowley and Stockwell;
- changes in the layout of Cowley roundabout, including the downgrading of the rural lane to residential access only and WCH route;
- upgrading of farm/property access tracks or points of egress;
- loss of trees and vegetation resulting in changes to landscape character and views;
- the presence of attenuation ponds, cascade ponds, filtration strips, bioswales drainage channels and culverts associated with the drainage proposals, particularly where these are typical engineered solutions e.g. regular shaped ponds, slope angle and location on steep gradients and any associated earthworks, culverts or other features;
- change of surfacing and additional planting along the proposed detrunked section of the existing A417 between the minor road to Stockwell and Barrow Wake;
- changes to existing field pattern, including the removal, relocation or new field boundaries;
- new sections of drystone walling or hedgerow boundaries, planting of hedgerow trees or the change of land cover or agricultural practice resulting from the proposed landscape, heritage or ecological mitigation or enhancements; and
- changes to land cover from arable to rough/calcareous grassland or tree and woodland planting. Vegetation re-establishment would vary in timescale with calcareous grassland and scrub taking up to two to three years post construction, with trees taking around 15 years to reach a height, form and canopy size which would provide visual screening and filtering of views.

7.9 Design, mitigation and enhancement measures

7.9.1 In accordance with DMRB LA 107, the landscape design shall seek:

- *"to deliver excellence in design quality that responds to the needs of people and places…; and*
- *to deliver an inclusive, resilient and sustainable design solution."*

Construction mitigation

7.9.2 Mitigation design has been developed to avoid or reduce the potential construction impacts. This would seek to employ best-practice methods. As far as reasonably practicable, mitigation would include the following:

- the EMP, supported by the arboricultural impact assessment in accordance with BS 5837:2012, to retain and protect trees during the construction period in accordance with the recommendations made;
- where screening earthworks such as false cuttings are proposed as part of the wider mitigation design strategy, they would be constructed as early as is practicable to provide screening to the construction work;
- siting compounds and other construction facilities sympathetically within the landscape, via a comprehensive site selection process. Additionally, temporary construction buildings, fencing and facilities would be rendered in appropriate tonal colours to reflect the AONB landscape as well as screened in part by solid hoardings;
- ensuring soil structures are protected where land would be used temporarily, such as for compounds, haul roads, re-grading areas, so that when it is returned to the existing land use, it is in a suitable condition; and
- the establishment of advanced planting for softening and filtering views of the construction and subsequent operational phase, as well as part of the wider visual mitigation if land is not required for other construction activities.

Embedded mitigation

7.9.3 Full details of embedded mitigation are presented in Chapter 2 The Project.

Essential mitigation

7.9.4 Essential mitigation is set out on Figure 7.9 and includes:

- Cotswold Way crossing links the Cotswold Way National Trail over the proposed scheme between Crickley Hill Country Park and Emma's Grove/Barrow Wake providing better recreational access across the landscape and improving the visual experience for users of the PRoW;
- Gloucestershire Way crossing to provide a traffic free recreational crossing along with quieter areas to facilitate wildlife corridors. Planting on the crossing to feature a mosaic of habitats including calcareous grassland, groundcover shrub and small tree/scrub in hedgerows to support wildlife movement between Ullen Wood, Shab Hill and the wider landscape, and help reconnect landscape features removed during construction;
- Cowley Lane and Stockwell farm overbridges will include 3m wide hedgerows to reconnect landscape features removed during construction and provide landscape and habitat connectivity across the proposed scheme;
- linear tree planting to be extended across the detrunked and demolished section of the existing A417 road to increase biodiversity, creating additional wildlife habitat and for landscape integration;
- levels of the old A417 alignment are to be rationalised in places through infilling using excavated materials to restore land to original grades;

- new tree planting is to take place across the wider site to complement the local character using local province and climate change resilient species. Planting would pick up on existing local features such as avenues, groves, coppices and hanging woodland;
- restoration and creation of calcareous grassland and woodland to replace habitat lost during construction of the proposed scheme;
- the introduction of new woodland blocks and/or hedgerow planting as appropriate to create new field boundaries to visual screen the proposed scheme. New planting areas would link with existing woodland and hedgerows to unify and link habitats in the area;
- false cuttings and landscape bunding to screen the road and help reduce visual impacts of traffic surrounding landscape by including soft engineered slopes (using excavated materials), particularly all the section of the proposed scheme between Crickley Farm and Grove Farm and south of Shab Hill unction across the High Wold;
- Cotswold stone walling to field boundaries and along parts of the scheme boundary to match and compliment the local character. Stone walling will also be used to visual screen and integrate the scheme into the surrounding landscape; and
- bridges and structures to be of high architectural quality, finished in locally sourced material and other materials which complement the local vernacular.

7.9.5 The landscape planting design includes a range of measures including;

- woodland planting;
- woodland edge;
- linear belts of trees and shrubs;
- scattered trees;
- scrub;
- hedgerows;
- hedgerows with trees;
- individual trees;
- species rich calcareous grassland; and
- planted rock and scree.

7.9.6 Increasing woodland cover and new areas of planting would provide habitat and biodiversity value and contribute to carbon sequestration These elements will be supported and described within the LEMP which will be submitted with the ES, as part of the DCO application.

7.9.7 The landscape earthworks would also act to increase acoustic mitigation to reduce the noise levels and spread of noise pollution across the AONB and increase levels of tranquillity.

7.9.8 Towards the end of the construction period the EMP would be refined, which would contain essential environmental information needed by the body responsible for the future maintenance and operation of the soft estate and environmental mitigation measures.

Enhancements

7.9.9 Enhancements to the landscape character and visual amenity of the study area would include the introduction of the Cotswold Way and Gloucestershire Way crossings creating a better connected landscape through the Cotswolds AONB, providing safe recreational access away from the busy road, providing landscape

and habitat connectivity. The crossings design are of high quality, reflecting the surrounding landscape's sensitivity as a designated landscape.

7.9.10 Further grey/green crossing would be introduced at Cowley Lane and Stockwell overbridges. Cowley Lane overbridge would provide one 3m wide hedgerow on the south side of the bridge, with two 3m wide hedgerows provided on Stockwell farm overbridge.

7.9.11 Repurposing the existing A417 between Cowley junction at the Golden Heart Inn and Barrow Wake to provide a traffic free route through the Cotswolds AONB for walkers, cyclists and horse riders, called the Air Balloon Way. Reducing the width of the former carriageway provides a wide strip of land with would be planted with woodland and sown to establish calcareous grassland.

7.9.12 Extension of Ullen Wood (ancient woodland) by planting a large area of native deciduous woodland. Additional areas of deciduous woodland will be planted to provide a slight increase in woodland area compared to the baseline situation.

7.9.13 Extensive areas of calcareous grassland would be created across the proposed scheme with large arable fields being permanently converted to grassland and extensive planting to the roadside verges. Overall there would be a significant increase in calcareous grassland compared to the baseline situation.

7.9.14 Existing field boundaries would be enhanced with gaps to hedgerows filled in and replanted and Cotswolds stone walls in disrepair will be rebuilt enhancing the character of the landscape within the AONB. Extensive new sections of Cotswolds stone walling have been proposed to define new field boundaries along the length of the proposed scheme.

7.9.15 Proposed vegetation will create a more connected green network across the proposed scheme.

7.9.16 The proposed scheme layout and design would enhance the tranquillity and dark skies of the AONB (special qualities) as the road carriageway would be sunk into the landscape reducing noise pollution, light spill and skyglow as a result. This would also remove the visual disturbance of moving vehicles across this part of the AONB. Increased tranquillity would be experienced at Crickley Hill as result of the reduced gradient of the road meaning vehicles would be able to cross the escarpment with less effort and less engine noise.

7.9.17 The entrance and layout of Barrow Wake car park would be improved to discourage antisocial behaviour and provide a more family friendly environment. Cotswolds stone walling would be provided along the edge of the car park to obscure direct views of the car park, improving views towards the escarpment.

7.10 Assessment of likely significant effects

Receptors scoped out of the assessment

7.10.1 The LVIA has not assessed likely effects of the proposed scheme on any landscape or visual receptors located outside the three-kilometre study area. Sensitive receptors outside the study area have not been identified using the ZTV, with final viewpoint locations agreed with statutory consultees and confirmed through discussions with the Technical Working Group/Strategic Stakeholder Panel and via statutory consultation on the 2019 PEI Report.

7.10.2 It is notable that there is no right in law to a view. This has been accepted by various appeal decisions determined by the Planning Inspectorate. Therefore,

views from private properties do not form part of the LVIA. As stated in paragraph 7.4.18, most viewpoints are representative of communities and PRoW.

7.10.3 Permanent lighting is not proposed therefore the LVIA does not include an assessment on permanent lighting. Temporary construction lighting is likely, which would be intermittently used throughout the construction phase for select operations in isolated locations only and the effects of these construction operations have been assessed. Commentary has been provided within the visual assessment for receptors which would experience change to their visual amenity as a result of car headlights. General observations have also been made in relation to changes in light levels within the landscape assessment, particularly in relations to the AONB's Dark Skies.

Landscape receptors scoped out

7.10.4 The following landscape receptors have been scoped out from the LVIA after site visits established that they were unlikely to receive changes which would significantly affect their features or alter their characteristics: LCA 7B Bisley Plateau, LCA 8A Toadsmoor, Holy Brook and Upper Frome Valleys, LCA 8C Upper Churn Valley, LCT 10 High Wold Dip Slope Valley, LCA 10A Middle Churn Valley, LCA 18A Vale of Gloucestershire Fringe. Significant effects are unlikely to arise for this landscape receptors due to either their distance from the proposed scheme, lack on intervisibility, or unlikely to receive direct effects as a result of the proposed scheme.

Visual receptors scoped out

7.10.5 Views from private properties have not been assessed, however the extent of visual change has been assessed for groups of residential receptors in communities from publicly accessibly locations, as per Table 7-16. Refer to 7.4.18 for further details.

Table 7-16 Visual receptors scoped in or out of assessment

Receptor	Representative viewpoint number	Receptor scoped in/out	Reason
Walkers on the Cotswold Way National Trail	VP1, VP7; VP8; VP9; VP10; VP11; VP15; VP16; VP17; VP18; VP19; and VP23	Scoped in	Walkers may experience direct views, large changes in views or their visual resource along a short section of the trail, which at times may be in close proximity from the scheme.
Walkers on the Gloucestershire Way long distance footpath	VP15, VP16, VP23, VP25, VP27 & VP28	Scoped in	Walkers may experience direct views, large changes in views or their visual resource from some locations at close proximity to the proposed scheme.
Walkers on the local public rights of way network	VP1, VP2, VP5, VP6, VP7, VP8, VP9, VP15, VP16, VP18, VP19, VP23, VP25, VP27, VP28, VP32, VP33, VP35, VP36, VP37, VP40, VP41, VP42 & VP44	Scoped in	Walkers may experience direct views, large changes in views or their visual resource from locations immediately adjacent to or in close proximity to the proposed scheme.
Cyclists on National Cycle Network Route 41	N/A	Scoped out	Cyclists unlikely to experience large changes in views or their visual

Receptor	Representative viewpoint number	Receptor scoped in/out	Reason
			resource from this distance from the proposed scheme.
Cyclists and horse riders on the local bridleway network	VP17, VP24, VP45 & VP46	Scoped in	Cyclists may experience direct views, large changes in views or their visual resource from some locations which are adjacent to or at close proximity to the proposed scheme.
Cyclists using the FlyUp Downhill trails	VP5, VP12	Scoped out	Cyclists focus is likely to be on the course and not the wider landscape.
Users of (restricted) byway or green lanes	VP26, VP30, VP31, VP34, & VP38	Scoped in	Users may experience direct views, or large changes in views or their visual resource at close proximity from limited locations along the byway network.
Community of Brockworth	VP4	Scoped out	The community is unlikely to experience large changes in views or their visual resource from this distance and due to intervening vegetation and landform.
Communities of Little Witcombe and Great Witcombe	VP3, VP4, VP5 & VP6	Scoped in	The communities may experience direct views, large changes in views or their visual resource at close proximity from some locations to the north and east of the settlements.
Community of Birdlip	VP39	Scoped in	Parts of the community may experience direct views, large changes in views or their visual resource at close proximity from locations to the north and east of Birdlip.
Community of Brimpsfield	VP43 & VP44	Scoped out	The community is unlikely to experience large changes in views or their visual resource due to intervening vegetation.
Community of Nettleton Bottom	VP41 & VP44	Scoped in	Parts of the community may experience direct views, large changes in views or their visual resource at close proximity from some locations within Nettleton Bottom.
Community of Cowley	VP34	Scoped out	The community is unlikely to experience large changes in views or their visual resource from this distance and as a result of intervening vegetation and landform.
Community of Stockwell	VP35, VP36, VP37 & VP38	Scoped in	The community may experience direct views, large changes in views or their visual resource at close proximity from locations at Stockwell, predominately north east of the farmstead.
Community of Shab Hill	VP24, VP25, VP26, VP27, VP31, VP32 & VP33	Scoped in	Parts of the Community may experience direct views, large changes in views or their visual resource at close proximity from locations at Shab Hill.
Communities Coberley and Upper Coberley	VP29	Scoped out	The communities are unlikely to experience large changes in views or their visual resource from this distance

Receptor	Representative viewpoint number	Receptor scoped in/out	Reason
			and as a result of intervening vegetation and landform.
Community of Ullenwood	VP21	Scoped out	The community is unlikely to experience large changes in views or their visual resource from this distance and as a result of intervening vegetation and landform.
Community of Bentham	VP6	Scoped out	The Community is unlikely to experience large changes in views or their visual resource from this distance and as a result of intervening vegetation and landform.
Community of Cold Slad	VP13 & VP14	Scoped in	The community may experience direct views, large changes in views or their visual resource at close proximity from locations along Cold Slad lane, limited to gaps in vegetation and between properties.
Community of Elkstone	VP46	Scoped out	The community is unlikely to experience large changes in views or their visual resource from this distance and as a result of intervening vegetation and landform.
Visitors to the Cotswolds AONB	All VPs	Scoped in	Visitors may experience direct views, large changes in views or their visual resource at close proximity from limited locations within the AONB.
Visitors to Crickley Hill Country Park	VP15, VP16, VP20, VP21 & VP22	Scoped in	Visitors may experience direct views, large changes in views or their visual resource from some locations within the Open Access Land, mostly limited to the escarpment edge.
Visitors to Great Witcombe Roman Villa	VP1 & VP2	Scoped in	Visitors may experience direct views, large changes in views or their visual resource from limited locations on the approach to the villa ruins.
Visitors to Barrow Wake and car park	VP8, VP9, VP10 & VP11	Scoped in	Visitors may experience direct views, large changes in views or their visual resource at close proximity from locations towards the escarpment edge at Barrows Wake.
Visitors to Dryhill roman villa and Crippet's Wood round barrows scheduled monument	VP17	Scoped out	Visitors are unlikely to experience large changes in views or their visual resource from this distance and as a result of intervening vegetation and landform.
Visitors to Leckhampton Hill/Leckhampton camp scheduled monument	VP18 & VP19	Scoped in	Visitors may experience direct views, large changes in views or their visual resource at close proximity from some locations within the area of Open Access Land, excluding the Devil's Chimney.

Receptor	Representative viewpoint number	Receptor scoped in/out	Reason
Visitors to Emma's Grove round barrows scheduled monument	VP23 & VP25	Scoped in	Visitors may experience direct views, large changes in views or their visual resource at close proximity from limited locations within or immediately adjacent to the woodland.
Visitors to Coberley long barrow and Coberley roman villa scheduled monuments	VP28 & VP29	Scoped out	Visitors are unlikely to experience large changes in views or their visual resource from this distance and as a result of intervening vegetation and landform.
Visitors to Brimpsfield Castle scheduled monument	VP43 & VP44	Scoped out	Visitors are unlikely to experience large changes in views or their visual resource as a result of intervening vegetation.
Visitors to Cowley Manor Registered Park and Garden	VP42	Scoped out	Visitors are unlikely to experience large changes in views or their visual resource from this distance and as a result of intervening vegetation and landform.
Motorists on the A417	VP6, VP13, VP23, VP41 & VP46	Scoped in	Motorists may experience direct views or large changes in views or their visual resource at close proximity from some locations while travelling on the A417.
Motorists on the A436	VP21	Scoped out	Motorists are unlikely to experience large changes to their views or their visual resource for extended sections of their journey due to changes only taking place near the junction with the A417.
Motorists on the A46	VP4	Scoped out	Motorists are unlikely to experience large changes to their views or their visual resource for extended sections of their journey from this distance and as a result of intervening vegetation and landform.
Motorists on the A435	VP28 & VP29	Scoped out	Motorists are unlikely to experience large changes to their views or their visual resource for extended sections of their journey views from this distance and as a result of intervening vegetation and landform.
Motorists on the B4070	N/A	Scoped in	Motorists may experience direct views, large changes in views or their visual resource at close proximity from some locations on the road network.
Motorists on the minor road network	VP3, VP6, VP13, VP14, VP21, VP38, VP39 & VP42	Scoped in	Motorists may experience direct views, large changes in views or their visual resource at close proximity from some locations on the road network.

Assessment of landscape effects

7.10.6 For the purpose of the PEI report, the preliminary landscape assessment is provided in Tables 7-17 to 7-20, which summarise the assessment. The ES will

provide full long form narrative assessing the likely effects on each receptor group.

Cotswolds AONB – Special Qualities

Table 7-17 Likely effects on the special qualities of the Cotswolds AONB as a result of the proposed scheme. Special qualities taken from the Cotswolds AONB Management Plan 2018 – 2023

AONB Special Qualities (from AONB Management Plan)	Construction or operational phase	Likely change as a result of construction or operational activities
Unifying character of the limestone geology – its visible presence in the landscape and use as a building material	Construction	Exposure of underlying geology will be more prominent as the result of extensive excavation needed to widen the existing cut through the Cotswold escarpment. Areas where top and sub soil stripping will take place will also appear prominent during the construction phase. A stone crusher situated within the construction compound at Emma's Grove will be used to process excavated material to be reused on site for Cotswold stone walls and architectural details on structures. Newly constructed landscape bunds and highway verges will be topped with crushed Cotswold stone to provide nutrient deficient substrate, allowing opportunities for rare and protected flora and fauna. These features will be highly visible during construction due to the bright colour of the stone.
	Operational – year 1	During the first year of operation the exposed rock faces and freshly laid material will appear bright yellow and prominent in the surrounding landscape. Scaring from the recently completed and removed construction activities will be present until these areas have recovered, and vegetation has established.
	Operational – year 15	Rock exposures through the cut section of the escarpment and between the A417 and A436 will still be present and visible. The rock will have weather by year 15 and locally prominent flora will have established, softening the appearance of the slopes and will help integrate them into the surrounding landscape. The rock exposures will appear similar to the neighbouring natural exposures at Crickley Hill. Significant beneficial. The rock exposures created by the scheme will open up and make visible the underlying geology on this area.
Cotswold escarpment, including views from and to the AONB	Construction	Visual presence of construction activity on and adjacent to the escarpment during the construction phase to widen the carriageway through the escarpment, altering the appearance and prominence of the road will have a negative effect on view from and to the AONB. This would be a significantly reduced effect with shallower cut compared to 2019 scheme. Visual presence of activity at Barrow Wake for reconfiguration of Barrow Wake car park and realigned B4070. Adverse effects due to increased width of the cut and visual presence of construction vehicles and activities along proposed B4070 realignment. Beneficial due to reduced impact of car parking at Barrow Wake.
	Operational – year 1	Adverse effects would arise as a result of increased cut compared to baseline, more visually open aspect with the loss of roadside vegetation (woodland south of existing A417, south of Crickley Hill) and visual prominence of the proposed scheme with vehicle movement more apparent in views to and from the escarpment.

AONB Special Qualities (from AONB Management Plan)	Construction or operational phase	Likely change as a result of construction or operational activities
		There is an increased likelihood of obtaining glimpsed views of vehicle movements on realigned B4070, south of Barrow Wake. Benefits would include a reduced visual presence of the car park at Barrow Wake.
	Operational – year 15	Mitigation planting in combination with the proposed landscape bund will help to screen views of the proposed scheme once vegetation has matured to a sufficient height. Woodland planting, once mature, will help integrate the proposed scheme into the landscape, reducing its impact on the landscape character of the escarpment and in views to and from the escarpment. At year 15 views to the proposed scheme from the escarpment will appear similar to the baseline situation. Vehicles moving along the escarpment south of Barrow Wake along the realigned B4070 will be less visible as adjacent vegetation will have mature further to screen views of this part of the proposed scheme.
High wolds – a large open, elevated predominately arable landscape with commons, 'big' skies and long-distance views	Construction	Construction activity on the high wolds will likely have a negative effect on the area's character, given its openness and likely visual prominence of construction activities. The proposed scheme will appear in long-distance views and look at odds with the rural arable landscape. Effects will arise from the significant level of earthworks that would be needed to construct Shab Hill and Cowley junctions and the landscape bunds which enclose the proposed scheme through the high wolds. These effects will be short term and will be removed when the construction activity is complete.
	Operational – year 1	At year 1, the recently completed landscape bunds will initially appear at odds with surrounding landscape as the will be formed of locally excavated Cotswold stone which will appear bright for the first year, despite their design to tie in with the existing landform and topography of the area. The bunds will only be partially covered with topsoil where they will become part of the surrounding arable farmland. Other sections would be left as crushed bedrock to allow the natural colonisation of locally important flora. Along the top of the bunds will be extensive sections of new Cotswold stone walling to match and integrate with the existing network of field boundaries. Proposed walling will appear bright in the landscape until the rock has weathered.
	Operational – year 15	At year 15, landscape bunds will appear as part of the natural undulations of the high wolds. The extensive network of proposed Cotswold stone wall field boundaries will now have weathered complimenting the existing local character.
River valleys, the majority forming the headwaters of the Thames, with high-quality water	Construction	This special quality is not affected by the proposed scheme.
	Operational – year 1	This special quality is not affected by the proposed scheme.
	Operational – year 15	This special quality is not affected by the proposed scheme.
Distinctive dry-stone walls	Construction	Constructing the proposed scheme would require some sections of existing stone walling to be removed. However, significant new sections of walling would be constructed along the tops of

AONB Special Qualities (from AONB Management Plan)	Construction or operational phase	Likely change as a result of construction or operational activities
		landscape bunds that flank the southern part of the proposed scheme and to newly created field boundaries. Sections of poor quality and walling in disrepair would be rebuilt improving the quality of stone walling across this area of the AONB.
	Operational – year 1	As stated above, significant new and rebuilt stone walling form part of the proposed scheme.
	Operational – year 15	As stated above.
Internationally important flower-rich grasslands, particularly limestone grasslands	Construction	During construction areas of existing flower rich grassland would be disturbed or removed to accommodate the proposed scheme, the construction compounds and associated activities. However, significant areas of proposed calcareous grassland will be established towards the end of the construction period, as part of the proposed restoration. These areas would be suitably maintained to ensure these large areas of newly created habitat can successfully establish and thrive.
	Operational – year 1	At year 1, large areas of proposed calcareous grassland would be established, creating significantly more grassland compared to the baseline situation. To achieve this arable farmland will be permanently converted to grassland and manged to ensure its success.
	Operational – year 15	As stated above.
Internationally important ancient broadleaved woodland, particularly along the crest of the escarpment	Construction	Construction of the proposed scheme would permanently remove areas of existing deciduous woodland and a number of veteran trees will also be lost. No ancient woodland would not be lost.
	Operational – year 1	New woodland, tree and hedgerows will be planted with an overall increase of woodland compared to the baseline situation.
	Operational – year 15	Overtime as trees, hedgerow and woodland continue to mature providing an extensive and connected network of green infrastructure and would positively contribute to the AONB's landscape character.
Variations in the colour of the stone from one part of the AONB to another which add a vital element of local distinctiveness	Construction	Construction activity would create rock exposures through the escarpment, substantial new sections of Cotswold stone walling and structures clad in locally source materials.
	Operational – year 1	At year 1, the recently completed excavations would provide a great opportunity to understand the local geology of this part of the AONB. Cut slopes would appear bright yellow in contrast to the natural rock exposures at Crickley Hill but would weather over time. Cotswold stone walling to field boundaries and along new landscape bunds will further celebrate the local distinctiveness and complement the landscape character or the AONB.
	Operational – year 15	At year 15, rock exposures, stone walling and structures would have weathered to a more subtle colour match and complementing existing natural features and the local buildings.
The tranquillity of the area, away from major sources of inappropriate	Construction	Constructing the proposed scheme will have significant effects on tranquillity in a localised area of the AONB, as a result of the noisy, dusty and visually prominent nature of the construction activity. Activities including a large number of vehicle movements with safe beckons and warning signals. Further visual disturbance will be

AONB Special Qualities (from AONB Management Plan)	Construction or operational phase	Likely change as a result of construction or operational activities
noise, development, visual clutter and pollution		caused by large-scale earthworks and introduction of overbridges as part of the proposed scheme.
	Operational – year 1	Landscape bunds have been designed to include Cotswold stone walling on top to contain visual and auditory disturbance related to the proposed scheme and vehicles moving along it. These structures will reduce the effect of the proposed scheme and would provide benefits, improving perceived levels of tranquillity across the AONB. For further information on the acoustic effects of the proposed scheme please refer to Chapter 11 Noise and Vibration.
	Operational – year 15	In addition to the benefits as described at year 1, at year 15, mitigation planting would have matured to a sufficient height providing visual screening of the proposed scheme, including junctions at Ullenwood, Shab Hill and Cowley. Maturing woodland, tree and hedgerow planting with extensive sections of proposed Cotswold stone walling would help visually contain the proposed scheme, including vehicles movements, reducing its effect on the AONB's tranquillity by significantly reducing visual disturbance compared to the baseline situation.
Extensive dark sky areas	Construction	During the construction phase, high-intensity lighting would be used to allow safe working practice during hours of darkness. The removal of roadside vegetation to facilitate construction activities will open up views of the existing road network increasing light spill from vehicles at night. This would negatively affect the dark skies of the AONB.
	Operational – year 1	The proposed scheme will not be lit and with the removal of the existing lit junctions at Cowley and Air Balloon roundabouts there would be a significant reduction in light pollution as a result of the proposed scheme when compared to the baseline situation. Landscape bunds have been designed to include Cotswold stone walling on top to visually contain the proposed scheme and vehicles moving along it. At night bunds will prevent light spill from vehicles travelling along the road providing further improvements compared to the baseline situation.
	Operational – year 15	In addition to the benefits explained at year 1, at year 15, mitigation planting would have matured to a sufficient height to provide visual screening of the proposed scheme, including junctions at Ullenwood, Shab Hill and Cowley. Maturing woodland, tree and hedgerow planting will help visually contain the proposed scheme, including vehicles movements at night, reducing its effect on the AONB's dark skies.
Distinctive settlements, developed in the Cotswold vernacular, high architectural quality and integrity	Construction	This special quality is not affected by the proposed scheme.
	Operational – year 1	This special quality is not affected by the proposed scheme.
	Operational – year 15	This special quality is not affected by the proposed scheme.

AONB Special Qualities (from AONB Management Plan)	Construction or operational phase	Likely change as a result of construction or operational activities
Accessible landscape for quiet recreation for both rural and urban users, with numerous walking and riding routes, including the Cotswolds Way National Trail;	Construction	During the construction phase, the proposed scheme would have an adverse effect on the local PRoW network. It would permanently divert several footpaths, bridleway and byway, severing other routes at Stockwell farm and Harding's Barn with construction activity significantly reducing the opportunity for quiet recreation in close proximity to the construction works. Construction activities would negatively affect the visual and auditory enjoyment of the AONB for the length of the construction phase.
	Operational – year 1	New pedestrian crossing would be provided over the scheme between Emma's Grove and Crickley Hill to accommodate the Cotswolds Way National Trail over the Cotswolds Way crossing, with a multipurpose crossing north of Shab Hill to accommodate horse riders, cyclists and walkers along the Gloucestershire Way, over the Gloucestershire Way crossing. Underpasses would be provided between Crickley Farm and Grove Way, with further crossing at Stockwell farm and Cowley Lane. All proposed structures will provide improve permeability and recreational access across the proposed scheme, compared to the baseline situation. The detrunked and repurposed section of the existing A417 will become the Air Balloon Way providing traffic free recreational access between the Golden Heart Inn and Barrow Wake for walkers, cyclists and horse riders, and will be suitable access for all. Further new sections of PRoW will be added to the network providing benefits and greater recreational benefits within the AONB. The proposed realignment of the B4070 to make use of the existing road infrastructure at Barrow Wake will increase the opportunity of natural surveillance making this area more family friendly.
	Operational – year 15	Same benefits as described above.
Significant archaeological, prehistoric and historic associations dating back 6,000 years, including Neolithic stone monuments, ancient drove roads, Iron Age forts, Roman villas, ridge and furrow fields, medieval wool churches and country estates and parks;	Construction	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.
	Operational – year 1	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.
	Operational – year 15	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.
Vibrant heritage of	Construction	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.

AONB Special Qualities (from AONB Management Plan)	Construction or operational phase	Likely change as a result of construction or operational activities
cultural associations, including the Arts and Crafts movement of the 19th and 20th centuries, famous composers and authors and traditional events such as the Cotswolds Olympicks, cheese rolling and woolsack races.	Operational – year 1	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.
	Operational – year 15	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.
Vibrant heritage of cultural associations, including the Arts and Crafts movement of the 19th and 20th centuries, famous composers and authors and traditional events such as the Cotswolds Olympicks, cheese rolling and woolsack races.	Construction	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.
	Operational – year 1	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.
	Operational – year 15	Likely impacts on specific assets have been assessed within chapter 6 Cultural Heritage.

Table 7-18 Assessment of effects on landscape receptors

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
LCT 2 Escarpment, including sub area LCA 2D Cooper's Hill to Winchcombe			
Likely changes as a result of the construction activities: Construction activities will directly affect landscape characteristics of the escarpment LCT. These include the extensive loss of roadside vegetation along the southern side of A417 between Crickley Farm and Grove Farm to construct a five-lane carriageway, with central reservation, hardstanding and maintenance strip. A landscape bund will be erected extending south into pasture fields (parts under ridge and furrow), requiring realignment works to Norman's Brook, including short sections of culverting. To the north of the proposed scheme Dog Lane and Cold Slad lane will be realigned, separated from the proposed scheme by a narrow verge on a short slope, planted with grass and trees. A PRoW will follow the realigned route of Dog Lane and Cold Slad Lane to connect into the Cotswold Way National Trail. South of the proposed scheme, PRoW will be diverted and temporary stopped up during the construction phase. Construction access will be provided along the route south of the carriageway to connect to the construction compound in the neighbouring Settled Wooded Vale LCT. A bat underpass at Ch1+100 will be excavated to provide a safe crossing point for bats under the proposed scheme. At Grove Farm, a second underpass will be provided for access to the farm. Here farm buildings will be demolished and trees felled to accommodate the construction of attenuation basin 3c, in addition to the realigned Norman's Brook, with stepped cascades down the escarpment slope. East of Grove Farm, the steeper slope of the escarpment will be excavated and reprofiled to cut through the escarpment at approximately the same depth as existing (15m), widening the cut south of Crickley Hill to accommodate the five-lane carriageway. Excavation works will reprofile the escarpment slope on south side of the cutting to 1 in 35 degree slope, with benching and cuts slopes at 65 degrees. East of the escarpment edge, the Cotswold Way crossing will be erected, requiring the excavation of deep foundations and installation of the bridge deck using lifting equipment and cranes. On the LCTs eastern boundary, the Air Balloon public house and Ullenwood junction will be demolished. Extensive tree planting will take place across the LCT adjacent to the proposed scheme, including on the proposed landscape bund, between properties and the proposed carriageway. Hedgerows will be planting in fields next to the proposed scheme, south of Crickley Hill, with extensive Cotswolds stone walling erected across the proposed scheme to match existing. On the very eastern extent of the LCT, the existing A417 forms part of the area's eastern boundary, here the redundant road will be repurposed and restored to a green lane WCH route, named the Air Balloon Way. This will be achieved by grubbing up existing carriageway and removal of signage and lighting, followed by infilling areas and planting along its length with calcareous grassland and deciduous trees. The WCH route will be formed of a hard permeable finish. In the same area of the LCT, construction works will take place at Barrow Wake, to resurface and alter the car park layout opening up of entrance to provide better natural surveillance by removing existing overgrown vegetation. Proposed tree planting will be provided to break up the car parking areas and a Cotswold stone wall will be erected to enclose the area.			

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
The escarpments steep slopes will elevate the construction activity above the surrounding landscape of the vale, dispersing noise and visual disturbance across a wide area, lowing the baseline levels of tranquillity.			
Construction	**Very high sensitivity** National value and high susceptibility results in a very high level of sensitivity. As the landscape type with the most striking character within the AONB, a high scenic quality, with a high volume of designated landscape features, the value is of a national level. This part of the LCT is considered to have a high susceptibility to accommodate change of the type proposed. Combining the LCT's national value with its medium susceptibility to change, this part of the LCT, within close proximity and on the alignment of the existing road infrastructure is assessed as having high sensitivity to the type of development being proposed. The wider LCT, away from the existing A417 road corridor, would have a very high sensitivity to new road infrastructure.	**Moderate magnitude of effect** Likely changes as described will result in a medium scale of change (presence of construction activities to increased width of cut from baseline situation) over a small geographical extent with limited effects on the wider LCT and short duration of effect (2 years). Construction activities will be partially reversible with the removal of construction traffic and personnel, resulting in a minor magnitude of effect.	**Large, adverse significance of effect.** The construction works are predicted to result in a large and adverse significance of effect, due to a minor magnitude of effect on a very high sensitivity landscape receptor. The significance of effect would not be very large due to only a small part of the wider LCT being affected by construction activities within the context of the existing road corridor and cut slopes already present in the escarpment. Therefore, there would not be a total loss or large-scale change to the LCT.
Likely changes as a result of the operational activities at year 1: During the first year of operation the recently completed proposed scheme will be prominent in the landscape, new features like the landscape bund will appear out of place next to the naturalist slopes of the escarpment, highlighted further by extensive areas of newly planted woodland, with individual tree guards standing out against the natural colours of the surrounding landscape. The proposed scheme will be located on the same alignment as the existing A417, with an larger footprint, increasing its dominance in the landscape. Other new and uncharacteristic features include the Cotswold Way crossing, attenuation basins and drainage features will be present in the landscape.			

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
The Cotswold Way crossing will improve access providing traffic free crossing at Crickley Hill, connecting up the Cotswold Way National Trail. At year 1, vehicles travelling along the road will be very prominent in the landscape, both visually and auditory, with the recent removal of roadside vegetation opening up views into the area. Tree and grassland planting will not offer any screening or integrating benefits to new highway features of the proposed scheme at this stage. However, new woodland, tree, hedgerow and species rich grassland planting will start to link previously isolated and disconnected landscape features, providing long term benefit and positively contribute to the local landscape character. Benefits of additional rock exposures will start to be realised with increased opportunities for the natural regeneration of locally rare plant communities. Other benefits will begin to be realised with the improved landscape experience along the Cotswolds Way National Trail and with a more family friendly environment at Barrow Wake. The reconfigured car park layout at Barrow Wake will provide a more user-friendly experience and reduce the opportunity for antisocial behaviour.			
Operation – year 1	**High sensitivity** Landscape sensitivity is slightly reduced from the construction phase as a result of this part of the escarpment already being affected by the existing road infrastructure and the proposed scheme bringing about changes of similar nature, increasing its ability to accommodate change i.e. cut slopes and road infrastructure. Combining the LCT's national value with its medium susceptibility to the type of change being proposed, the LCT is assessed as having high sensitivity.	**Minor magnitude of effect** Medium scale of change over a small geographical extent and long duration, with the proposed infrastructure present for the life of the operational period. Changes will not be reversible (permanent) resulting in a minor magnitude of effect.	Years 1: **Moderate, adverse significance of effect.** Overall the significance of effect on the LCT is considered to be moderate and adverse at year 1. This LCT, the operation of the proposed scheme is predicted to result in a moderate, adverse and significant effect at year 1, due to a minor magnitude of effect on a highly sensitive landscape receptor. The significance of effect would not be slight at this stage because the proposed planting will not be at a sufficient height to

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
			provide any mitigation benefits. In addition, the rock exposures and post construction scaring will be refresh and still evident in the landscape, contrasting with the LCT key characteristics.
Likely changes as a result of the operational activities at year 15: At year 15, woodland and tree planting across the LCT would have matured to a relative extent helping integrate the new highway infrastructure and attenuation basins into the landscape. The visual and auditory dominance of the proposed scheme, with vehicles moving at high speed through the landscape will have reduced significantly and will now be similar to the baseline situation. Historic field boundaries will be restored and reinstated, better connecting landscape features, including woodland blocks and along the now wooded highway corridor and Air Balloon Way. The Cotswolds Way crossing will now be better integrated into the landscape with maturing planting on both sides of the structure. The materials will be patinated and weathered to a softened texture and appearance that at year 1 of operation. Improvements at Barrow Wake will now be part of the landscape, with a reduced presence of the car park on the escarpment edge compared to the baseline situation. Green features through the landscape, with areas of extensive tree and calcareous grassland planting will help reduced long term effect of the road infrastructure.			
Operation - year 15	**High sensitivity** The level of sensitivity would remain the same at year 15, as described for year 1, as a result of this part of the escarpment being able to accommodate some change similar to the level of effect present with the baseline conditions with the presence of the existing A417.	**Minor magnitude of effect** By year 15, the proposed scheme would be surrounded by maturing woodland along the escarpment by mitigation planting within the cutting. There would be benefits of connecting the planting into the existing woodland and field boundaries networks, integrating the proposed scheme into the landscape. This would reduce the scale of change further, with only slight changes to existing landscape features.	Years 15: **Slight, adverse and not significant.** The level of significance would reduce from those experienced at year 1 as a result of maturing vegetation, weathering rock exposures providing some benefits to this part of the LCT, such as providing opportunities for rare plant

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
			species on opened up rock exposures and connecting up landscape features. The preliminary significance of effect would not be moderate as the proposed changes
LCT 7 High Wold, including sub areas LCA 7B Bisley Plateau and LCA 7C Cotswolds High Plateau			
Likely changes as a result of the construction activities: Construction activity will take place along a relatively long section of this large LCT, between Emma's Grove (existing Air Balloon pub) and Cowley junction. North of the A436 and at the southern extent of Leckhampton Hill road changes would take place to the entrance of Crickley Hill Country Park and within the grounds of the National Star College. These include, the alteration of the existing highway alignment with new layout to entrance of Crickley Hill Country Park with improved sight lines. There will be temporary road works and traffic management system present throughout the construction period, which will change as the programme of construction works progresses. Attenuation basins will be excavated at Ullenwood, between the new A436, Ullenwood junction and A417 and within pasture field on Star College land. To screen construction activity from the residents of the college temporary bunding will be erected and the area will be used to store topsoil. At the end of the construction period the area will be planted with woodland and restored to woodland pasture. There may be the need to extend the drainage system across the Star College land to connect into a local watercourse within the golf course. This would require a drainage channel to be trench dug across arable/pasture fields, with removal of trees where it connects into the local watercourse on the golf course. South of Ullen Wood, the existing pasture field would be partially converted to woodland and wood pasture. The remaining area will be improved to species rich/calcareous grassland. North of Shab Hill, the proposed scheme will be cut into the hillside, with earthworks dramatically altering local topography. The proposed alignment of both A417 and A436 will be presence in this LCT, with deep excavation and rock exposed cut to form steep slopes. This will result in the loss of woodland at Emma's Grove (reduced effect compared to 2019 scheme). On the western side of the proposed scheme, a main construction compound will be located east of Emma's Grove, comprising of stone crusher, portacabins and material storage area. To install the Gloucestershire Way crossing, northwest of Rushwood Kennels, foundations will be excavated and formed, before lifting the deck into place using cranes. In the same area, the rural lane and access tracks to private properties at Rushwood Kennels and		

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
Cuckoopen will be altered, installing a new section of road between Shab Hill junction and the properties. Landscape bunds and woodland planting will be installed along the alignment of the new track to help mitigate the effects of the proposed scheme for these properties. Constructing Shab Hill junction, will require a programme of high intensity construction activities with significant earthworks to stop up/fill in the valley to accommodate the attenuation basin, access track, A436, roundabout, on/off slip roads and mainline, including underpass. This will result in the loss of sensitive rock exposure and mature beech coppice, as well as the significant alteration to local topography. West of Shab Hill near the Birdlip Radio Station and The Barn, Shab Hill junction will be constructed at close proximity, use of earthmoving vehicles, excavators, and cranes. New road access to the properties will be constructed with a section of the existing rural lane being permanently stopping up. South of Shab Hill, as the proposed scheme crosses the more open part of the wold, the construction of mainline will require excavation and large-scale earthworks to install long sections of landscape bunds through the wold landscape. Cotswold dry stone walling will be erected along newly created field boundaries and on top of bunds, with small coppices planted. Other features in this part of the wold include the excavation of attenuation basin no. 9 and 10 and associated access and drainage channels, and the installation of Cowley Lane and Stockwell Farm overbridges. Installing Cowley Lane overbridge will require the alignment of the rural lane to be altered to facilitate building an offline section of road and the erection of the overbridge using cranes. Several mature avenue trees and a small areas of woodland will be felled to accommodate the works. Erecting Stockwell overbridge would require the partial offline construction and realignment of the farm track. Proposed new tree planting would take place adjacent to the road and overbridges, with hedgerow planting on the bridge to help integrate the structures into the surrounding landscape. Long sections of landscape and acoustic bunding to screen the road from viewpoints within the wider wold landscape. Proposed Cotswolds stone walling and woodland planting along embankments and bunding. Large embankment are proposed at a gradient of approximately 1:12 to 1:20 to slacken out the slope and help integrate it into the surrounding landscape by tying into existing topography. Areas of new woodland planting would be implemented south of the farm access track. A main construction compound will be located in an arable field south of rural lane. To form Cowley junction would require the deep excavation of on/off slip roads, creating a large footprint as the junction cuts through the hillside to east of mainline. Tree planting and a large area of wildflower meadow would be implemented within the area of islanded land. The existing rural lane access to the village of Cowley will be down grade to residential access and WCH route only. New tree and hedgerow would be planted on the south side of the proposed scheme. Three attenuation basins would be excavated, within on/off slip roads and roundabout where the proposed scheme connects back into the local network (historic Roman road). The area would be planted with woodland and calcareous grassland. Repurposing and restoration of the existing A417 carriageway would take place by grubbing up the existing carriageway and removing signage and lighting. This route, Air Balloon Way, would form a footpath and WCH link between the Golden Heart Inn car parking, with additional disabled and horsebox parking east of Birdlip, to Barrow Wake. Large sections of the old road will be grubbing up and restored to allow the area to become a WCH route with calcareous grassland and tree planting.			

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
West of the proposed scheme, a rural lane access to Shab Hill will be upgraded to accommodate B4070, with roundabouts at both ends (Shab Hill and Barrow Wake) to allow free flow of traffic. On the western edge of the area, the Cotswold Way crossing will be erected in the neighbouring LCT, with short-term localised effects caused by the presence of cranes. The proposed construction activities, as described above, would impact the perceived tranquillity of this otherwise rural area of the AONB.			
Construction	**High sensitivity** The Cotswolds High Wold is a key component of the Cotswolds AONB, valued at a national level due to the presence of special qualities, including the area's gently undulating plateau, opportunity to gain long distance views over a predominately arable landscape of large scale, regular fields enclosed by dry stone walls. The majority of this LCT has a high susceptibility to large-scale road infrastructure due to its high intervisibility across the large scale, open landscape which contribute to the LCTs characteristics. However, part of the LCT which falls within the north of the study area tends to be more enclosed, particularly around Shab Hill, with strong field boundaries, conifer belts and mature woodland, reducing its susceptible to medium. Combining the LCT's national value with its medium susceptibility to change, the LCT is assessed as having a high sensitivity to the type of change being proposed during the construction phase.	**Major adverse magnitude of effect** The LCT is likely to experience a large scale of change in a localised area within the study area, resulting in a medium geographical extent, where construction activities would be obvious over a wider area of this LCT. The duration of construction activity is likely to last two years between 2023 to 2025. These effects will be direct and partially reversible as that the construction equipment and activity would be removed at the end of the construction phase and areas of disturbed ground would recover quickly, particularly within arable farmland. Combining judgements of a large size/scale of change over a medium geographical extent, a short duration, and partially reversible and direct effects, a major adverse magnitude of effect on the landscape.	**Large, adverse significance of effect.** The High Wold LCT is likely to experience a large and adverse preliminary significance of effect to a localised area within the larger LCT. This is as a result of a major magnitude of effect to a highly sensitive landscape receptor. The preliminary significance of effect would not be very large as there would not be a total loss or large-scale damage to distinctive landscape features and the effects are not likely to extend over a wide area.
Likely changes as a result of the operational activities at year 1:			

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
There would likely be long term effects of the Gloucestershire Way crossing, with the addition of a new structure in this landscape which would benefit users of the long-distance footpath, by providing a traffic free access crossing over the proposed scheme north of Shab Hill. Works would be undertaken to improve the of setting of Emma's Grove scheduled monument. A small area of woodland would be removed to open up views to the wider landscape to provide intervisibility with neighbouring monuments at Crickley Hill, Barrow Wake and the Peak. To compensate for this loss, Emma's Grove woodland would be extended along its southern and eastern boundaries to link and reconnect with proposed woodland along Air Balloon Way and with new roadside planting adjacent the proposed scheme. There would be long term benefit of woodland, hedgerow planting and species rich grassland to this area of the LCT. Extension of Ullen Wood ancient woodland and better connectivity with surrounding field boundaries and coppices, providing opportunities for wildlife to cross the proposed scheme. Long term presence of large attenuation basin, minor alteration in road layout, better flowing traffic to reduce queuing on approach to A436. Depth of cut/height of exposed slope, with benching and planting. Wooded upper slopes/skyline. New structure in the landscape, visual presence along the new road, temporary visible from surrounding landscape on the approach to the overbridge. Potential to gain views of the structure from Ullen Wood and further north from PRoW off Cotswold Way. Woodland planting to screen road infrastructure and integrates the attenuation basins into the landscape, in time would provide visual connectivity with Ullen Wood. The area would benefit from improved access through the LCT with a safe pedestrian crossing at Ullenwood junction, Gloucestershire Way crossing linking the Gloucestershire Way over the scheme and a new WCH route along the Air Balloon Way, to help address severance caused by the proposed scheme. Further benefits would be realised with the provision of a new footpath through field south of Ullen Wood, connecting Shab Hill with Crickley Hill and linking up with the newly aligned of Gloucestershire Way long distance footpath. Complete alteration to the landscape in this localised area, significant permanent changes to landform, loss of woodland and rock exposure (special qualities of the AONB). New woodland planting on engineered embankments, presence of attenuation basins and associated maintenance access tracks, complicated landform with several embankments/bunding. Road infrastructure, roundabout, A436, access track, on/off ramps, at grade mainline, underpass, drainage channels. Highway structures, including the Gloucestershire Way crossing, Cowley Lane and Stockwell Farm overbridges and Shab Hill junction would form permanent features within the LCT. Other permanent changes include the alteration of entrances to private properties at The Barn, Cuckoopen Farm access, with proposed woodland belt and bunding at edge of the property and new field access. The outlook from Rushwood Kennels will be permanently altered with new landscape bund and woodland planting replacing thick conifer belt creating similar enclosed character. Still possible to perceive A436, junction and A417 and mainline is at grade with combination of cut and embankments. Altered topography across a large area for landscape bunding to screen the proposed scheme. Landscape bunds would replicate surrounding topography/landform of this part of the AONB. New woodland around attenuation basin to help integrate into this otherwise open landscape. Woodland planting to integrate into the landscape and refined shape to attenuation basin. Proposed new tree planting adjacent to the road, hedgerow planting on the crossing, bridge embankments integrate into surrounding landscape bunding to screen the road from viewpoints within the wider wold landscape. Proposed Cotswolds stone walling and woodland planting along embankments and			

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
bunding would match and complement existing landscape features. Parts of the wider landscape, in fields neighbouring the proposed scheme would be restored to arable farmland and enclosed with Cotswold stone walls. Air Balloon Way improve and restores landscape severance making use of existing feature to create a green route through the landscape with improved access. The route would be planted with trees and calcareous grassland to help reduced long term effect of previous road infrastructure.			
Operation – year 1	**Medium sensitivity** Landscape sensitivity will be slightly reduced to that reported for the construction phase as the type of change being proposed during operational phase year 1 will be more likely to be accommodated reducing the area's susceptibility to the proposed scheme, i.e. operational road, overbridges, junctions similar to those already present at the baseline associated with the existing A417. As result and by combining the LCT's national value with its medium susceptibility to change, the LCT is assessed as having a medium sensitivity to change.	**Major magnitude of effect** There is likely to be a large scale of change as a result of road infrastructure being introduced into the landscape creating an obvious change to localised character. This part of the High Wold LCT would experience a medium geographical extent. Effects will be direct with a major adverse magnitude of effect on this LCT.	Year 1: **Moderate significance of effect** The proposed scheme is predicted to result in a moderate significance of effect at year 1, due to a major and adverse magnitude of effect on a landscape affecting medium sensitivity receptors. The preliminary significance of effect is not likely to be large at year 1 as there would unlikely be a total loss or large-scale damage to distinctive features. There would also be a mix of beneficial and adverse effects as a result of the proposed scheme. For example, beneficial effects would include long sections of new Cotswold stone walling to field boundaries and the existing A417 road

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
			infrastructure would be removed, with the area repurposed to the Air Balloon Way green WCH route.
Likely changes as a result of the operational activities at year 15: By year 15, the proposed scheme would be integrated within rolling landforms of calcareous grassland and lined with Cotswold stone walls and small copses of trees. This would reinforce local landcover patterns and improve opportunities for landscape connectivity, compared to treatment of landscape in intensive agricultural use. These beneficial changes are balanced with the permanent presence of a major highway and junction. Vehicles would remain visible and audible to exposed parts of the Shab Hill junction and B4070 and A436 roads, locally affecting the LCT. However, the majority of the road infrastructure would be set into the landscape using extensive landscape bunding, topped with Cotswolds stone walling. These features would screen the road and vehicle movements in wider views across the high wolds.			
Operation - year 15	**Medium sensitivity** Landscape sensitivity is the same as report for operational phase year 1 - combining the LCT's national value with its medium susceptibility to change, the LCT is assessed as having a medium sensitivity to change.	**Minor magnitude of effect** At year 15, the integration of the proposed scheme and establishment of calcareous grassland, landform bunds and extensive sections of Cotswold stone walling would significantly reduce the magnitude of effect from those experienced at year 1. Combining judgements of a medium size/scale of change over a medium geographical extent, with a long duration and direct and permanent, a minor magnitude of effect to this LCT would occur.	Year 15: **Slight, adverse and significant effect** The significance of effect will reduce from moderate to slight as the proposed mitigation measures will have bedded in, with proposed tree and hedgerow planting continuing to mature. Extensive landscape bunds covered with calcareous grassland and topped with Cotswold stone walling will integrate the proposed scheme into the wider landscape. This would

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
			result in a minor and adverse magnitude of effect on a landscape affecting medium sensitivity receptors.
LCT 8 High Wold Valleys, including sub areas LCA 8A Toadmoor, Holy Brook and Upper Frome Valleys and LCA 8C Upper Churn Valley			
Likely changes as a result of the construction activities: Erection of Gloucestershire Way crossing, using cranes, temporary closure of road, excavation for foundations in neighbour LCT 7 would indirectly affect a very small part of this character area, with construction activity (noise, movement and light) likely to reduce the levels of perceived tranquillity and areas of dark skies. Construction of altered access track to private properties at Rushwood Kennels and Cuckoopen, within the neighbouring LCT, including bunding and woodland planting, and the removal of evergreen screening vegetation from Rushwood Kennels property boundary would increase sense of openness, allowing intervisibility with this LCT. The construction of Shab Hill junction would require a series of intense construction activities with significant earthworks to fill in the head of the valley to accommodate an attenuation basin, access track, A436, on/off slip roads, roundabout and mainline, including underpass connection to Birdlip. This would cause a permanent loss of sensitive/important rock exposure and removal of mature beech coppice at Shab Hill. The construction of Cowley junction would indirectly affect a small part of this LCT at Nettleton Bottom. Works in the area would include the excavation of on/off slip roads, creating a large footprint as excavation cuts through the hillside to east of mainline, three attenuation basins to west of scheme with on/off slip roads and roundabout where the proposed scheme connects back into the local network (historic Roman road). To help mitigate the effect of the proposed scheme new woodland planting would take place at the junction.			
Construction	**Very high sensitivity** The High Wold Valley LCT is an area with high perceived levels of remoteness and tranquillity within incised valleys. There are extensive areas of broadleaved woodland on steep valley slopes and a high volume of nationally important landscape and ecological features. It is valued at a national level within the Cotswolds AONB.	**Minor magnitude of effect** The construction of Shab Hill junction will cause a large-scale change to the top of Coldwell Bottom dry valley with the loss of beech (hanger) woodland and rock exposure and substantial localised earthworks to reprofile the valley topography. However, this scale of change will only be obvious in the immediate locality, being imperceptible in the wider LCT, due to the enclosed nature of the	**Moderate, adverse and significant effect** The construction works are predicted to result in a moderate adverse effect, due to a minor and adverse magnitude of effect on a landscape of very high sensitivity.

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
	The High Wold Valley LCT is largely undeveloped with secluded villages within the valley bottoms. The confined landform, together with the lack of development, offer a high sense of seclusion that results in a high susceptibility to this type of development. Combining the LCTs national value with its high susceptibility to the changes being proposed, gives a very high sensitivity.	local landform and very low intervisibility with the wider valley. Construction activities will result in a small geographical extent, over a short duration of two years between 2023 and 2025. Likely effects would be direct and partially reversible, in that the construction equipment/activity would be removed at the end of the construction phase and areas of disturbed ground would recover quickly, particularly within arable farmland. However, the extensive earthwork movements would result in a permanent change to the local landform. Combining judgements of an imperceptible size/scale of change over a small geographical extent, with a short duration and direct but partially reversible effect, a minor magnitude of effect to the landscape is likely to occur.	This would result in a significant effect. Preliminary significant of effect would not likely be large due to the imperceptible change on a small geographical extent and relationship with the wider LCT which would remain unaffected by the proposed scheme.
Likely changes as a result of the operational activities at year 1: The proposed embankments at Shab Hill junction, along with the on/off ramps and link to B4070, attenuation basins and access roads will create permanent new features in this part of the landscape. Open character present during construction would remain at year 1 until mitigation planting has matured to a sufficient height. The A436, junction and mainline will be readily apparent in the landscape, appearing incongruous at this stage. There would be a complete alteration to the landscape in this localised area, significant permanent changes to landform, loss of woodland and rock exposure (special qualities of the AONB). New woodland planting on engineered embankments, presence of attenuation basins and associated maintenance access tracks, complicated landform with several embankments/bunding. Road infrastructure including a large roundabout, the realigned A436, on/off ramps, at grade mainline, underpass link to B4070, drainage channels and access track. The recently completed earthworks at the head of Coldwell Bottom valley will be readily evident, effecting the areas characteristics. The now operational road with fast moving traffic would lower the perceived tranquillity of a localised part of this LCT. Trees and coppices will be planted between road infrastructure to provide connectivity with existing landscape features but will not yet be functional. Neighbouring land will be restored to arable or pasture and enclosed by Cotswold stone walling and local land uses will include new green features with tree and calcareous grassland planting to help reduce long term effect of the proposed scheme.			

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
Operation – year 1	**High sensitivity** Nationally valued landscape and area which has a medium susceptibility to the type of changes being proposed as described in the likely change during operation at year 1.	**Minor magnitude of effect** Imperceptible scale of change to an isolated and localised area of this LCT with effects predicted to the head of Cold Well Bottom valley only and not the wider LCT. Effect would be long term and not reversible, resulting in a minor magnitude of effect.	Year 1: **Slight, adverse and not significant.** Despite the high sensitivity of this part of the High Wold Valleys to the type of change being proposed, there will only be a minor magnitude of effect resulting in a slight adverse and not significant effect at year 1 of operation on this LCT. Preliminary significance of effect would not be moderate due to the small geographical extent of the likely effects.
Likely changes as a result of the operational activities at year 15: Presence of Shab Hill junction and associated embankments, attenuation features and access tracks will now be integrated into the landscape, enclosed by tall landscape bunds and tree planting. It would still be possible to perceive the proposed scheme with lasting effects on the area's tranquillity. Visual openness that was present during construction and year 1 of operation will now be more enclosed to a similar extent as the baseline situation. Intervisibility with the neighbouring LCTs will now be limited.			
Operation - year 15	**High sensitivity** Nationally valued landscape and area which has a medium susceptibility to the type of change being proposed as described in the likely change during operation at year 15.	**Negligible magnitude of effect** At year 15, the size and scale of the likely change will be negligible, effecting a small geographical extent. Effects will be long term and not reversible. Overall, this would result in a negligible magnitude of effect to a small part of this LCT.	Year 15: **Slight, adverse and not significant.** Combining the LCTs high sensitivity to the type of change as described and negligible magnitude of

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
			effect, resulting in a slight, adverse and not significant effect on the High Wold Valleys LCT.
LCT 10 High Wold Dip-Slope Valley/ LCA 10A Middle Churn Valley			
Likely changes as a result of the construction activities: The High Wold Dip-slope Valley LCT and associated Middle Churn Valley LCA are located to the southeast on the outer edge of the 3km study area, east of Elkstone. There are no works within the LCT/LCA and although the LCT/LCA is within 3km of the proposed scheme boundary, the enclosed intimate nature of the landscape does not permit any visual or landscape connection to the proposed scheme.			
Construction	**Very high sensitivity** The LCT/LCA are valued at a national level as part of the Cotswolds AONB, with a high susceptibility to the type of construction activities being proposed due to its general absence of settlement and only few isolated farms. Transport links are sparse, and valleys have a poor accessibility which lend them a high tranquillity. Therefore, the landscape has a very high sensitivity to the proposed scheme.	**No change** No construction work is proposed within this LCT, resulting in an imperceptible change to a small geographical extent. Construction activity would be partially reversible and would be present for only a short time in neighbouring LCTs. The magnitude of effect would be no change.	**Neutral and not significant** There would be a neutral and not significant effects on this LCT/ LCA.
Likely changes as a result of the operational activities at year 1: There are no anticipated operation effects as there are no works within the LCT/LCA and although the LCT/LCA is within 3km of the proposed scheme boundary, the enclosed intimate nature of the landscape does not permit any visual or landscape connection to the proposed scheme.			
Operation – year 1	**Very high sensitivity** As above.	**No change** This LCT would not experience any direct effects, resulting in an imperceptible change to a small geographical extent. Likely change would be long term and not reversible. Combining these judgements, there would be	**Neutral and not significant** There would be no significant effects on this LCT/LCA.

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
		no change magnitude of effect on this LCT at year 1 of operation.	
Likely changes as a result of the operational activities at year 15: There are no anticipated operation effects on this LCT as a result of the proposed scheme.			
Operation - year 15	**Very high sensitivity** As above.	**No change** This LCT would not experience any direct effects, resulting in an imperceptible change to a small geographical extent. Likely change would be long term and not reversible. Combining these judgements, there would be no change magnitude of effect on this LCT at year 15 of operation.	**Neutral and not significant** There would be no significant effects on this LCT/LCA.
LCT 18 Settled Unwooded Vale, including sub area LCA 18A Vale of Gloucestershire Fringe			
Likely changes as a result of the construction activities: During the construction phase a large construction compound would be located within an arable field south of existing A417. The compound would consist of lay down areas, storage, portacabins, car parking, security fencing and lighting. Linked to the compound would be a construction access and haul route. To facilitate the construction activities, mature vegetation on private property (Holy Brae) would be removed to install the layby and drainage outlet. On the southern side of the proposed scheme all existing roadside vegetation west of Crickley Farm through to Grove Farm will be removed to construct three lanes up and two lanes down, with central reservation, hardstanding and maintenance strip. On the same side a large landscape bund would be erected extending south into pasture fields, realignment of Norman's Brook (works partly within neighbouring Escarpment LCT). Further changes as a result of the construction works would include access alterations to FlyUp cycle facility, construction of access track and new car park and the excavation of attenuation basin 2, within the construction compound at the end of the construction period. On completion the construction compound will be converted to a large area of calcareous grassland, with tree planting around the attenuation basin. New hedgerows will be planted along the new access track providing robust and better-connected green landscape features.			
Construction	**High sensitivity** Part of the vale LCT which will be affected by the proposed scheme falls within the Cotswolds AONB and is therefore valued at a	**Minor magnitude of effect** The proposed construction activity would cause a medium scale of change in the localised area as a result of tree and roadside	**Slight, adverse and not significant** Overall the level of effect on both the LCT and LCA is

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
	national level, due to is gently undulating landform next to the dramatic escarpment, consisting of mixed arable and pasture, enclosed with well-maintained hedgerows forming a strong landscape pattern. However, parts of the LCT are strongly influenced by large urban and suburban areas and the widespread presence of pylons and transmission lines. The Settled Unwooded Vale LCT would have a medium susceptibility, due to the prevalence of major transport corridors (including the existing A417) in the area which exert a strong influence on the character of the rural area. This LCT is considered to have a moderate ability to accommodate change of the type proposed. Combining the LCT and LCA's national value with its medium susceptibility to change, they are assessed as having a high sensitivity to change.	vegetation removal and constructing the wider carriageway, including landscape bund, realignment of Norman's Brook. The predicted scale of change would likely be higher if the existing A417 was not already present in this part of the LCT. Likely effects will be experienced over a small geographical extent in the wider LCT. Construction activities would take place over a short duration, directly effecting the characteristics of the LCT. Effects will be partially reversible as the construction equipment/activity would be removed at the end of the construction phase and areas of disturbed ground would recover quickly, particularly within arable farmland. However, the extensive loss of vegetation would be a permanent effect. Combining judgements of a medium scale of change over a small geographical extent, with a short duration and direct but partially reversible effect. The scheme is therefore predicted to result in a minor magnitude of effect on this LCT.	considered to be a slight adverse and a combination of direct and indirect effect. For the receptor at this location the construction works are predicted to result in a slight adverse effect, due to a minor and adverse magnitude of effect on a landscape affecting medium sensitivity receptors. This would result in a non-significant effect. Preliminary significance of effect would not be moderate due to the small geographical extent of the proposed changes in the context of the existing A417.
Likely changes as a result of the operational activities at year 1: Change of land use from arable to pasture would provide a long-term beneficial effect. New permanent features in this LCT would include an attenuation pond, drainage channels, access track and field hedges, field trees and woodland adjacent to the attenuation basin, stopping up of existing track and diversion of PRoW. Wider carriageway with laybys, of the recently completed proposed scheme would be visual prominent in the landscape at year 1. Scarring related to the recently completed construction activity would be prominent at this time, standing out against the surround farmland, not so evident adjacent to arable farmland.			
Operation – year 1	**Medium sensitivity** The vale within the Cotswolds AONB is valued at a national level. Likely changes being	**Minor magnitude of change** Post construction there will be minor magnitude of effect as a result of a small scale	**Slight, adverse and not significant effect** to LCT 18 Settled Unwooded Vale/LCA 18A Vale of

Construction or operational phase	Sensitivity	Magnitude of effect	Preliminary significance of effect
	proposed will be of a similar nature to the presence of the baseline condition with the existing A417. Therefor this LCT would have a landscape would have a low susceptibility to accommodate the type of changes being proposed. Overall, combining the areas national value with low susceptibility it would have a medium sensitivity.	of change effecting a small geographical extent. Operational effects at year 1 will be long term and not reversible.	Gloucestershire Fringe during operation year 1.
Likely changes as a result of the operational activities at year 15: At year 15, the woodland planting will have matured to screen and integrate the road into the landscape to a similar extent as the baseline situation. Replacement maturing vegetation will eventually screen views of the proposed scheme. The attenuation basin will remain evident in the landscape but will be enclosed by maturing woodland. There would be a permanent benefit to this part of the landscape with additional field boundaries and a large area of calcareous grassland.			
Operation - year 15	**Medium sensitivity** This LCT is valued at a national level and has a low susceptibility to the proposed scheme, due to the presence of existing road infrastructure within this LCT with maturing planting now providing the desired level of mitigation. Tree planting on the landscape bund would have matured to provide a similar cover as the baseline situation.	**Negligible magnitude of change** The proposed scheme with landscape bund and extensive tree/woodland planting would result in a medium scale of change, over a small geographical extent. These changes would provide a moderate and beneficial magnitude of effect to this LCT, compared to construction and year 1 of operation. However, when assessed against to the baseline situation there would be a negligible magnitude of change as a result of the restoration of landscape features. Effects of the proposed scheme would be long term and not reversible.	**Neutral and not significant** Combining the LCTs medium sensitivity and negligible magnitude of change there would be a neutral significance of effect, as the restore landscape would be of a similar character to the baseline condition.

7.10.7 Table 7-19 below lists the preliminary significance judgements for each landscape receptor as assessed during the construction phase of the proposed scheme.

Table 0-19 Summary of landscape effects during construction

Receptor	Sensitivity	Magnitude of effect	Preliminary construction significance of effect
Special Qualities of the Cotswolds AONB	Very high	N/A	Significant adverse
LCT 2 Escarpment	Very high	Moderate	Large adverse and significant
LCT 7 High Wold	High	Major	Large adverse and significant
LCT 8 High Wold Valleys	Very high	Minor	Moderate adverse and significant
LCT 10 High Wold Dip-Slope Valley/ LCA 10A Middle Churn Valley	Very high	No change	Neutral and not significant
LCT 18 Settled Unwooded Vale	High	Minor	Slight adverse and not significant

7.10.8 Table 7-20 below lists the preliminary significance judgements for each landscape receptor as assessed during operational phase year 1 of the proposed scheme.

Table 0-20 Summary of landscape effects at operation year 1

Receptor	Sensitivity	Magnitude of effect	Operation year 1 preliminary significance of effect
Special Qualities of the Cotswolds AONB	Very high	N/A	Beneficial and significant
LCT 2 Escarpment	High	Minor	Moderate adverse and significant
LCT 7 High Wold	Medium	Major	Moderate adverse and significant
LCT 8 High Wold Valleys	High	Minor	Slight and not significant
LCT 10 High Wold Dip-Slope Valley/ LCA 10A Middle Churn Valley	Very high	No change	Neutral and not significant
LCT 18 Settled Unwooded Vale	Medium	Minor	Slight and not significant

7.10.9 Table 7-21 lists the preliminary significance judgements for each landscape receptor as assessed during operational phase year 15 of the proposed scheme.

Table 0-21 Summary of landscape effects at operation year 15

Receptor	Sensitivity	Magnitude of effect	Operation year 15 preliminary significance of effect
Special Qualities of the Cotswolds AONB	Very high	N/A	Beneficial and significant
LCT 2 Escarpment	High	Minor	Slight adverse and not significant
LCT 7 High Wold	Medium	Minor	Slight adverse and not significant
LCT 8 High Wold Valleys	High	Negligible	Slight adverse and not significant
LCT 10 High Wold Dip-Slope Valley/ LCA 10A Middle Churn Valley	Very high	No change	Neutral and not significant
LCT 18 Settled Unwooded Vale	Medium	Negligible	Neutral and not significant

Assessment of visual effects

7.10.10 For the purpose of the PEI report, the preliminary visual assessment is provided in Tables 7-22 to 7-54, which summarise the assessment. The LVIA will provide full long form narrative assessing the likely effects on each receptor group.

Recreational receptors

Table 0-22 Assessment of visual effects on users of the Cotswold Way National Trail

Receptor: Walkers on the Cotswold Way National Trail (includes visitors to Leckhampton Hill, Crickley Hill Country Park and visitors to Barrow Wake, the Peak and Coopers Hill)
Representative viewpoints: This receptor group is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location.: • VP1 Cotswold Way National Trail at Coopers Hill; • VP7 The Peak; • VP8 Cotswold Way National Trail/Gustav Holt Way west of Barrow Wake; • VP9 Cotswold Way National Trail at Barrow Wake; • VP10 Barrow Wake Viewing Point; • VP11 Barrow Wake Car Park; • VP15 Crickley Hill camp scheduled monument; • VP16 Crickley Hill on Cotswold Way National Trail; • VP17 Bridleway off Cotswold Way National Trail; • VP18 Leckhampton Hill – visitor information board; • VP19 Leckhampton camp and tumulus at trig point; and • VP23 Gloucestershire Way on A417 at Air Balloon.

Receptor: Walkers on the Cotswold Way National Trail

(includes visitors to Leckhampton Hill, Crickley Hill Country Park and visitors to Barrow Wake, the Peak and Coopers Hill)

Baseline view description (description of existing views)

The Cotswold Way is 164km (102 miles) long connecting Chipping Campden with Bath, with the majority of the route following the Cotswold escarpment offering opportunities to gain extensive views of the surrounding landscape. The section between Coopers Hill and Leckhampton Hill is 14.2km (8.8 miles). This assessment focusing on a 2.9km (1.8 miles) section between the Peak and Crickley Hill.

The baseline description is representative of sequential views that walkers can gain or the typical extent of visual resource experienced when travelling along the Cotswold Way National Trail between Coopers Hill and Leckhampton Hill.

Views along the Cotswold Way vary with panoramic views available at high points such as Leckhampton Hill (VP18 & 19) or Crickley Hill (VP15 & 16), extensive views available to the west over the vale to Gloucester and beyond from along the escarpment edge (VP8 & 9), and enclosed or directional views from wooded sections of the trail between the Peak and Coopers Hill.

The A417 in its existing form can be seen crossing the escarpment between Crickley Hill and Barrow Wake, as it descends the dip slopes onto the vale on the eastern edge of Gloucester. In the opposite direction, traffic can be seen traversing the upper escarpment behind Barrow Wake, particularly during winter. Barrow Wake and Crickley Hill are predominately open, covered with calcareous grassland, compared to adjacent slopes typically covered by 'beech hangers' - woodland on steep slopes. Barrow Wake car park forms a prominent, detracting feature on the edge, as sunlight glints off parked vehicles during the day and car headlights beam out at night. The radio masts at Shab Hill mark the otherwise wooded skyline, as seen from Crickley Hill (VP15 & 16) and within the vale (VP1, 3, 4, 5 & 6).

At the Peak, views out from the trail are restricted by existing dense vegetation preventing views of the site from this location. Following the trail towards Barrow Wake, part of the route remains within beech woodland at the Peak before exiting onto farmland. From this section, views out from the escarpment are filtered by trees on the upper escarpment slopes. Only at Barrow Wake (VP 10 & 11) do views become more extensive, opening out across the vale as far as the Malvern Hills, Forest of Dean and, on clear days, the Black Mountains. Barrow Wake car park (VP 10 & 11) is a popular location for people to enjoy the views, being marked as a viewing point on OS maps.

North of Barrow Wake the Cotswold Way leaves the escarpment edge, it descends towards the Ullenwood junction, the A417 becomes an increasingly dominant focus (VP23). Here the Cotswold Way navigates the A417 at the roundabout for a short section, with views channelled along the road corridor, enclosed by the woodland at Emma's Grove and the tree cover on the upper slopes of the scarp. The focus of the views is the road network, towards the Air Balloon pub.

Entering Crickley Hill Country Park (VP20-22), walkers are enclosed by woodland of the Scrubbs, as the route ascends the escarpment edge, before views open out towards the west of Crickley Hill (VP15 & 16). Here panoramic views can be gained, extending from Barrow Wake to the Peak, Coopers Hill, over Gloucester and Cheltenham. Views of the site are restricted to the area immediately adjacent to the Park's southern boundary wall (VP16), due to the steepness of the slope and existing dense vegetation. The current A417 is screened from view with only very small sections glimpsed through the tree canopy.

North of Crickley Hill, it is not possible to gain views of the site due to intervening landform and vegetation. Only at Leckhampton Hill do views of the site become possible (VP18 & 19). From here long distance, panoramic views can be gained. Along this section between Crickley Hill and Leckhampton Hill, views are focused to the west across the vale, at times becoming enclosed by woodland (VP17). Long distance views back towards the site can be gained from Leckhampton Hill. At a distance of 2.2km, it would form a small part of these extensive views to the south.

Nature of receptors (sensitivity)

Users of the PRoW between the Peak and Crickley Hill are considered to have a **high susceptibility** to visual change because users' interest is likely to be focussed on the landscape. The views from the trail are valued at a **national level** due to the Cotswold Way being a National Trail, with this section located within the AONB.

Overall, walkers on the Cotswold Way are considered to have a **very high sensitivity** to the proposed scheme.

Receptor: Walkers on the Cotswold Way National Trail (includes visitors to Leckhampton Hill, Crickley Hill Country Park and visitors to Barrow Wake, the Peak and Coopers Hill)
Construction phase
Nature of effects (magnitude) Depending on the walkers' location on the route they would experience different scales of change. As described above, much of the Cotswold Way is set within wooded slopes with limited or filtered views out towards the proposed scheme. The section of the trail between the Peak and Crickley Hill, is most likely to experience a high scale of change, as it is open in nature with greater opportunity for gaining extensive views. Focusing on this shorter section, walkers on the Cotswold Way would experience a **large scale of change** as a result of the proposed construction activity, including the removal of existing vegetation, earthworks, partially built structures (such as the Cotswold Way crossing), earthworks movements to excavate balancing ponds, the presence of construction vehicles and workers moving across the site, in addition to existing road traffic. It would also be possible to gain views of the construction compound, with site cabins, lay-down areas and storage of material and access/haulage routes alongside the widened road. With construction activities would provide contrast with the existing views and affect a substantial part of the visual resource. Occasionally at night, the trail is used by walking and running groups but generally very few people use it. Night-time working would take place requiring high intensity lighting which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change for night-time users. As a National Trail, it is popular with visitors to the AONB affecting a relatively moderate number of people, compared to other local PRoW, over a relatively short section of this long-distance route affected by views of the construction activity. Taking into account the balance between lengths of path and number of people affected, the geographical extent is judged to be **medium.** The duration of effect on views would be the construction phase, **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and disturbed historic field patterns or landscape features would not be able to be fully restored). Overall, walkers on the Cotswold Way between the Peak and Barrow Wake would experience **major** and **adverse** effects as a result of the proposed scheme becoming a dominant feature in views and creating obvious change. This level of change would not be as obvious or extensive from Crickley Hill.
Preliminary significance of effect For walkers using the Cotswold Way between the Peak and Crickley Hill, the construction works are predicted to result in a **very large and adverse significance of effect** on this short section of the longer National Trail, due to **major** magnitude of effect to views affecting **very highly** sensitivity receptors, causing obvious change and introduce dominant features in views.
Operational phase (year 1 – opening year)
Nature of effects (magnitude) At year 1 of the operational phase, the newly introduced additional lanes of traffic and realignment (horizontal and vertical) of the proposed scheme, including embankments, drainage channels, attenuation basins, highways infrastructure (including fencing, central reservation, signage) and mitigation planting, to the south of Crickley Hill, would result in a large change to views from this section of the Cotswold Way, at times in close proximity and in direct line of view. Proposed mitigation would not be fully effective at year 1 with planting including tree guards and timber stakes on engineered embankments being visible, extending out into the landscape to connect broken hedgerows. The Cotswold Way crossing would also be seen from a shorter section of the trail, providing visual interest and an architectural focal point to views towards the escarpment, better connecting the landscape. Users of the Cotswold Way National Trail will be able to use the crossing as a safer and traffic free route over the scheme, compared to the baseline situation. Walkers would benefit from extended opportunities to gain views out from the escarpment, which is one of the special qualities of the AONB, particularly at the purpose-built viewing platform. Wider benefits gained from the proposed mitigation planting would positively contributes to the wooded appearance of the slope and strengthening historic field boundaries. At this stage the proposed mitigation would contribute to the **large** scale of visual change.

Receptor: Walkers on the Cotswold Way National Trail (includes visitors to Leckhampton Hill, Crickley Hill Country Park and visitors to Barrow Wake, the Peak and Coopers Hill)
The proposed scheme would affect a substantial proportion of views which can be gained between the Peak and Barrow Wake, and would be more limited at Crickley Hill, affecting a moderate number of people, resulting in a **medium** geographical extent. Night-time effects of vehicle lights would be greater than, but of a similar nature to the baseline. Car lights would be visible, but with little spill into the wider landscape. The duration of effect on views over the operational phase will be **medium term** (2-15 years) and would be **not reversible**. Combining judgements on visual change, geographical extent, duration and reversibility, the overall magnitude of effect would be **major** and **adverse**, due to the proposed scheme remaining a dominant feature in views out from the escarpment, mainly at Barrow Wake.
Preliminary significance of effect During operational phase (year 1), walkers would experience a **very large and adverse significance of effect**, as a result of the proposed scheme becoming a dominant feature of the view causing an obvious change with a major magnitude of effect to views affecting very high sensitivity receptors using this short section of the Cotswold Way.
Operational phase (year 15 – design year)
Nature of effects (magnitude) During the operational phase (at year 15 and beyond) the proposed mitigation planting would have grown to approximately 9m[2] providing some screening of the road carriageway and vehicle movements, including Cold Slad lane. The embankments and attenuation basins would now be covered in maturing vegetation integrating them into the view of the wider landscape, reducing the scale of change from large, to **small**. Vegetation will establish within and around balancing ponds and perimeter drainage making them less noticeable features in views. As the planting further matures beyond year 15, it will continue to screen these views to a similar level as the baseline situation, with only glimpsed and filtered views of the cut slopes remaining. Night-time effects of vehicle lights would be similar in extent and nature to the baseline, with car lights being visible but with little spill into the wider landscape. Visual effects of the Cotswold Way crossing would provide visual interest, with walkers now being able to walk across the bridge, with extended opportunities to gain views out from the escarpment, which is one of the special qualities of the AONB. There would be several locations along the Cotswolds Way between The Peak and Crickley Hill where similar views could be gained by a moderate number of people, resulting in a **medium geographical extent**. The Cotswold Way crossing would also be seen from a shorter section of the trail. The duration of effect on views over the operational phase will be **long term** (+15 years) and would be **not reversible**. Overall, there would be a **minor** and **adverse** magnitude of effect experienced by walkers on the Cotswolds AONB along this short section of the National Trail. Beyond 15 year the magnitude of effect would continue to reduce due to maturing vegetation which would likely result in a negligible and neutral effect as views become similar in nature to the baseline situation with woodland situated on a landscape bund screening the road.
Preliminary significance of effect At Year 15, walkers using the Cotswolds Way National Trail between the Peak and Barrow Wake, and a lesser extent at Crickley Hill would experience a moderate and adverse magnitude of effect to views affecting a highly sensitive receptor, resulting in a **moderate and adverse significance of effect** due to part of the proposed scheme being noticeable and readily apparent features in the view. Preliminary significance of effect would not be large at year 15 due to the predicated small scale of visual change experienced by users of the Cotswold Way. The proposed scheme, including the

[2] It is assumed that annual tree and shrub height growth is likely to be between approximately 0.3-0.5m per year, so that if a mix of mature and immature tree and shrub planting was implemented with mature trees planted at 5m tall and whips or transplants at 0.6m – 0.8m high, by year 15 the tree height will be between approximately 9.2m – 12m.

Receptor: Walkers on the Cotswold Way National Trail (includes visitors to Leckhampton Hill, Crickley Hill Country Park and visitors to Barrow Wake, the Peak and Coopers Hill)
Cotswold Way crossing will now be well integrated into the landscape with limited opportunity to gain views of the proposed scheme. Woodland, tree and shrub planting will continue to mature and be of sufficient height to screen views, helping to mitigating visual effects.

Table 0-23 Cotswold Way National Trail summary of effects

Susceptibility	**High**	Med	Low		
Value	**National**	Regional/District	Community		
Sensitivity	**Very high**	High	Medium	Low	Negligible
Construction					
Size/ scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	**Medium**	Small		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	**Major**	Moderate	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	**Very large**	Large	Moderate	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	**Medium**	Small		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	**Major**	Moderate	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	**Very large**	Large	Moderate	Slight	Neutral
Operation year 15					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	**Medium**	Small		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		

Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral

Gloucestershire Way long distance footpath

Table 0-24 Assessment of visual effects on users of the Gloucestershire Way long distance footpath

Receptor: Walker on the Gloucestershire Way long distance footpath (includes users of Crickley Hill Country Park, Emma's Grove unnamed lane at Rushwood Kennels, residents and workers at Rushwood Kennels, Coberley long barrow, visitors to the AONB)
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP15 Crickley Hill camp scheduled monument; • VP16 Crickley Hill on Cotswold Way National Trail; • VP23 Gloucestershire Way on A417 at Air Balloon. • VP25 Gloucestershire Way at Shab Hill; • VP26 Cuckoopen Farm; • VP27 Gloucestershire Way at Rushwood Kennels; and • VP28 Gloucestershire Way at Coldwell Bottom.
Baseline view (description of existing view) The view is representative of walkers along the Gloucestershire Way long distance footpath between Crickley Hill and Coldwell Bottom and visitors to Emma's Grove. The visual resource varies along the Gloucestershire Way with panoramic views available from Crickley Hill (VP15 & 16), extending out over the low-lying vales as far reaching as to the Forest of the Dean, the Malvern Hills, and, on clear days, the Black Mountains. Glimpsed views of the existing A417 can be gained from locations immediately adjacent to Crickley Hill Country Park's southern boundary wall (VP16), at the enclosure, similar views of the site would be possible for this location. The A417 is more prominent to the west on the edge of Gloucester at Brockworth, as it crosses the vale. Descending from Crickley Hill, the Gloucestershire Way (links up with the Cotswold Way National Trail along this short section) traverses the wooded scarp edge at the Scrubbs to the Ullenwood junction. At the Ullenwood junction (VP23) views are enclosed by surrounding elevated ground covered with woodland. Channelled views can be gained along the road corridors, with moving traffic dominating views at close proximity. Walkers have to cross the busy road at Emma's Grove, before passing through the small wooded enclosure passing the scheduled monuments. Leaving the A417 their views become more open but are still restricted to individual fields, due to changes in topography and mature field boundary vegetation. Extensive views of the rolling landform, more typical of the wolds, are restricted by mature hedgerow field boundaries, belts of woodland and conifer screen planting (VP27). At Shab Hill, views of the site would be restricted to a very short section of the Gloucestershire Way west of Rushwood Kennels (VP27). East of Rushwood Kennels, a change in field boundaries to post and wire fencing provides more open views to the south east to Cally Hill Plantation in the midground and views north east towards Ullen Wood (VP26). The woodland creates a visual barrier obscuring views to the north. Further east, within Coldwell Bottom (VP28), views become enclosed by steep landform, allowing views only to the east along the dry valley. Tree cover obscures views towards Shab Hill and the plantation at Cally Hill shortens the views to the west.
Nature of receptors (sensitivity)

Receptor: Walker on the Gloucestershire Way long distance footpath

(includes users of Crickley Hill Country Park, Emma's Grove unnamed lane at Rushwood Kennels, residents and workers at Rushwood Kennels, Coberley long barrow, visitors to the AONB)

Users of the long-distance footpath (including visitors to Emma's Grove) are considered to have a **high susceptibility** to visual change because their interest is likely to be focussed on the landscape. The views from the paths are valued at a **national level** as the Gloucestershire Way has been designated a long-distance footpath.

Overall walkers on the Gloucestershire Way are considered to have **high sensitivity** to the proposed scheme.

Construction phase

Nature of effects (magnitude)

During construction the Gloucestershire Way would be diverted around the construction site between Crickley Hill Country Park, at the Ullenwood junction, and Rushwood Kennels. At the Ullenwood junction, the diverted route would follow the alignment of the proposed A436 over Shab Hill connecting to PRoW ACO1 north of Rushwood Kennels. Once at the rural lane, it would cross the corner of the field north of Rushwood Kennels where it would connect back into the existing Gloucestershire Way alignment on the Rushwood Kennels access track. This diversion would be permanent, forming a new PRoW between Crickley Hill and Rushwood Kennels. The temporary stopped up section will be reopened on completion of the Gloucestershire Way crossing east of Emma's Grove.

Views of the construction works would be limited to a relatively small number of locations along the footpath, due to the rolling landform, field pattern and intact hedgerow field boundaries which prevent more extensive opportunities to gain views. Along the short section at Shab Hill there would be a **large scale of change** as a result of the diverted route and the construction activities taking place at close proximity. Construction activities include those to create Shab Hill junction, erect the Gloucestershire Way crossing using cranes and heavy lifting equipment and earthworks movements to create a large number of balancing ponds and perimeter drains at Shab Hill. A smaller scale of change would be experienced from the section of the route within Crickley Hill Country Park where there would be views towards the Gloucestershire Way crossing works, earthworks movements to create numerous balancing ponds and cutting slopes to the A436 and the realignment of Ullenwood junction.

The Gloucestershire Way is relatively popular with local groups and visitors to the AONB, however, the section between Crickley Hill and Coldwell Bottom appears not as well used, likely as a result of the existing A417 severing the footpath at the Ullenwood junction.

At night, very few people use the footpath, but night-time working is planned to take place. This would require high intensity lighting, which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change.

Construction activities would affect a small number of people (compared to the Cotswold Way), over a relatively short section of this long-distance footpath. Taking into account the balance between the length of path and number of people affected, the geographical extent is judged to be **small**. The duration of effect on views would be within the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and disturbed historic field patterns (ridge and furrow) or landscape features (historic tracks) would not be able to be fully restored).

Combining judgements on visual change, geographical extent, duration and reversibility, the overall magnitude of effect would be **moderate** and **adverse**, as the proposed scheme would form a noticeable and readily apparent feature affecting walkers on this route at Shab Hill.

Preliminary significance of effect

Overall, the effect of construction upon recreational users of the Gloucestershire Way and visitors to Emma's Grove are considered to be moderate and adverse due to the intermittent and varying scale of change to views (large), over a small geographical extent affecting highly susceptible receptors, but for a relatively short period, resulting in **large and adverse significance of effect**.

Preliminary significance of effect would not be moderate at this phase due to the large scale of visual change experienced at close proximity and effecting a highly sensitive receptor group.

Operational phase (year 1 - opening year)

Receptor: Walker on the Gloucestershire Way long distance footpath (includes users of Crickley Hill Country Park, Emma's Grove unnamed lane at Rushwood Kennels, residents and workers at Rushwood Kennels, Coberley long barrow, visitors to the AONB)
Nature of effects (magnitude) Compared to the baseline conditions, walkers on the diverted Gloucestershire Way would experience improved views of the road network, even at year 1 as a result of the Gloucestershire Way crossing which would provide them continuous traffic free access along the Gloucestershire Way. At year 1 before mitigation planting has established, changes in near views will be prominent with large areas of woodland planting (with tree guards) and recent scaring as a result of earthworks, particularly at both ends of the crossing, resulting in a **large scale of change**. Drainage features such as balancing ponds and perimeter drains will be grassed over, however vegetation will not have established to a point of integrating these elements within views and will be incongruous features at year 1. Users of the Gloucestershire Way crossing would have an improved experience of the long distance path, as the crossing will be multipurpose being planted with calcareous grassland and hedgerows to provide habitat for wildlife. Night-time effects of vehicle lights would be greater than, but of a similar nature to the baseline, with car lights being visible but with little spill into the wider landscape. Landscape bunding, as part of the proposed mitigation, would be formed of crushed local stone with little soil and planting during the early operational years and would form a noticeable feature of the view which would be readily apparent to the users of the Gloucestershire Way at Shab Hill. Improved access and connectivity across the A417/A436 at the Ullenwood junction would likely increase the user numbers, however the length of footpath affected would be similar - overall the geographical extent is judged to be **small**. The duration of effect on views over the operational phase will be **medium term** (2-15 years) and would be **not reversible**. The magnitude of effect experienced by walkers on the Gloucestershire Way would be **moderate** and **adverse**, as the proposed scheme would remain noticeable and readily apparent in near views.
Preliminary significance of effect The overall effect of the operational proposed scheme upon users of this section of the Gloucestershire Way long distance footpath and visitors to Emma's Grove is considered to be moderate and adverse at Year 1,due to the small change to views, over a small geographical extent affecting highly susceptible receptors, resulting in a **large** and **adverse** significance of effect. Preliminary significance of effect would not be moderate at this phase due to the large scale of visual change experienced at close proximity and effecting a highly sensitive receptor group, before mitigation planting has matured to a sufficient level to screen and integrate the proposed scheme into views.
Operational phase (year 15 – design year)
Nature of effects (magnitude) Scale of change at year 15 would reduce to **small** as the diverted footpath route will be familiar with recreational users. Vegetation will establish within and around balancing ponds and perimeter drainage making them less noticeable features in views. As with at year 1, users of the Gloucestershire Way crossing would have an improved experience walking along the long distance path, as the crossing will be multipurpose being planted with calcareous grassland and hedgerows to provide habitat for wildlife. The geographical extent would remain **small** as the same length of the route would be affected and would affect a similar number of people, as at year 1. Night-time effects of vehicle lights would be of a similar extent and nature to the baseline, with car lights being visible but with little spill into the wider landscape. At year 15, the opened-up view from Emma's Grove would be maintained to allow visitors to Emma's Grove using the stopped up section of the footpath to experience a beneficial change to their visual resource, visually connecting with Crickley Hill and Barrow Wake, as well as removing vehicles from near views. The duration of effect on views over the operational phase would be **long term** (+15 years) and would be **not reversible**.

Receptor: Walker on the Gloucestershire Way long distance footpath (includes users of Crickley Hill Country Park, Emma's Grove unnamed lane at Rushwood Kennels, residents and workers at Rushwood Kennels, Coberley long barrow, visitors to the AONB)
Combining the judgements on scale of change, geographical extent, duration and reversibility, the magnitude of effect experienced by walkers on the Gloucestershire Way at year 15 would be **minor and beneficial**.
Preliminary significance of effect Considering the combined sensitivity and magnitude of effect for highly sensitive users of the Gloucestershire Way and visitors to Emma's Grove, they would experience a moderate and beneficial magnitude of effect in year 15 once the mitigation planting has established and would continue to mature, and the landscape features have recovered, resulting in a **slight, beneficial and not significant effect**. Preliminary significance of effect would not be moderate at year 15 due to the predicated small scale of visual change experienced by users of the Gloucestershire Way. The proposed scheme, including the Gloucestershire Way crossing will now be well integrated into the landscape with limited opportunity to gain views of the proposed scheme. Woodland, tree and shrub planting will continue to mature and be of sufficient height to screen views, helping to mitigating visual effects and would bring about benefit to the local landscape and visual amenity.

Table 0-25 Gloucestershire Way long distance footpath summary of effects

Susceptibility	**High**	Med	Low		
Value	**National**	Regional/District	Community		
Sensitivity	Very high	**High**	Medium	Low	Negligible
Construction phase					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	**Medium**	Small		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	**Major**	Moderate	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	**Large**	Moderate	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change

Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	**Large**	Moderate	Slight	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	Adverse	**Beneficial**	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Local PRoW, bridleway and byway networks

Table 0-26 Assessment of visual effects on users of the local PRoW, bridleway and byway networks

Receptor: Users of the local PRoW, bridleway and byway networks
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP1 Roman villa car park; • VP5 Little Wycombe PRoW; • VP6 Old Coach Road overbridge A417; • VP7 The Peak; • VP12 Grove Farm bridleway; • VP15 Crickley Hill camp scheduled monument; • VP17 Bridleway off Cotswold Way National Trail; • VP19 Leckhampton camp and tumulus at trig point; • VP24 Bridleway south of Ullen wood VP32 PRoW Shab Hill; • VP26 Cuckoopen Farm; • VP30 Coldwell Bottom permissive path; • VP31 Shab Hill permissive path; • VP33 PRoW west of Shab Hill; • VP34 Byway west of Hill Barn; • VP35 Shab Hill from footpath north of Stockwell farm; • VP36 PRoW north of Stockwell on junction with rural lane; • VP37 PRoW north of Stockwell; • VP38 Byway at Stockwell; • VP40 PRoW north of Birdlip Quarry; • VP41 Golden Heart Inn;

Receptor: Users of the local PRoW, bridleway and byway networks
• VP42 Rural lane west of Cowley Wood; • VP44 PRoW north of Brimpsfield; • VP45 Bridleway at Blacklains Farm; and • VP46 Bridleway west of Elkstone.
Baseline view (description of existing view) Walkers, horse riders and cyclists using the PRoW, bridleway and byway networks within the study area around the proposed scheme would experience a wide range of views. Dividing the wider network into distinct areas focused around settlements, the baseline for each area is described separately. These include Little Witcombe and Great Witcombe, Shab Hill and Stockwell, Brimpsfield and Nettleton Bottom and Cowley Wood and Elkstone. There exists an extensive network of short, interconnected routes in the area surrounding the settlements of Little Witcombe and Great Witcombe. Views from within the Vale (VPs1, 5 & 6) landscape are dominated by the surrounding high ground of the Cotswold escarpment. The predominately wooded ridge wraps round this part of the study area from Coopers hill to Crickley Hill. Features including Barrow Wake car park, Birdlip radio masts and Crickley Hill stand out in views to the east. The edge of Brockworth is partly visible in western views but is filtered by multiple layers of field boundary vegetation. The existing A417 can only been seen from short sections of the footpath closest to the road. The relatively flat topography, strong field boundary vegetation and existing built form all prevent wider ranging views of the road. Existing woodland planting along the length of the A417 provides an additional layer of screening vegetation. In contrast to the visual resource within the vale, views from Shab Hill (VPs 32, 33 & 35) on the wold are more enclosed. This character changes towards Stockwell (VPs 35-37) where there are few intact hedgerows and the field pattern becomes considerably larger, offering opportunities to gain long and more open views across the rolling landform. Topography plays an important role in where views can be gained from the footpath network, restricting open views to areas of higher elevation. At Shab Hill views are generally limited by hedgerows, conifers, and tree belts which surround the farm properties. However, long distance views can be gained north to Crickley hill country park and the elevated land at Barrow Piece Plantation. East of Cuckoopen Farm (VP26), open, panoramic views are gained from the byway over Coldwell Bottom and out to Coberley. At Stockwell, a combination of footpaths, bridleways and byways (VP34 & 38) radiate out from the farmstead in all directions. To the west, the existing A417 can be seen in the middle distance along the local skyline, with the movement of vehicles drawing the eye. The roadside vegetation and woodland at Barrow Wake prevent views further west. Roadside vegetation also screens views to the south. To the east of Stockwell, footpaths tend to follow the lower slopes of a shallow valley (VP40) with higher ground enclosing views, channelling them to the southeast. The visual resource around Brimpsfield (VP44) and Nettleton Bottom (VP41) focuses on the attractive, narrow steep valley at the head of the Frome river. The area is frequently wooded, which, when combined with higher surrounding ground, restricts views. Brimpsfield is situated on the upper valley slopes to the southeast. Despite its elevation, views are contained within the settlement. From the footpaths north of Brimpsfield, views are restricted by hedgerows and small blocks of woodland. At field gates views across the valley can be gained towards the site. From the existing A417 road corridor, roadside vegetation limit views, except at the Golden Heart Inn, Nettleton Bottom. Here views extend across to the higher ground to the north or across the valley to Brimpsfield. To the eastern extent of the study area are Cowley Wood and Elkstone (VP42). Cowley lies on the lower slopes of the River Churn valley, with views focused along the valley and out over open arable farmland to the east. No views to the site can be gained from Cowley. Cowley Wood covers the steep slopes west of Bubb's Hill and has several footpaths which cut through it. Adjacent to the existing A417, footpaths connect rural lanes north of Highgate House/Highgate Farm. Only from footpath ACY40, that runs parallel east of the A417, are views of the site available. There are open views across a rolling agricultural landscape. Mature trees bounding Birdlip quarry shorten the view preventing wider views and screening parts of the A417. There are partial and glimpsed views of the road network with movement from vehicles visible in the distance. Field boundaries are a mix of broken hedgerow with some post and wire fencing. Further southwest the view consists primarily of large-scale pastoral fields. The view is wide but relatively foreshortened by the mature woodland lining the horizon to the southwest. These mature trees at Cowley roundabout obscure the traffic, however taller road infrastructure, including lighting

Receptor: Users of the local PRoW, bridleway and byway networks
columns, are clearly visible in the view. Field boundaries are a mix of post and wire fences, dry stone walling, and scrappy hedgerow with some mature ash trees in field boundaries.
Nature of receptors (sensitivity) Users of these public footpaths are considered to have a **high susceptibility** to visual change because users' interest is likely to be focussed on the landscape around them. These views are valued at a **regional/district level** by visitors and local groups. Overall, and combining judgements on susceptibility with value, visual receptors at this location are considered to have **medium sensitivity** to visual change.
Construction phase
Nature of effects (magnitude) During construction, the scale of change would vary across the rights of way network with the greatest changes being experienced by users on routes which cross the alignment of the proposed scheme or are in close proximity to the proposed scheme. At these locations, users of the PRoW would experience a **large scale of change** in local views from the presence of construction associated with the road alignment and earthworks movements to create landscape earthworks and balancing ponds. At night, very few people would use the network. However, night-time working would take place requiring high intensity lighting which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change. Short sections of local routes would experience visual changes in the immediate vicinity of the proposed scheme, affecting a relatively small number of people. This would result in a **small** geographical extent. The duration of effect on views would be within the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and disturbed historic field patterns (ridge and furrow) or landscape features (historic tracks) would not be able to be fully restored). The proposed scheme is therefore judged to result in a **moderate and adverse magnitude of effect** for walkers using the PRoW network.
Preliminary significance of effect For receptors using the PRoW network across the study area the construction works are predicted to result in a **moderate and adverse significance of effect**, due to moderate magnitude of effect to views affecting medium sensitivity receptors.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) Walkers, horse riders and cyclists using off-road routes within the study area would experience a similar scale of change to that experienced during construction, as proposed mitigation would not yet have matured. Recently completed structures such as crossings and embankments would be clearly visible, as would the newly aligned road and associated infrastructure. Given the linear nature of the proposed scheme, it would affect substantial parts of views at a close proximity, resulting in a **large scale of visual change**. Landscape bunding, as part of the proposed mitigation, would be formed of crushed local stone with little soil and planting during the early operational years and would form a noticeable feature of the view which would be readily apparent to users of the PRoW network. Drainage features such as balancing ponds and perimeter drains will be grassed over, however vegetation will not have established to a point of integrating these elements within views and will be incongruous features at year 1. Night-time effects of vehicle lights would be greater than, but of a similar nature to the baseline, with car lights being visible but with little spill into the wider landscape. Near Little Witcombe and Great Witcombe, night-time effects of vehicle lights would be of a similar extent and nature to the baseline, with car lights being visible but with little spill into the wider landscape. At Birdlip, Nettleton Bottom and Brimpsfield there would be reduced light pollution from the road network. The greatest change in night-time effects would be on bridleways and byways at Shab Hill and Stockwell, with the introduction of vehicle lights crossing through this otherwise dark landscape.

Receptor: Users of the local PRoW, bridleway and byway networks
Short sections of local routes would experience visual changes in the immediate vicinity of the proposed scheme but across the whole proposed scheme, affecting a relatively small number of people. This would result in a **small geographical extent**. The duration of effect on views over the operational phase will be **medium term** (2-15 years) and would be **not reversible**. The proposed scheme would likely result in a **moderate and adverse** magnitude of effect for walkers using the PRoW and horse riders and cyclists on bridleway and byway networks.
Preliminary significance of effect Part of the proposed scheme would form noticeable features when seen from the PROW network, being readily apparent to medium sensitive receptors. Although, views from these routes are valued regionally, effects would occur across a small area. This would result in a **moderate and adverse significance of effect**, for some short sections of the footpaths in close proximity to the proposed scheme.
Operational phase (year 15 – design year)
Nature of effects (magnitude) At year 15, once mitigation planting has matured to provide some screening along the road south of Crickley Hill, footpaths around Little Witcombe and Great Witcombe will begin to experience a reduced scale of change. In near views where vegetation filters the road and moving vehicles, the scale of change would be **small**. Night-time effects of vehicle lights would be of a similar extent and nature to the baseline, with car lights being visible, but with little spill into the wider landscape. At Shab Hill junction, walkers on PRoW and users of the byway would experience a similar level of visual change (medium), even at year 15 the road infrastructure would form a noticeable feature, being readily apparent views, affecting a visual receptor with a medium sensitivity in the long term. Vegetation will establish within and around balancing ponds and perimeter drainage making them less dominant in views. Users of PRoW east, and southeast of Stockwell would experience negligible changes to their visual resource, as a result of the introduction of landform and landscape features which would be in keeping with the baseline situation. This would be experienced over a **small geographical extent**, mainly affecting short sections of the routes immediately adjacent to the proposed scheme. The duration of effect on views over the operational phase will be **long term** (+15 years) and would be **not reversible**. Overall, the proposed scheme would cause a **minor and adverse** magnitude of effect at year 15.
Preliminary significance of effect At year 15 there would be a **slight, adverse** and **not significant effect** on users of the PRoW, bridleway and byways.

Table 0-27 Local PRoW network summary of effects

Susceptibility	**High**	Medium	Low		
Value	National	**Regional/District**	Community		
Sensitivity	Very high	High	**Medium**	Low	Negligible
Construction phase					
Size/ scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		

Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Community receptors

Little Witcombe and Great Witcombe

Table 0-28 Assessment of visual effects on the communities of Little Witcombe and Great Witcombe

Receptor: The communities at Little Witcombe and Great Witcombe
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP3 Droy's Court; • VP4 A46 Painswick Road;

Receptor: The communities at Little Witcombe and Great Witcombe
• VP5 Little Wycombe PRoW; and • VP6 Old Coach Road overbridge A417.
Baseline view These views are representative of communities in the vale, particularly Little Witcombe and Great Witcombe. Views look across arable fields bounded by hedgerow and mature field trees (VP3). In the distance (VP4), views can be gained to the well wooded high ridge which forms a backdrop to the vale where Crickley Hill, Barrow Wake and the Peak are notable features along the skyline, particularly Barrow Wake car park which is clearly visible due to sunlight glinting off car windows. The foreground is dominated by large arable fields which are bounded by hedgerow. Hedgerow trees and tree clumps give the impression of a well wooded vale and prevent more panoramic views from being gained. They also limit open visibility to a relatively few locations (VP6). The A417 is also visible in the vale to the north but obscured by roadside vegetation as it climbs the escarpment (VP5).
Nature of receptors (sensitivity) The local communities of Little Witcombe and Great Witcombe are considered to have a **high susceptibility** to visual change because views contribute to the landscape setting enjoyed by residents. The views are not documented as important in national or local documents but nonetheless valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are considered to have **medium sensitivity**.
Construction phase
Nature of effects (magnitude) The construction of the newly aligned A417, cutting, embankments would be partially visible from within the vale in relatively close views but at an oblique angle partially screened by intervening vegetation. The construction activities including the construction compound, haul road, movement of vehicles and the removal of the existing vegetation would be seen on the escarpment and its foot slopes from these small communities, creating clearly perceptible change to the baseline conditions, and resulting in a **medium** scale of change in views. Recently planted woodland on the embankments would be difficult to see from this distance due to the small size of planting stock. Despite the proposed scheme being seen in combination with the existing and still operational A417, from this distance the scale of change would be limited, affecting only part of much wider series of views. Therefore, the geographical extent would be **small**, as a result of the limited locations where views can be gained by a small number of people. Night-time working would take place, requiring high intensity lighting which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change to the communities. The duration of effect on views would be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees, excavated escarpment and disturbed historic field patterns (ridge and furrow) or landscape features (historic tracks) would not be able to be fully restored). The magnitude of effect experienced by the communities of Little Witcombe and Greater Witcombe would be **minor and adverse**.
Preliminary significance of effect For the receptor at this location the parts of the construction works are predicted to result in a **slight, adverse** and **not significance of effect** at this location, due to minor magnitude of effect to views affecting relatively few medium sensitivity receptors.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) At year 1, the recently completed road would be more visible than the baseline situation, proposed mitigation planting would have not yet fully established and would not be visible from this distance. Visual change caused by the new road infrastructure in the early years would result in a **medium** scale of change in views at year 1. The proposed scheme would not be clearly noticeable from these

Receptor: The communities at Little Witcombe and Great Witcombe
settlements because views are partially obscured by intervening field boundary vegetation and small woodland blocks. Views of the cut slopes may be visible on the escarpment from this distance and are likely to be prominent. Near Little Witcombe and Great Witcombe, night-time effects of vehicle lights would be of a similar extent and nature to the baseline, with car lights being visible but with little spill into the wider landscape. Due to the presence of existing built form and intervening vegetation, it is only possible to gain this type of view from a few locations on the edge of the settlements, affecting a relatively small number of people. Therefore, the geographical extent would be **small**, as a result of the limited locations where views can be gained by a small number of people. The duration of effect on views over the operational phase will be **medium term** (2-15 years) and would be **not reversible**, resulting in an overall **minor and adverse magnitude of effect.**
Preliminary significance of effect Changes to views, experienced by the communities of Little and Great Witcombe are predicted to result in a **slight, adverse and not significance of effect** at this location, due to minor magnitude of effect (medium change) to views affecting few medium sensitivity receptors.
Operational phase (year 15 – design year)
Nature of effects (magnitude) The extent of visual change at year 15 would remain as a **small scale of change** as the roadside mitigation planting continuous to mature, and road structures are partially screened, returning to a similar state as the baseline condition. Night-time effects of vehicle lights would be of a similar extent and nature to the baseline, with car lights being visible but with little spill into the wider landscape. The geographical extent would be **small**, as a result of the limited locations where views can be gained by a small number of people, with the duration of effect on views over the operational phase being **long term** (+15 years) and would be **not reversible**. The overall magnitude of effect would be **minor**.
Preliminary significance of effect Only a very small part of the proposed scheme would be discernible from this distance to form a barely noticeable feature or element of the view, resulting in a **slight, adverse and not significant effect**.

Table 0-29 Little Witcombe and Great Witcombe summary of effects

Susceptibility	**High**	Med	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	**Medium**	Low	Negligible
Construction phase					
Size/scale of change	Large	**Medium**	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 1 – opening year)					

Size/scale of change	Large	**Medium**	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Birdlip

Table 0-30 Assessment of visual effects on the community of Birdlip

Receptor: *community of Birdlip*
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for its location: • VP39 Birdlip.
Baseline view Public viewpoints within Birdlip are limited to roadsides, including along the B4070, and from a small number of PRoW. Views out of the settlement to the north are restricted by buildings along the road network. East of Birdlip school, at Hawcote Hill (VP39), views can be gained where gaps in the field boundary vegetation are present. From here, a partially open view can be gained across an undulating agricultural field before being stopped short by the existing A417. The existing road at this location is on embankments and flanked by roadside vegetation, which forms the local skyline. Passing traffic makes the road more perceptible in the near view. To the north, green dual carriageway signs are visible through roadside trees. Nettleton Bottom is barely visible to the east. A pylon line is visible beyond the skyline, and a wood pole line crosses the view in the foreground.
Nature of receptors (sensitivity)

Receptor: *community of Birdlip*
The local communities of Hawcote Hill on the eastern edge of Birdlip are considered to have a **high susceptibility** to visual change because views contribute to the landscape setting enjoyed by residents. The views are not documented as important in national or local documents but nonetheless valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are considered to have **medium sensitivity**.
Construction phase
Nature of effects (magnitude) Construction works to repurpose the existing A417 (part of the de-trunking) within the wold would be partially visible in relatively close views from the community at Hawcote Hill, Birdlip, but at an oblique angle partially screened by intervening vegetation. More distant views would be gained from the PRoW network on the northern edge on Brimpsfield and rural settlements near Blacklains Farm. Construction activities and movement of vehicles would only be seen from the small communities, creating clearly perceptible change to the baseline conditions, and resulting in a **small scale of change** in views. Night-time working would take place requiring high intensity lighting which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change of this community. Due to the presence of existing built form and intervening vegetation, it is only possible to gain this type of view from a few locations in the settlements, affecting a relatively small number of people. The geographical extent is therefore judged to be **small**. The duration of effect on views will be the construction phase which would be **short term** (2 years) and would be **reversible** (because construction activities would be removed, and disturbed areas would be restored). The overall effect of the construction work on these local communities is considered to be **minor** and **adverse** magnitude of effect due to the small scale of change over a small geographical extent for a relatively short period, despite the highly susceptibility of the receptor.
Preliminary significance of effect For this receptor group the construction activities, relating to this small part of the proposed scheme, are predicted to result in a **slight, adverse and not significant effect**, resulting in a small change in a relatively lower value view for a relatively short duration affecting a few medium sensitivity receptors.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) During the operational phase at year 1, the community of Birdlip would experience a **imperceptible scale of change** with the removal of fast-moving vehicles in near, elevated views. At night there would be reduced light pollution from the now repurposed road network. At year 1 the proposed mitigation planting with their tree guards would be visible. Predicted effects during the opening year would only be experienced by a relatively small number of people from a few locations in the settlements, giving a **small** geographical extent. The duration of effect on views over the operational phase would be **medium term** (2-15 years) at the opening year and would be **not reversible**. Combining judgements on scale, geographical extent, duration and reversibility the community of Birdlip would experience a **negligible** and **beneficial magnitude of effect**.
Preliminary significance of effect At year 1 of the operational phase the medium sensitivity receptors would experience a minor magnitude of effect to local views. This would result in a **neutral** and **not significant effect**, as only a very small number of people would experience a small level of visual change to only a small part of the much wider view. Preliminary significance of effect would not be slight given the imperceptible scale of change over a small geographical extent effecting a medium sensitivity receptor group.
Operational phase (year 15 – design year)
Nature of effects (magnitude)

Receptor: *community of Birdlip*
During the operational phase at year 15, the community of Birdlip would experience an **imperceptible scale of change** with the removal of fast-moving vehicles in near, elevated views. At night there would be reduced light pollution from the now repurposed road network. At year 15 the proposed mitigation tree planting it would help strengthen the existing wooded skyline. Predicted effects during the design years would only be experienced by a relatively small number of people from a few locations in the settlements, giving a **small geographical extent**. The duration of effect on views over the operational phase would be **long term** at the design year (year 15) and would be **not reversible**. Combining judgements on scale, geographical extent, duration and reversibility the community of Birdlip would experience a **negligible** and **beneficial magnitude of effect**.
Preliminary significance of effect At year 15 of the operational phase the medium sensitivity receptors would experience an imperceptible magnitude of effect to local views. This would result in a **neutral** and **not significant effect**, as only a very small number of people would experience a small level of visual change to only a small part of the much wider view. Preliminary significance of effect would not be slight given the imperceptible scale of change over a small geographical extent effecting a medium sensitivity receptor group.

Table 0-31 Birdlip summary of effects

Susceptibility	**High**	Med	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	**Medium**	Low	Negligible
Construction phase					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	Partially reversible	**Reversible**		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change

Nature of effect	Adverse	**Beneficial**	Neutral		
Significance of effect	Very large	Large	Moderate	Slight	**Neutral**
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change
Nature of effect	Adverse	**Beneficial**	Neutral		
Significance of effect	Very large	Large	Moderate	Slight	**Neutral**

Nettleton Bottom

Table 0-32 Assessment of visual effects on the community of Nettleton

Receptor: *community of Nettleton Bottom* *(includes users of local PRoW network west either side of the A417 at the Golden Heart Inn and the Golden Heart Inn)*
Representative viewpoints: This receptor is represented by the following viewpoint listed below, refer to Figures 7.1 and 7.2 for their location: • VP41 Golden Heart Inn.
Baseline view From the Golden Heart Inn car park (VP41), and representative of views from the carriageway, enclosed views of the road network and pub can be gain at close proximity. Views to the east are shortened by mature trees at Birdlip quarry. To the north, there are obscured views through gaps in hedgerows and trees bounding the A417 to large scale arable fields beyond. South of the road, views open out across an undulating and rolling agricultural landscape, with large-scale arable field and woodland blocks. Views towards the settlement, the A417 follows the treed skyline and behind Hawcote hill, with passing traffic making the road more perceptible in the view. Nettleton Bottom is barely visible surrounded by woodland and vegetation.
Nature of receptors (sensitivity) The local communities of Nettleton Bottom on the alignment of the current A417, including visitors to the Golden Heart Inn, are considered to have a **high susceptibility** to visual change because views contribute to the landscape setting enjoyed by residents. The views are not documented as important in national or local documents but are nonetheless valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **medium sensitivity**.
Construction phase
Nature of effects (magnitude)

Receptor: *community of Nettleton Bottom* *(includes users of local PRoW network west either side of the A417 at the Golden Heart Inn and the Golden Heart Inn)*
Construction activities to repurpose the existing A417 road would create visual change in near views, with construction vehicles and activities associated with removing the existing road surface to narrow to carriageway and realign the route. The carriageway will be reduced in width with the redundant part of the old road being broken up and planted with trees, the planting of trees would be visible. The greatest change would be the removal of the continuous fast-moving stream of vehicles. De-trunking activities and movement of vehicles would only be seen from these small communities creating clearly perceptible change to the baseline conditions, resulting in a **large scale of change** in views. Night-time working would take place requiring high intensity lighting which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change to this community. Due to the presence of existing built form and intervening vegetation it is only possible to gain this type of view from a few locations in the settlements, affecting a relatively small number of people. The geographical extent is therefore judged to be **small**. The duration of effect on views would be the construction phase which would be **short term** (2 years) and would be **reversible** (because construction activities would be removed, and disturbed areas would be restored). The overall effect of the construction work on these local communities is considered to be **moderate** and **adverse magnitude of effect** due the large scale of change over a small geographical extent for a relatively short period, for highly susceptibility receptors.
Preliminary significance of effect For this receptor group the construction activities are predicted to result in a **moderate and adverse significance of effect**, due to moderate magnitude of effect to views affecting medium sensitivity receptors.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) At years 1, the majority of the community of Nettleton Bottom would experience a **small scale of visual change** as result of the operational proposed scheme, due to their location along the now minor road away from the proposed scheme. The now detrunked road (main A road) would only receive a low number of local traffic movements. The carriageway will be narrower that the baseline situation with the redundant part of the old road being broken up and planted with trees. The operational road would affect a **small community** (few people) over a small area, therefore the geographical extent is deemed to be **small**. The duration of effect on views will be the construction phase which would be **medium** (2-15 years) and would **not be reversible**. Overall this would result in only a very small part of the proposed scheme that would be discernible, and a **minor** and **beneficial magnitude of effect**.
Preliminary significance of effect At year 1 of the operational phase the medium sensitivity receptors would experience a minor magnitude of effect to local views. This would result in a **slight, beneficial** and **not significant effect**, as only a very small number of people would experience a small level of visual change to only a small part of the much wider view.
Operational phase (year 15 – design year)
Nature of effects (magnitude) At years 15, the majority of the community of Nettleton Bottom would experience a **small scale of visual change** as result of the operational proposed scheme, due to their location along the now minor road away from the proposed scheme. The now detrunked road (main A road) would only receive a low number of local traffic movements. The carriageway will be narrower that the baseline situation with the redundant part of the old road being broken up and planted with trees. The operational road would affect a small community (few people) over a small area, therefore the geographical extent is deemed to be **small**. The duration of effect on views will be the construction phase which would be **long term** (year 15) and would **not be reversible**.

Receptor: *community of Nettleton Bottom* *(includes users of local PRoW network west either side of the A417 at the Golden Heart Inn and the Golden Heart Inn)*
Overall this would result in only a very small part of the proposed scheme that would be discernible, and a **minor** and **beneficial magnitude of effect.**
Preliminary significance of effect At year 15 of the operational phase the medium sensitivity receptors would experience a minor magnitude of effect to local views. This would result in a **slight, beneficial** and **not significant effect**.

Table 0-33 Nettleton Bottom summary of effects

Susceptibility	**High**	Medium	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	**Medium**	Low	Negligible
Construction phase					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	Partially reversible	**Reversible**		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	Adverse	**Beneficial**	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		

Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	Adverse	**Beneficial**	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Stockwell

Table 0-34 Assessment of visual effects on the community of Stockwell

Receptor: The community at Stockwell and users of the local PRoW network north of Stockwell (*Cowley footpath 44*)
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP35 Shab Hill from footpath north of Stockwell farm; • VP36 PRoW north of Stockwell on junction with rural lane; • VP37 PRoW north of Stockwell; and • VP38 Byway at Stockwell.
Baseline view Views predominately consist of large fields are bounded by a mix of dry-stone walling and post and wire fencing, over gently undulating arable farmland. Views around Stockwell (VPs 35-37) are generally open where there are few intact hedgerows and large-scale field pattern are present, offering opportunities to gain long and more open views across the rolling landform. Topography plays an important role in where views can be gained from the footpath network, restricting open views to areas of higher elevation. Striking views of and along tree lined avenues provide local interest in views. At Stockwell, footpaths radiate out from the farmstead in all directions. To the west, the existing A417 can be seen in the middle distance along the local skyline, with the movement of vehicles drawing the eye. The roadside vegetation and woodland at Barrow Wake prevent views further west. Roadside vegetation also screen views to the south. To the east of Stockwell, views can be gained along the shallow valley channelling them to the southeast.
Nature of receptors (sensitivity) The local community of Stockwell is considered to have a **high susceptibility** to visual change because views contribute to the landscape setting enjoyed by residents. The views are not documented as important in national or local documents but are nonetheless valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **medium sensitivity**.
Construction phase
Nature of effects (magnitude) Construction activities would include the construction of the new road alignment, Stockwell overbridge, embankment, haul road, new sections and upgrading of the access track and minor road and presence of vehicle movements and personnel, along with the felling of mature avenue trees. The changes in the view would be in very close proximity to where the proposed scheme would be installed, and in a direct line of vision, affecting a substantial part of the view. Construction elements would provide a contrast with the existing rural view from the community of Stockwell, resulting in a **large scale of change** in views. Night-time working would take place requiring high intensity lighting

Receptor: The community at Stockwell and users of the local PRoW network north of Stockwell (*Cowley footpath 44)*
which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change to the community. Due to its slightly sunken position, it would only be possible to gain these types of view from a few locations to the north of the farmstead, affecting a relatively small number of people. The geographical extent is therefore judged to be **small**. The duration of effect on views would be within the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees along the minor road disrupting the avenue or landscape features (historic tracks) would not be able to be fully restored). The proposed scheme is therefore predicted to result in a **moderate** and **adverse magnitude of effect** for the community of Stockwell.
Preliminary significance of effect For the receptor at this location, the construction works would form a noticeable feature of locally valued views which are readily apparent to receptors of a medium sensitivity are predicted to result in a moderate magnitude of effect, over a relatively short period of time and a small area. This would result in a **moderate and adverse significance of effect**.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) The scale of change at year 1 would be **large**, due to large scale landscape bunding which would form noticeable features in the view which would be readily apparent to the community of Stockwell, As part of the proposed mitigation, the bunds would be formed of crushed local stone with little soil and planting during the early operational years. The bunds would screen direct views of the road infrastructure and vehicle movement, reducing the otherwise very high scale of change that would be experienced without the bunding. Change in night-time 'darkness' would be experienced by the community at Stockwell. Landscape bunding would screen direct views of vehicle lights, however there would likely be an increase in sky glow along the route of the proposed scheme crossing through this otherwise dark landscape at close proximity. Changes in landform and intervening vegetation limit where views of the operational scheme can be gained, a few locations near the settlements, affecting a relatively small number of people. The geographical extent is therefore judged to be **small**. The duration of effect on views over the operational phase would be **medium term** (2-15 years) and would be **not reversible**. Overall, receptors would experience a **moderate** and **adverse magnitude of effect**.
Preliminary significance of effect At year 1, the proposed scheme, particularly the recently completed embankments and overbridge, would form noticeable features in locally valued views which would be readily apparent to receptors of a medium sensitivity. Effect are predicted to result in a moderate magnitude of effect, over a relatively short period of time and a small area. This would result in a **moderate and adverse significance of effect**.
Operational phase (year 15 – design year)
Nature of effects (magnitude) From Stockwell, visual change at year 15 would be limited to the landscape bunding, Stockwell overbridge and realignment of the minor road, with some elements of the proposed scheme being seen on the local skyline. The mitigation – landscape bunds and maturing planting would reduce the scale of change at year 15 from large to **medium**. Changes in landform and intervening vegetation limit where views of the operational scheme can be gained, a few locations near the settlements, affecting a relatively small number of people. The geographical extent is therefore judged to be **small**. Change in night-time 'darkness' would remain similar to those experienced at year 1. The duration of effect on views over the operational phase would be **long term** (+15 years) and would be **not reversible**. Overall, there would be a **minor** and **adverse magnitude of effect** at year 15.

Receptor: The community at Stockwell and users of the local PRoW network north of Stockwell (*Cowley footpath 44)*
Preliminary significance of effect At the design year (15), the proposed scheme would cause a medium visual changes to a small part of the local views, affecting a small number of people, resulting in a **slight, adverse** and **not significant effect** at year 15

Table 0-35 Stockwell summary of effects

Susceptibility	**High**	Med	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	**Medium**	Low	Negligible
Construction phase					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	**Medium**	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		

Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Shab Hill

Table 0-36 Assessment of visual effects on the community of Shab Hill

Receptor: Community of Shab Hill and surrounding farms
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP24 Bridleway south of Ullen wood; • VP25 Gloucestershire Way at Shab Hill; • VP26 Cuckoopen Farm; • VP27 Gloucestershire Way at Rushwood Kennels; • VP31 Shab Hill permissive path; • VP32 PRoW Shab Hill; and • VP33 PRoW west of Shab Hill.
Baseline view At Shab Hill views are generally limited by hedgerows, conifers, and tree belts which surround the farm properties. However, long distance views can be gained north to Crickley hill country park and the elevated land at Barrow Piece Plantation. Views at Shab Hill are generally short range, enclosed due to changes in topography and mature field boundary vegetation. Extensive views of the rolling landform, more typical of the wolds, are restricted by mature hedgerow field boundaries, belts of woodland and conifer screen planting (VP27), west of Rushwood Kennels (VP27). East of Rushwood Kennels, a change in field boundaries to post and wire fencing provides more open views to the south east to Cally Hill Plantation in the midground and views north east towards Ullen Wood (VP26). The woodland creates a visual barrier obscuring views to the north.
Nature of receptors (sensitivity) The local community of Shab Hill is considered to have a **high susceptibility** to visual change because views contribute to the landscape setting enjoyed by residents. The views are not documented as important in national or local documents but nonetheless valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **medium sensitivity**.
Construction phase
Nature of effects (magnitude) Construction activity would be highly visible. The scale of change as a result of the works on views from these settlements would be **large**, where views of the haul road, excavation, stone crushing compound and major junction would be seen at close proximity in a direct line of vision. Night-time working would take place requiring high intensity lighting which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change for the community.

Receptor: Community of Shab Hill and surrounding farms
The presence of the existing built form, tree cover and intervening landform prevent receptors from gaining views from a wide extent of this dispersed community, affecting a small number of people in this communities. The geographical extent of the effect is therefore judged to be **small**. The duration of effect on views would be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed but it would be difficult to restore the landform, and landscape features (beech woodland and geological exposures) to the original state given the scale of the works required at this part of the proposed scheme). The overall magnitude of effect as a result of the construction work upon the community of Shab Hill is considered to be **moderate** and **adverse** due to the large scale of change over a small geographical extent affecting medium sensitive receptors for a relatively short period.
Preliminary significance of effect For the receptor at this location, the construction works would form a noticeable feature of locally valued views which are readily apparent to receptors of a medium sensitivity are predicted to result in a moderate magnitude of effect, over a relatively short period of time and a small area. This would result in a **moderate and adverse significance of effect**.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) At year 1 there would be a **large scale of visual change** as a result of the proposed scheme, particularly where the road transitions from cut to embankment at Shab Hill junction. At the junction road infrastructure and vehicle movements would be seen in close proximity, in direct line of vision, affecting a substantial part of the view, and would providing contrast with the existing view. Recently removed vegetation, field boundaries and conifer screen planting will open views across the areas. Landscape bunding, as part of the proposed mitigation, would be formed of crushed local stone with little soil and planting during the early operational years and would form a noticeable feature of the view which would be readily apparent to the community of Shab Hill. Change in night-time 'darkness' would be experienced by the community at Shab Hill. Landscape bunding would screen the majority of direct views of vehicle lights, however at Shab Hill junction directions light from vehicle will extend out over the local area. There would also likely be an increase in sky glow along the route of the proposed scheme crossing through this otherwise dark landscape at close proximity. Open views, road infrastructure and vehicle movements on elevated landform would offer opportunities to gain open views from a wider area at year 1, affecting most of the community at Shab Hill. Despite only affecting a relatively small number of people, the geographical extent is therefore judged to be **small**. The duration of effect on views over the operational phase would be **medium term** (2-15 years) and would be **not reversible**. Overall, receptors would experience a **moderate** and **adverse magnitude of effect**.
Preliminary significance of effect The proposed scheme, particularly Shab Hill junction, would become a dominant feature in local views, resulting in an obvious change, in the medium term and would affect a relatively large part of the community, resulting in a **moderate and adverse significance of effect**.
Operational phase (year 15 – design year)
Nature of effects (magnitude) At year 15, visual change will reduce from large to **medium**, as mitigation planting will now have full established and would continue to mature. Planting would be of a sufficient height, approximately 9m to screen some of the proposed scheme and vehicle movements. Change in night-time 'darkness' would reduce compared to those experienced at year 1, with maturing vegetation filter and blocking light spill. However, sky glow will still be apparent around Shab Hill junction. Woodland and field boundary planting as part of the wider mitigation proposals would have established enclosing open views reducing the area from where views of the proposed scheme can be gained. The geographical extent would be **small**. The duration of effect on views over the operational phase will be **long term** (+15 years) and would be **not reversible**.

Receptor: Community of Shab Hill and surrounding farms
Combining the judgements on scale of change, geographical extent, duration and reversibility, the magnitude of effect experienced by the community of Shab Hill at year 15 would be **minor** and **adverse**.
Preliminary significance of effect The significance of effect at year 15 would be **slight and adverse**, as part of the proposed scheme would form a discernible feature of the view, which is noticeable to the receptor, affecting a visual receptor with a medium sensitivity to road infrastructure over a small geographical extent.

Table 0-37 Shab Hill summary of effects

Susceptibility	**High**	Med	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	**Medium**	Low	Negligible
Construction phase					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	**Medium**	Small	Imperceptible	

Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Cold Slad Lane

Table 0-38 Assessment of visual effects on the community on Cold Slad Lane

Receptor: Community at Cold Slad Lane (Includes recreational users of Cold Slad Lane and road users)
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP13 Cold Slad Lane junction with A417; and • VP14 Cold Slad Lane.
Baseline view Views to the A417 along Cold Slad lane are generally obscured by tree cover until it approaches the entrance of Cold Slad lane facing east into the A417. Trees bounding the road shorten the view with the road corridor and traffic dominating the view in the foreground.
Nature of receptors (sensitivity) The local community on Cold Slad Lane is considered to have a **high susceptibility** to visual change because they currently experience views of the existing A417, which are valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **medium sensitivity**.
Construction phase
Nature of effects (magnitude) Construction activities of the proposed scheme and the existing A417 would cause a **small scale of change** to views as experienced by the community of Cold Slad Lane. Night-time working would be the greatest change in views from this location, apart from at the junction of Cold Slad Lane and the proposed scheme, where there would be an obvious change in direct views. During construction there would be temporary closures of the lane, which would limit the extent of change experienced by the community. The works would affect a small community over a small area. Therefore, the geographical extent is deemed to be **small**. The duration of effect on views will be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and the alteration of the align of Cold Slad Lane would not be able to be fully restored). The proposed scheme is therefore predicted to result in a **minor and adverse magnitude of effect** for visual receptors at this location.
Preliminary significance of effect

Receptor: Community at Cold Slad Lane (Includes recreational users of Cold Slad Lane and road users)
Despite construction activity affecting receptors of medium sensitivity, the works are predicted to cause a minor magnitude of effect to local views, resulting in a **slight, adverse** and **not significant effect**.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) At years 1, the community of Cold Slad Lane would experience an **imperceptible** level of visual change as result of the operational proposed scheme, due to their location along the minor road away from the proposed scheme, apart from at the junction of Cold Slad Lane and the proposed scheme, where there would be an obvious change in direct views. The operational road would affect a small community (few people) over a small area, therefore the geographical extent is deemed to be **small**. The duration of effect on views will be the construction phase which would be **medium** (2-15 years) and would **not be reversible.** Overall this would result in only a very small part of the proposed scheme that would be discernible, and a **negligible, adverse magnitude of effect**.
Preliminary significance of effect At year 1 of the operational phase the medium sensitivity receptors would experience a negligible magnitude of effect to local views. This would result in a **neutral significance of effect**, as only a very small number of people would experience an imperceptible level of visual change to only a small part of the much wider view. Preliminary significance of effect would not be slight given the imperceptible scale of change over a small geographical extent effecting a medium sensitivity receptor group.
Operational phase (year 15 – design year)
Nature of effects (magnitude) At years 15, the majority of the community of Cold Slad Lane would experience an **imperceptible** level of visual change as result of the operational proposed scheme, due to their location along the minor road away from the proposed scheme, apart from at the junction of Cold Slad Lane and the proposed scheme, where there would be an obvious change in direct views. The operational road would affect a small community (few people) over a small area, therefore the geographical extent is deemed to be **small**. The duration of effect on views will be the construction phase which would be **long term** (year 15) and would **not be reversible.** Overall this would result in only a very small part of the proposed scheme that would be discernible, and a **negligible magnitude of effect**.
Preliminary significance of effect At year 15 of the operational phase the medium sensitivity receptors would experience a negligible magnitude of effect to local views. This would result in a **neutral significance of effect**, as only a very small number of people would experience an imperceptible level of visual change to only a small part of the much wider view. Preliminary significance of effect would not be slight given the imperceptible scale of change over a small geographical extent effecting a medium sensitivity receptor group.

Table 0-39 Cold Slad Lane summary of effects

Susceptibility	**High**	Medium	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	**Medium**	Low	Negligible

Construction phase					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	Slight	**Neutral**
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change
Nature of effect	Adverse	Beneficial	**Neutral**		
Significance of effect	Very large	Large	Moderate	Slight	**Neutral**

Tourism receptors

7.10.11 The assessment of effects on visitors to Emma's Grove have been considered as part of the assessment on users on the Gloucestershire Way long distance footpath as access to Emma's Grove is via this path.

Crickley Hill Country Park

Table 0-40 Assessment of visual effects on visitors to Crickley Hill Country Park

Receptor: visitors of Crickley Hill Country Park (including visitors to Cotswolds AONB, Crickley Hill camp scheduled monument, walkers on both the Cotswolds Way National Trail and Gloucestershire Way Long Distance Footpath, and users of the National Trust/Gloucestershire Wildlife Trust footpaths and open access land, and visitor to the SSSI and scheduled monument)
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP15 Crickley Hill camp scheduled monument; • VP16 Crickley Hill on Cotswold Way National Trail; • VP17 Bridleway off Cotswold Way National Trail; • VP20 Ochala Wood Crickley Hill Country Park; • VP21 Entrance to Crickley Hill Country Park; and • VP22 Crickley Hill Country Park drive.
Baseline view The views are representative of visitors to Crickley Hill Country Park (this includes Crickley Hill camp scheduled monument and the Scrubbs (part of the Barrow Wake and Crickley Hill SSSI). There are open and panoramic long-distance views looking south across the low-lying vales with Coopers Hill in the middle distance and views over to the wooded valley slopes at Barrow wake and the Peak. Out to the west, the city of Gloucester is recognisable in the vale with far reaching views beyond to the Forest of Dean and the Malvern Hills. Intermittent and filtered views of the A417, can be gained from a few locations along the southern boundary of the Parks, as the road weaves through the low-lying vale and as it ascends the escarpment, skirting the edge of Crickey Hill. The road is mostly obscured by dense tree cover on the near steep slopes of Crickley Hill and garden vegetation surrounding residential properties. Views east across the country park can be gained of the near slopes of Shab Hill and its wooded horizon. Entering the park from Leckhampton Hill road, local views are of a parkland landscape with mature parkland trees which limit and filter views to the wider landscape. From here there are glimpsed views of the traffic as it moves along the existing A417 at the Ullenwood junction and along the high ridge in the middle distance, Shab Hill radio masts are visible on the skyline.
Nature of receptors (sensitivity) Visitors to Crickley Hill Country Park are considered to have a **high susceptibility** to visual change because views of surroundings are an important contributor to the visitors' experience at this location. The view from the Crickley Hill camp is valued at a **national level** because they are identified in the Cotswolds AONB Management Plan as a special quality of the AONB and marked on OS maps as a publicly accessible view from a scheduled monument. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **very high sensitivity**.
Construction phase
Nature of effects (magnitude) Opportunities to gain views of construction activities from Crickley Hill would be limited to a few locations immediately adjacent to the country park's southern boundary wall. As described above in the baseline section, views of the existing A417 are not readily available, obvious or apparent in views, due to existing tree cover on the southern slopes of Crickley Hill. These trees would remain during the construction period and would screen a lot of the construction activities. However, visual change would arise with the removal of the woodland from the southern side of the carriageway and earthworks to widen and realign the proposed scheme as it descends from the escarpment. Works to

Receptor: visitors of Crickley Hill Country Park (including visitors to Cotswolds AONB, Crickley Hill camp scheduled monument, walkers on both the Cotswolds Way National Trail and Gloucestershire Way Long Distance Footpath, and users of the National Trust/Gloucestershire Wildlife Trust footpaths and open access land, and visitor to the SSSI and scheduled monument)
repurpose the existing A417 along the ridge behind Barrow Wake would be visible as would views of the cutting as it passes Emma's Grove and the stone crushing plant. Tree felling, woodland clearance and construction activities associated with the erection of the Cotswold Way Crossing would be apparent at a close proximity, particularly the use of cranes. Earthworks movements to create numerous balancing ponds across the road from the entrance to the Park would be visible through roadside vegetation. The entrance and access track to the Park would move to connect into the realigned Leckhampton Hill road and altered Ullenwood junction. Overall this would result in a **medium level of visual change** experienced by visitors to Crickley Hill. At night, the country park is closed to the public so night-time working would not likely be experienced by receptors at this location. Intermittent views can be gained from a small number of locations within the wider country park and would be experienced by a relatively small to moderate number of people. Therefore, the geographical extent would be **small**. The duration of effect on views would be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and disturbed historic field patterns (ridge and furrow), landscape features (historic tracks) and landform would not be able to be fully restored). The proposed scheme is therefore predicted to result in a **minor and adverse** magnitude of effect for visitors to Crickley Hill.
Preliminary significance of effect For the receptors at this location, the construction works are predicted to result in a **large** and **adverse significant** effect at this location, due to a minor magnitude of effect to a view affecting very high sensitivity receptors. Preliminary significance of effect would unlikely be moderate as changes to views would be experienced from a close proximity from a few locations within the wider country park, effecting a very high sensitivity receptor group.
Operational phase (year 1 – opening year)
Nature of effects (magnitude) The greatest level of change to views from Crickley Hill would be experienced from the western extent of the park, where the recently completed proposed scheme would be noticeable with recently completed road realignments appearing within the vale, as it connects into the existing A417. The eastern side of the park would experience views towards numerous balancing ponds and the altered road layout at Ullenwood junction. Further change would be experienced to the southern extent of the park, where the recently completed scheme would be partially visible on the foot slopes of Crickley between existing woodland. In particular, the widened carriageway, recently planted embankments, and exposed cutting slopes would be seen by people using this part of the park. The Cotswold Way crossing would be seen spanning the proposed scheme between Cold Slad lane and Emma's Grove, introducing a feature of visual interest. From the southern extent of Crickley Hill, proposed mitigation would not be fully effective at year 1 with planting including tree guards and timber stakes on engineered embankments being visible, extending out into the landscape to connect broken hedgerows. At this stage the proposed mitigation would contribute to the **medium scale of visual change**. Intermittent views can be gained from a small number of locations within the wider country park and would be experienced by a relevantly small to moderate number of people. Therefore, the geographical extent would be **small**. The duration of effect on views over the operational phase would be **medium term** (2-15 years) and would be **not reversible**. The proposed scheme is therefore predicted to result in a **minor and adverse** magnitude of effect for visitors to Crickley Hill.
Preliminary significance of effect Elements of the scheme would be readily apparent to very highly sensitive receptors, having a minor and adverse magnitude of effect, at year 1, resulting in a **large and adverse significance of effect**.

Receptor: visitors of Crickley Hill Country Park (including visitors to Cotswolds AONB, Crickley Hill camp scheduled monument, walkers on both the Cotswolds Way National Trail and Gloucestershire Way Long Distance Footpath, and users of the National Trust/Gloucestershire Wildlife Trust footpaths and open access land, and visitor to the SSSI and scheduled monument)
Preliminary significance of effect would unlikely be moderate as changes to views would be experienced from a close proximity from a few locations within the wider country park, effecting a very high sensitivity receptor group.
Operational phase (year 15 – design year)
Nature of effects (magnitude) The parts of the proposed scheme at year 15 would be partially visible from different locations within Crickley Hill Country Park, mainly realigned Leckhampton Hill road and altered Ullenwood junction. In addition, the cut through Shab Hill, the Cotswold Way crossing, widened road south of Crickley Hill would also be visible in views from the southern extent of Crickley Hill. The A417 would now be mostly screened by the maturing mitigation vegetation and would start to appear similar to the baseline situation, resulting in a **small scale of visual change**. Visual effects of the Cotswold Way crossing would provide visual interest to views of the escarpment, with wider benefits gained from the proposed mitigation planting which would positively contributes to the wooded appearance of the slopes. Intermittent views can be gained from a small number of locations within the wider country park and would be experienced by a relatively small to moderate number of people, resulting in a **small geographical extent**. The duration of effect on views over the operational phase will be **long term** (+15 years) and would be **not reversible**. Overall, this would result in a **minor and adverse magnitude of effect** to views from this location.
Preliminary significance of effect Parts of the proposed scheme would be readily apparent to the very high sensitivity receptors, having a minor and adverse magnitude of effect, at year 15, resulting in a **moderate and adverse significance of effect**. Preliminary significance of effect would not be large at year 15 due to the extent of maturing woodland cover at both the Ullenwood junction (entrance to Crickley Hill Country Park) and along the south side of the proposed scheme south of Crickley Hill which would screen and integrate the road infrastructure into the views, appearing similar to the baseline view.

Table 0-41 Crickley Hill Country Park summary of effects

Susceptibility	**High**	Med	Low		
Value	**National**	Regional/District	Community		
Sensitivity	**Very high**	High	Medium	Low	Negligible
Construction phase					
Size/scale of change	Large	**Medium**	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		

Significance of effect	Very large	**Large**	**Moderate**	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	**Medium**	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	**Large**	Moderate	Slight	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral

Great Witcombe Roman Villa

Table 0-42 Assessment of visual effects on visitors to Great Witcombe Roman Villa

Receptor: Users of the Roman Villa car park and PRoW (Brockworth Footpath 16) visiting Great Witcombe Roman Villa scheduled monument (Includes residents and workers at Cooper's Hill Farm, and workers and residents at Droy's Court)
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP1 Roman villa car park; • VP2 Cotswold Way National Trail at Coopers Hill; and • VP3 Droy's Court.
Baseline view There are long and occasional wide views across the vale which rises in the distance to the well-wooded escarpment (VP1). Crickley Hill, Barrow Wake and the Peak are notable features along the skyline, particularly Barrow Wake car park which is clearly visible due to sunlight glinting off car windows.

Receptor: Users of the Roman Villa car park and PRoW (Brockworth Footpath 16) visiting Great Witcombe Roman Villa scheduled monument

(Includes residents and workers at Cooper's Hill Farm, and workers and residents at Droy's Court)

The foreground is dominated by large arable fields which are bounded by hedgerow. Hedgerow trees and tree clumps give the impression of a well wooded vale and prevent more panoramic views from being gained. They also limit open visibility to a relatively few locations. As the access road to the villa ascends to higher ground, low lying features including the reservoirs become visible and prominent in the view. The white roof at Bentham and the Eagle Tower in Cheltenham are prominent features to the north. The A417 is also visible in the vale to the north but obscured by roadside vegetation as it climbs the escarpment (VP3).

Nature of receptors (sensitivity)

Visitors to the Great Witcombe Roman Villa scheduled monument are considered to have a **high susceptibility** to visual change because users' interest is likely to be focussed on the landscape and setting of the villa, in addition to the ruin. The views from the villa are obscured by vegetation, but views from the car park and approach to the villa along the PRoW are valued at a **national level** by as it is designated as a scheduled monument.

Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **very high sensitivity**.

Construction phase

Nature of effects (magnitude)

During the construction phase, visitors to the villa would experience a **small scale of change** to their visual resource. Glimpsed and partial views could be gained of the vegetation removal, road widening included new embankments, excavation through the escarpment and building of the Cotswold Way crossing. Proposed mitigation planting would be difficult to see from this distance. Despite the proposed scheme being seen in combination with the existing and still operational A417, from this distance the scale of change would be limited, affecting only part of much wider series of views. Therefore, the geographical extent would be **small**, as a result of the limited locations where views can be gained by a small number of people.

The duration of effect on views will be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and altered topography would not be able to be fully restored).

The proposed scheme is therefore predicted to result in a **minor and adverse magnitude of effect** for visitors to Great Witcombe roman villa.

Preliminary significance of effect

For the receptor at this location the parts of the construction works are predicted to result in a **moderate and adverse significance of effect** at this location, due to minor magnitude of effect (small change) to views affecting few very high sensitivity receptors.

Preliminary significance of effect would not be large given the distance between the receptor and the proposed scheme with only small scale of change to views being seen in the context of a much wider view.

Operational phase (year 1 - opening year)

Nature of effects (magnitude)

At year 1, the recently completed road would be more visible than the baseline situation, proposed mitigation planting would have not yet fully established and would not be visible from this distance. It would be possible to gain views of the Cotswold Way crossing extending across the escarpment providing architectural visual interest. The south facing cut slope would appear bright reflecting sunlight. However, from this distance a **small scale of change** to views would only effect part of much wider series of views. Therefore, the geographical extent would be **small**, as a result of the limited locations where views can be gained by a small number of people.

The duration of effect on views over the operational phase will be **medium term** (2-15 years) and would be **not reversible**, resulting in an overall **minor and adverse magnitude of effect.**

Receptor: Users of the Roman Villa car park and PRoW (Brockworth Footpath 16) visiting Great Witcombe Roman Villa scheduled monument (Includes residents and workers at Cooper's Hill Farm, and workers and residents at Droy's Court)
Preliminary significance of effect Changes to views, experienced by visitors to the scheduled monument are predicted to result in a **moderate and adverse significance of effect** at this location, due to minor magnitude of effect (small change) to views affecting few very high sensitivity receptors. Preliminary significance of effect would not be large given the distance between the receptor and the proposed scheme with only small scale of change to views being seen in the context of a much wider view.
Operational phase (year 15 – design year)
Nature of effects (magnitude) Visual effects of the operational phase at year 15 are predicted to be of an **imperceptible** scale of change as proposed mitigation planting would now have fully established and would continue to mature and appear in a similar nature to the baseline situation. The Cotswold Way crossing would still be visible crossing the escarpment but would now form a barely noticeable feature in a series of much wider views from a limited number of locations. The geographical extent would be **small**, as a result of the limited locations where views can be gained by a small number of people, with the duration of effect on views over the operational phase being **long term** (+15 years) and would be **not reversible**. The overall magnitude of effect would be **negligible and neutral**.
Preliminary significance of effect Only a very small part of the proposed scheme would be discernible from this distance that it would form a barely noticeable feature or element of the view, resulting in a **slight, neutral and not significant effect**.

Table 0-43 Great Witcombe Roman Villa summary of effects

Susceptibility	**High**	Med	Low		
Value	**National**	Regional/District	Community		
Sensitivity	**Very high**	High	Medium	Low	Negligible
Construction phase					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		

Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change
Nature of effect	Adverse	Beneficial	**Neutral**		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Barrow Wake

Table 0-44 Assessment of visual effects on visitors to Barrow Wake

Receptor: users of Barrow Wake (includes visitors to the Cotswolds AONB and common land)
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP8 Cotswold Way National Trail/Gustav Holt Way west of Barrow Wake; • VP9 Cotswold Way National Trail at Barrow Wake; • VP10 Barrow Wake Viewing Point; and • VP11 Barrow Wake Car Park.
Baseline view Barrow Wake car park is a popular location for people to enjoy the views and is marked as a viewing point on OS maps. The view is representative of visitors to the Barrow Wake viewing point (VP10) and car park (VP11). From this elevated vantage point, open and panoramic long-distance views can be gained out across the low-lying vale to Gloucester extending over to the Forest of Dean and the Malvern Hills. On clear days it is possible to gain views of the Black Mountains. The escarpment ridge provides dramatic views towards Crickley Hill, the Peak and Coopers Hill, with contrasting wooded slopes and open calcareous grassland (VP8 & 9). Within the vale, small pasture fields are present on the steeper ground of the foot slopes with large arable fields closer to the settlement edge of Brockworth. The Witcombe reservoirs and tennis centre at Bentham stand out from the other rural and peri-rural scene. The A417 follows the natural fold in the landscape between

Receptor: users of Barrow Wake (includes visitors to the Cotswolds AONB and common land)
Barrow Wake and Crickley Hill, where tree coverage obscures views of the road itself. The road becomes more apparent towards the outer edges of Gloucester. From the car park (VP11), the scarp slope drops dramatically in the foreground with calcareous grassland and scrubby tree belts on the upper slopes. Grazed fields (remnant ridge and furrow in places) on slackened slopes in the midground, lead to vast open views to the east. Woodland can be seen on top of hills and into the vale. Filtered views of the A417 to the east, along the escarpment and stationary vehicles at Barrow Wake itself, detract from the scenic qualities of the view.
Nature of receptors (sensitivity) Visitors to Barrow Wake (including the car park and viewing point as marked on a 1:25k OS map) are considered to have a **high susceptibility** to visual change because their attention is likely to be focussed on the landscape and this location offers opportunity to appreciate dramatic views from the escarpment edge. The views from the car park, viewing point and surrounding of Barrow Wake are valued at a **national level** as they are identified in the Cotswolds AONB Management Plan as a special quality of the AONB and marked on OS maps as a publicly accessible view. Overall, and combining judgements on susceptibility with value, visual receptors at this location are considered to have **very high sensitivity**.
Construction phase
Nature of effects (magnitude) **ADD NEW ROAD LAYOUT** Due to Barrow Wake's elevated position on the Cotswold escarpment, the construction site compound, removal of woodland along the existing road corridor, earthworks sculpting the balancing pond at Grove Farm, and widening and realignment of the carriageway would be clearly visible in relatively near views within the vale. In addition, the haul road and movement of vehicles on both the haul road and the existing A417 would be seen at very close proximity, as visitors at Barrow Wake look out across the construction site and existing operational road. Works would appear in a direct line of vision, affecting a substantial part of the view, and creating a contrast with existing views for those visiting this area or walking the surrounding open access land, resulting in a **large scale of change** in views. At night, very few people use the car park, but night-time working would take place requiring high intensity lighting which would be highly visible and spill out into this otherwise dark landscape, causing an obvious change. Although this is a relatively small area from where this type of view can be gained by this receptor group, the car park and viewing point would be affected by the change. Barrow Wake is popular with visitors to the AONB, with changes affecting a moderate number of people. Given the combination of relatively small area being affected and the popularity of the car park viewpoint overall, the geographical extent is judged to be **small**. The duration of effect on views will be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and disturbed historic field patterns (ridge and furrow) or landscape features (historic tracks) would not be able to be fully restored). The overall effect of construction on visitors to Barrow Wake is considered to be a **moderate** and **adverse** magnitude of effect, due to a large scale of change experienced at close quarters over a small geographical extent affecting a highly susceptible receptor and valued view, but for a relatively short period.
Preliminary significance of effect As summarised above, it is considered that construction activities would have a moderate and adverse magnitude of effect affecting very high sensitivity receptors, resulting it a **very large and adverse significance of effect** on visitors to Barrow wake. Preliminary significance of effect would not be large during construction due to the predicated large scale of visual change experienced by people visiting this valued view at Barrow Wake. The proposed construction activity would form a dominant feature and an obvious change in the view.

Receptor: users of Barrow Wake (includes visitors to the Cotswolds AONB and common land)
Operational phase (year 1 - opening year)
Nature of effects (magnitude) **ADD NEW ROAD LAYOUT** Loss of woodland, road realignment and widening and associated earthworks and balancing pond from this view would result in a **large scale of change** in views from this popular visitor location within the AONB at year 1. Recently completed cuttings and geological exposures would be obvious as a result of the brightness of the stone colour catching the sunlight on south facing walls within the cut. The Cotswold Way crossing would also be partially visible from this location. Night-time effects of vehicle lights would be greater than, but of a similar nature to the baseline, with car lights being visible but with little spill into the wider landscape. Proposed mitigation would not be fully effective at year 1 with planting including tree guards and timber stakes on engineered embankments being visible, extending out into the landscape to connect broken hedgerows. Although this is a 'point' viewpoint (rather than an extensive area from which the view can be experienced), a moderate number of people would experience the view. The geographical extent of the effect is therefore judged to be **small**. The duration of effect would be **medium term** (2-15 years, expected to be +15 years) and would be **not reversible** (as the proposed scheme would be considered permanent). The magnitude of effect of the proposed scheme during the operational phase upon visitors to Barrow Wake is considered to be **moderate and adverse** in Year 1.
Preliminary significance of effect The operational proposed scheme at Year 1 would be clearly visible by visitors to Barrow Wake, resulting in a **very large and adverse significance of effect**. Preliminary significance of effect would not be large at year 1 due to the predicated large scale of visual change experienced by people visiting this valued view at Barrow Wake. The proposed scheme will remain dominant as an obvious change while the proposed planting is immature and not functioning as screening.
Operational phase (year 15 – design year)
Nature of effects (magnitude) **ADD NEW ROAD LAYOUT** The scale of change during the operational phase at year 15, upon visitors to Barrow Wake is considered to be **small** and a combination of beneficial (due to the matured mitigation planting adjacent to the road and neighbouring fields, reconnected field boundaries) and adverse (due to the increase in road infrastructure), resulting in a **neutral nature of effect** overall. Vegetation will establish within and around the balancing pond at Grove Farm making it a less noticeable feature in views from Barrow Wake. Visitors to Barrow Wake would be able to use the Cotswold Way National Trail to walk across the bridge, remaining on the escarpment edge, with extended opportunities to gain views out from the escarpment (a special quality of the AONB) as a continued experience from Barrow Wake. A moderate number of people would experience the view from only a few locations. The geographical extent of the effect is therefore judged to be **small**. Night-time effects of vehicle lights would be of a similar extent and nature to the baseline, with car lights being visible but with little spill into the wider landscape. The duration of effect on views over the operational phase would be **long term** (+15 years) and would be **not reversible**. Overall, there would be a **minor** and **neutral** magnitude of effect experienced by visitors to Barrow Wake. Beyond 15 year the magnitude of effect would continue to reduce due to maturing vegetation which would likely result in a negligible and neutral effect as views become similar in nature to the baseline situation of woodland screening the road.
Preliminary significance of effect Minor magnitude of effects would be present at Year 15 and would be of a similar nature to the baseline conditions once the mitigation planting has matured, filtering views of the proposed scheme

Receptor: users of Barrow Wake (includes visitors to the Cotswolds AONB and common land)
at this location. These effects would be experienced by very highly sensitive receptors and are judged to be **moderate significance of effect and neutral**. Preliminary significance of effect would not be large once the woodland planting along the south side of the proposed scheme, south of Crickley Hill has matured sufficiently to screen views to the road, appearing similar to the baseline situation.

Table 0-45 Barrow Wake summary of effects

Susceptibility	**High**	Med	Low		
Value	**National**	Regional/District	Community		
Sensitivity	**Very high**	High	Medium	Low	Negligible
Construction phase					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	**Very large**	Large	Moderate	Slight	Neutral
Operation year 1					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	**Very large**	Large	Moderate	Slight	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		

Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	Adverse	Beneficial	**Neutral**		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral

Leckhampton Hill

Table 0-46 Assessment of visual effects on visitors to Leckhampton Hill

Receptor: users of Leckhampton Hill (includes visitors to the Cotswolds AONB, Cotswolds Way National Trail, common land and Leckhampton camp and tumuli scheduled monument)
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP18 Leckhampton Hill – visitor information board; and • VP19 Leckhampton camp and tumulus at trig point.
Baseline view The view is representative of visitors to Leckhampton Camp scheduled monument (VP19), users of the Cotswold Way National Trail (VP18), local walkers and dog walkers. From its elevated position, open and panoramic long-distance views can be gained out across the surrounding landscape: south east across the wold, south along the escarpment to Crickley Hill and west over the vale. The view is predominantly focused across the vale to Gloucester and Cheltenham, with the secondary focus over the undulating rolling agricultural landscape with woodland cover on the higher points of the wold. In the foreground (VP19), the hillfort is evidenced in the landscape by the mound and elevated footpath and forms the boundary to several large-scale arable fields. The landform drops away in the middle distance and Ullen wood is visible on the facing slope in the distance. Emma's Grove is visible to the west of Ullen wood and here the A417 becomes visible through a break in the tree cover, snaking down off the escarpment to the Ullenwood junction. The masts at Birdlip radio station, along with electricity pylons, are visible along horizon and detract from the view. The site occupies a small section of the view across the wooded depression in the distance.
Nature of receptors (sensitivity) Visitors to Leckhampton Hill are considered to have a **high susceptibility** to visual change because views of surroundings are an important contributor to the visitors' experience at this location. Views from the top of the camp are valued at a **national level** because they are identified in the Cotswolds AONB Management Plan as a special quality of the AONB and it is marked in OS maps as a publicly accessible view from a scheduled monument. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **very high sensitivity**.
Construction phase
Nature of effects (magnitude) The construction work on the elevated wold at Shab Hill would be visible against the skyline in combination with the existing A417, resulting in visibility of both the proposed scheme and the existing A417, still in operation during the construction phase. Construction of the Ullenwood junction would be visible along with excavation on the southern slope of the cut as it crosses Shab Hill, along with Shab Hill junction, its embankments and the landscape bunds being visible as far as Stockwell. At its nearest point it would be located 2.1km from the viewpoint and for this reason would only result in a **small scale of change** to the view. At night, very few people would visit the open access land. However night-time working would take place across the proposed scheme, requiring high intensity

Receptor: users of Leckhampton Hill (includes visitors to the Cotswolds AONB, Cotswolds Way National Trail, common land and Leckhampton camp and tumuli scheduled monument)
lighting which would be visible in distant views on the horizon, creating sky glow, and causing a noticeable change. As this is a 'specific' viewpoint (it is broadly representative for the local area from which the view can be experienced), visited by a moderate number of people, the geographical extent of the effect is therefore judged to be **small**. The duration of effect on views would be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, and disturbed areas would be restored). Overall it is considered that the visual effect of the construction works on visitors to Leckhampton Hill is **minor** and **adverse magnitude of effect** due to a small change to a valued view affecting highly susceptible receptors, over a relatively short time.
Preliminary significance of effect For people visiting the scheduled monument, open access land, or walkers on the Cotswold Way National Trail (travelling south) the construction works are predicted to result in a small effect at this location, due to a minor adverse magnitude of effect to a distant view affecting very high sensitivity receptors. This would result in a **moderate and adverse significance of effect**. Preliminary significance of effect would not be large due to the distance between the receptor and the proposed scheme, with changes taking place in only part of a much wider view.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) The level of change and geographical extent would remain similar to those experienced at construction, **imperceptible scale of change** and **small** geographical extent. Visual effects of the proposed mitigation would not be perceived from this distance. The duration of effect on views over the operational phase would be **medium term** (2-15 years) and would be **not reversible**, resulting in a **negligible and adverse** magnitude of effect.
Preliminary significance of effect **A slight, adverse** and **not significant effect** would be experienced from this distance despite the very high sensitivity of the receptor experiencing a negligible magnitude of effect caused to views from this location.
Operational phase (year 15 – design year)
Nature of effects (magnitude) Over time as the mitigation planting continues to mature the proposed scheme would become more embedded into the scene, with proposed features becoming **imperceptible** from this distance. The geographical extent would remain the same at **small**. The duration of effect on views over the operational phase will be **long term** (+15 years) and would be **not reversible**. Combining scale of change, geographical extent, duration and reversibility, receptors at Leckhampton Hill will experience a **negligible** and **adverse** magnitude of effect.
Preliminary significance of effect At year 15 there would be a **slight, adverse** and **not significant effect**.

Table 0-47 Leckhampton Hill summary of effects

Susceptibility	**High**	Med	Low		
Value	**National**	Regional/District	Community		
Sensitivity	**Very high**	High	Medium	Low	Negligible
Construction phase					

Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	**Moderate**	Slight	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	**Medium**	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Emma's Grove

7.10.12 See description and assessment for users on the Gloucestershire Way long distance footpath.

Transport receptors

Motorists on the A417, A436 and B4070

Table 0-48 Visual assessment – A417, A436 and B4070

Receptor: A417 road users
Representative viewpoints: This receptor group is represented by the following viewpoints listed below. For detailed baseline photography of each viewpoint refer to Figure 7.10: • VP6 Old Coach Road overbridge A417; • VP13 Cold Slad Lane junction with A417; • VP23 Gloucestershire Way on A417 at Air Balloon; • VP41 Golden Heart Inn; and • VP46 Bridleway west of Elkstone.
Baseline view The views are representative of users of the A417 between the Brockworth bypass (overbridge at Bentham) and Cowley roundabout, motorists on the A436 between the Ullenwood junction and Seven Springs, and the B4070 between the current A417 and Birdlip. In the low-lying vale (VP6), roadside trees and vegetation channel the views along the road network and obscure views out across the vale. Tree cover also obscures views of the A417 as it ascends the escarpment (VP13). The land rises in the distance with views of Crickley Hill, Barrow Wake and the Peak along the skyline. The slopes and tops of the ridge are heavily wooded. As the user travels east and ascends the escarpment, woodland encloses the view, with the road network the focus in the mid to foreground and a slot view of the wooded skyline beyond. In the vicinity of the Ullenwood junction, the A417 road corridor continues to dominate the view (VP23). The Air Balloon pub is the focus of the view beyond the road and traffic. Wider views to the west are screened by landform and vegetation. Traveling north there are glimpsed views of Crickley Hill. As the user travels south in the vicinity of the Golden Heart Inn (VP41), views across the wold are foreshortened by mature trees at Birdlip quarry. There are glimpsed views of arable and pastoral fields through gaps in hedgerows and trees bounding the roadside. Beyond Cowley roundabout there are open views north with hedgerows flanking either side of the road corridor. There is a slot view along the A417 road corridor and cutting slopes to a wooded skyline. The land rises to north across undulating large-scale arable fields with drystone wall boundaries and little tree cover (VP46). Highgate Farm and another residential property are visible on the skyline in the middle distance with electricity poles visible from east to west.
Nature of receptors (sensitivity) Motorists travelling on the A417, A436 and B4070 are considered to have a **medium susceptibility** to visual change because their attention is likely to be focussed on the road as they travel along the network at speed. Their views are valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **negligible sensitivity**.
Construction phase
Nature of effects (magnitude) Construction activities of the proposed scheme and the existing A417 would become dominant and cause a large scale of change in near views. Traffic management on all routes would cause changes to the baseline situation, particularly on Shab Hill junction and at Ullenwood and Cowley junctions. Construction activities associated with the offline section would not be readily apparent to motorists on the existing network until it nears completion. Building the online section would cause a **large scale of change** as the road widening would take place while the existing road remains in operation. Obvious changes would be the removal of woodland along southern boundary of the existing road, movement of construction traffic and personnel, earthworks activity to create the embankments and excavate the

Receptor: A417 road users
cutting through the escarpment and movements to create numerous balancing ponds and cutting slopes to the A436 and the realignment of Ullenwood junction. Crane activity involved in the erection of the Cotswolds Way and Gloucestershire Way crossings will be visually prominent for motorists appearing at close proximity. At times the construction activity would be perceived by motorists on the main road network across the whole proposed scheme, affecting a large number of people. Therefore, the geographical extent would be **medium**. The duration of effect on views would be for the whole construction phase, **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and large-scale excavation and earthworks would not be able to be fully restored). The proposed scheme is therefore predicted to result in a **major and adverse** magnitude of effect for motorists using the A417, A436 and B4070 within the study area.
Preliminary significance of effect For the motorists on the road main road network within the study area the construction works are predicted to result in a **slight** and **adverse significance** of effect.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) At year 1, motorists using the A417, A436 and B4070 would experience a **medium scale of change** as a result of the recently completed proposed scheme. On the A417, the new alignment from Cowley junction would change from a surface route with intermitted views out across the surrounding landscape to enclosed views along the road corridor, with new overbridges at Stockwell Farm, Cowley Lane, Gloucestershire Way and Cotswolds Way crossings. The proposed scheme along the southern section would have high landscape embankments on both sides of the carriageway. The inner embankment slopes would be exposed rock, left bare from soil or vegetation, and would appear bright yellow at year 1, before the rock weathers and turns grey. This would continue up to Shab Hill where, for a short section, glimpsed views would be gained to the west, before users descend again into cutting. The depth (15m) of the cutting and exposed rock faces would be an obvious change for motorists on the A417, compared to the baseline situation. The greened Gloucestershire Way and corten finished Cotswold Way crossings would be prominent features and focal point for motorists as the travel along this section of the proposed scheme. Travelling west along the widened section of the proposed scheme through the escarpment, views would open out across the foot slopes of the escarpment and the vale with distant views over to Gloucester. Travelling on the A436, changes to views would only become apparent as motorists approached the Ullenwood junction and the junction to Leckhampton Hill Road. Here the new road roundabout would provide the opportunity to gain channelled views through the cut in the escarpment via the realigned A436 on the approach to Shab Hill junction. Attenuation basin would be visible to the north of the roundabout with a short section of the Leckhampton Hill Road appearing on an adjusted alignment. From Birdlip the B4070 follows the existing alignment to the junction to Barrow Wake. At this point the motorists' views would change as the new alignment follows the old A417 route towards Barrow Wake. Motorists would be able to gain glimpsed views out over the escarpment to the vale below. At the underpass the realigned B4070 connects into the access track (now upgraded) to Shab Hill, before deviating east to connect into Shab Hill junction and the A417. The geographical extent for each road would vary, with the A436 and B4070 affecting a relatively short section of the route, compared to the A417 which would affect a large number of people over a relatively longer section, resulting in a **medium geographical extent**. The duration of effect on views over the operational phase will be **medium term** (2-15 years) and would be **not reversible**. Road uses on the main road network within the study area would experience a **moderate and adverse** magnitude of effect.
Preliminary significance of effect Combining the road users' low sensitivity with moderate magnitude of effect, they would experience as **slight, adverse** and **not significant effect**. Road users can expect to experience some visual disruption as they travel on the road network.

Receptor: A417 road users
Preliminary significance of effect would not be neutral at this stage due to the extent of changes to views along the proposed scheme, particularly along the offline section between Ullenwood junction and Cowley junction as this will be a new section of road.
Operational phase (year 15 – design year)
Nature of effects (magnitude) At year 15 the level of change would remain the same due to the specific nature of the new road alignment. However, proposed reinstatement and mitigation planting would now have matured screening views along the western extent of the proposed scheme at Crickley Hill, enclosing open views that were experienced at year 1. Vegetation across the proposed scheme would have established, softening the engineered slopes and structures. This would be most noticeable within the cutting and the sections of slopes separating the proposed A417 and A436, northeast of Emma's Grove. The Cotswolds Way and Gloucestershire Way crossings would remain visible, acting as local focal points for motorists. Calcareous grassland would have established along the road verges and slopes creating attractive bloom is spring and summer. Overall the level of change at year 15 will be **small**. The geographical extent for each road would vary with the A436 and B4070 affecting a relatively short section of the route, compared to the A417 which would affect a large number of people over a relatively longer section, resulting in a **medium geographical extent**. The duration of effect on views over the operational phase would be **long term** (+15 years) and would be **not reversible**. Road users on the main road network within the study area would experience a **minor and adverse** magnitude of effect.
Preliminary significance of effect As with year 1 there would be a **slight, adverse** and **not significant effect**. Preliminary significance of effect would not be neutral even at year 15 due to the extent of changes to views along the proposed scheme, particularly along the offline section between Ullenwood junction and Cowley junction as this will be a new section of road.

Table 0-49 Motorists on the A417, A436 and B4070 summary of effects

Susceptibility	High	**Med**	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	Medium	Low	**Negligible**
Construction phase					
Size/scale of change	**Large**	Medium	Small	Imperceptible	
Geographical extent	Large	**Medium**	Small		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	**Major**	Moderate	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	**Medium**	Small	Imperceptible	

Geographical extent	Large	**Medium**	Small		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	**Moderate**	Minor	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	**Medium**	Small		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral

Local minor road network

Table 0-50 Assessment of visual effects on users of the local minor road network

Receptor: road users on minor roads
Representative viewpoints: This receptor is represented by the following viewpoints listed below, refer to Figures 7.1 and 7.2 for their location: • VP1 Roman villa car park; • VP3 Droy's Court; • VP6 Old Coach Road overbridge A417; • VP13 Cold Slad Lane junction with A417; • VP14 Cold Slad Lane; • VP21 Entrance to Crickley Hill Country Park; • VP36 PRoW north of Stockwell on junction with rural lane; • VP38 Byway at Stockwell; • VP39 Birdlip; • VP42 Rural lane west of Cowley Wood; and • VP43 Brimpsfield.
Baseline description Road users on the minor road network currently experience a wider range of views as they travel through the landscapes of the study area. From enclosed, tunnel like views on sections of Cold Slad Lane (VP13 & 14), Leckhampton Hill road (VP21) and at Barrow Wake, to open extensive views over the undulating wolds. Views are channelled along the road by avenues of trees at Stockwell (VP36 &

Receptor: road users on minor roads
38) and Cowley, with intermitted or glimpsed views from the elevated road to the low-lying valleys below or across large arable farmland (VP42). Skyline are generally well wooded due to frequent tree cover and hedgerows. Rural views are interrupted across the network where it interacts and connects with the existing A417. From short section of the road, predominately at junction large volumes of fast-moving vehicles can be seen. Minor roads that are considered here include the short section of road between B4070, Barrow Wake and Birdlip Radio Station at Shab Hill; Cold Slad Lane at the junction with the existing A417; junction of Leckhampton Hill road and A436; access roads to Stockwell and road between Cowley and Brimpsfield. From rural roads linking the communities of Little and Great Witcombe experience few views of the existing A417, being restricted by hedgerows field boundaries and woodland. Views are predominantly channelled along the road network, except at a few locations where views of the escarpment can be gained such at Droy's Court (VP3) and the car park at the Witcombe roman villa (VP1).
Nature of receptors (sensitivity) Motorists on the local minor road network, including Leckhampton Hill road, Cold Slad Lane and minor roads at Stockwell, Cowley and Shab Hill are considered to have a **medium susceptibility** to visual change because their attention is predominantly on navigating the roads safely, and not focussed on the landscape around them compared to people walking in the open countryside. Views from these roads are not documented as nationally or locally important but nonetheless are valued at a **community level** by the local population. Overall, and combining judgements on susceptibility with value, visual receptors at this location are assessed as being of **negligible sensitivity**.
Construction phase
Nature of effects (magnitude) Changes to the following minor roads would occur as a result of the proposed scheme – section of road between B4070, Barrow Wake and Birdlip Radio Station at Shab Hill; Cold Slad Lane at the junction with the existing A417; junction of Leckhampton Hill road and A436; access roads to Stockwell and road between Cowley and Brimpsfield. For users on the local road network, both the construction works and the existing A417 would be seen together during the construction phase, being dominant and cause a **medium scale of change** in near views. Traffic management on all routes would cause changes to the baseline situation, particularly on the access road to the community of Shab Hill as a result of the new road alignment, widening and upgrading to the proposed new section of the B4070, as well as Shab Hill junction. Construction activities associated with the offline section would be readily apparent to motorists on the existing network where it crosses north of Stockwell and south of Cowley. Construction of the overbridges and road realignment works, including tree felling, at these locations would occur offline but would be highly visible in close proximity to the road users. Building the online section would cause a small level of change for users on Cold Slad Lane at the junction with the A417 only. Here, obvious changes would be the removal of woodland along southern boundary of the existing road, movement of construction traffic and personnel, and earthworks activity to create the embankments. The construction activity would be perceived by motorists on the minor road network at a few locations, affecting short sections of the wider network, affecting a relatively small number of people. Therefore, the geographical extent would be **small**. The duration of effect on views would be the construction phase which would be **short term** (2 years) and would be **partially reversible** (because construction activities would be removed, however, felled trees and large-scale excavation and earthworks) would not be able to be fully restored). The proposed scheme is therefore predicted to result in a **minor and adverse magnitude of effect** for motorists using the minor road network within the study area.
Preliminary significance of effect For users of the minor road network the construction works are predicted to result in a **slight, adverse** and **not significant effect**, due to moderate magnitude of effect to views valued at a community level affecting **low** sensitivity receptors.

Receptor: road users on minor roads
Preliminary significance of effect would not be neutral as a result of a medium scale of change being experienced by users of the minor road network.
Operational phase (year 1 - opening year)
Nature of effects (magnitude) At year 1, motorists using the minor road network would experience a **small scale of change** as a result of the recently completed proposed scheme. Changes to the minor road between B4070, Barrow Wake and Birdlip Radio Station at Shab Hill would experience the greatest change as a result of the new road alignment, widening and upgrading to the proposed new section of the B4070, and introduction of Shab Hill junction. Shab Hill junction would appear on the horizon, elevated from the B4070 and new access to Rushwood Kennels. At these locations the proposed scheme would cause an obvious change with the junction becoming a dominant feature in views. Motorists travelling on Cold Slad Lane would experience a visual benefit with a newly aligned single carriageway road where the junction with the A417 used to be. Their now altered route would continue up the existing A417 alignment but would be separated and elevated from the proposed A417 allowing extensive views over the escarpment slopes and out towards Brockworth. At the junction of Leckhampton Hill road and A436, there would be a short section of realigned road connecting into the proposed Ullenwood junction. Here motorists would experience newly configured junction which would be of a similar nature to the baseline situation. Road users on the access roads to Stockwell and Cowley would experience views on the recently finished landscape embankments, replacement avenue tree planting and of short sections of realigned roads on overbridges. The landscape embankments and inner embankment slopes with exposed rock, left bare from soil or vegetation, would for a short time appearing bright yellow. The geographical extent for the minor road network would be **small,** being perceived by motorists at a few locations, affecting short sections of the wider network, affecting a relatively small number of people. The duration of effect on views over the operational phase would be **medium term** (2-15 years) and would be **not reversible**. Road uses on the minor road network within the study area would experience a **minor and adverse** magnitude of effect.
Preliminary significance of effect For users of the minor road network, the proposed scheme at year 1 would result in a **slight, adverse** and **not significant effect**, due to a minor magnitude of effect to views valued at a community level affecting negligible sensitivity receptors. Preliminary significance of effect would not be neutral at this stage due to the extent of changes to views along the proposed scheme, particularly along the offline section between Ullenwood junction and Cowley junction as this will be a new section of road.
Operational phase (year 15 – design year)
Nature of effects (magnitude) At year 15, visual change would be of a similar magnitude as experience at year 1. However, mitigation planting would be fully established and maturing to provide screening to views of the proposed scheme. The exposed rock faces and landscape embankments would be more muted and covered in vegetation. This would reduce the scale of change to **imperceptible**. The geographical extent for the minor road network would be **small,** being perceived by motorists at a few locations, affecting short sections of the wider network, affecting a relatively small number of people. The duration of effect on views over the operational phase will be **long term** (+15 years) and would be **not reversible**. Overall, the magnitude of effect for motorists on the minor road network would be **negligible and adverse**.
Preliminary significance of effect At year 15, changes to views as a result of the proposed scheme would be imperceptible over a small geographical extent, resulting in a **neutral** and **not significant effect**, due to negligible magnitude of effect to views valued at a community level affecting low sensitivity receptors.

Receptor: road users on minor roads
Preliminary significance of effect would not be slight at year 15 given the imperceptible change to views over a small geographical extent, effecting receptors with a low sensitivity.

Table 0-51 Local minor road network summary of effects

Susceptibility	High	**Med**	Low		
Value	National	Regional/District	**Community**		
Sensitivity	Very high	High	Medium	Low	**Negligible**
Construction phase					
Size/scale of change	Large	**Medium**	Small	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	Medium	**Short**		
Reversibility	Not reversible	**Partially reversible**	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 1 – opening year)					
Size/scale of change	Large	Medium	**Small**	Imperceptible	
Geographical extent	Large	Medium	**Small**		
Duration	Long	**Medium**	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	**Minor**	Negligible	No change
Nature of effect	**Adverse**	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	**Slight**	Neutral
Operational phase (year 15 – design year)					
Size/scale of change	Large	Medium	Small	**Imperceptible**	
Geographical extent	Large	Medium	**Small**		
Duration	**Long**	Medium	Short		
Reversibility	**Not reversible**	Partially reversible	Reversible		
Magnitude of effect	Major	Moderate	Minor	**Negligible**	No change

Nature of effect	Adverse	Beneficial	Neutral		
Significance of effect	Very large	Large	Moderate	Slight	Neutral

Summary of visual effects during construction and operation

Table 0-52 Summary of visual effects during construction

Receptor	Sensitivity	Magnitude of effect	Preliminary construction significance of effect
Recreational receptors			
Walkers on the Cotswold Way National Trail	**Very high** High susceptibility National value	**Major** Large scale Medium geographical extent Short term Partially reversible	Very large adverse and **significant**
Walker on the Gloucestershire Way long distance footpath	**High** High susceptibility National value	**Moderate** Large scale Small geographical extent Short term Partially reversible	Large adverse and **significant**
Users of the local PRoW, bridleway and byway networks	**Medium** High susceptibility Regional/district value	**Moderate** Large scale Small geographical extent Short term Partially reversible	Moderate adverse and **significant**
Community receptors			
The communities at Little Witcombe and Great Witcombe	**Medium** High susceptibility Community value	**Minor** Medium scale Small geographical extent Short term Partially reversible	Slight adverse and **not significant**
Community of Birdlip	**Medium** High susceptibility Community value	**Minor** Small scale Small geographical extent Short term Reversible	Slight adverse and **not significant**
Community of Nettleton Bottom	**Medium** High susceptibility	**Moderate** Large scale	Moderate adverse and **significant**

Receptor	Sensitivity	Magnitude of effect	Preliminary construction significance of effect
	Community value	Small geographical extent Short term Reversible	
The community at Stockwell and users of the local PRoW network north of Stockwell	**Medium** High susceptibility Community value	**Moderate** Large scale Small geographical extent Short term Partially reversible	Moderate adverse and **significant**
Community of Shab Hill and surrounding farms	**Medium** High susceptibility Community value	**Moderate** Large scale Small geographical extent Short term Partially reversible	Moderate adverse and **significant**
Community at Cold Slad Lane	**Medium** High susceptibility Community value	**Minor** Small scale Small geographical extent Short term Partially reversible	Slight adverse and **not significant**
Tourism receptors			
Visitors of Crickley Hill Country Park	**Very high** High susceptibility National Value	**Minor** Medium scale Small geographical extent Short term Partially reversible	Large adverse and **significant**
Users of the Roman Villa car park and PRoW (Brockworth Footpath 16) visiting Great Witcombe Roman Villa scheduled monument	**Very high** High susceptibility National value	**Minor** Small scale Small geographical extent Short term Partially reversible	Moderate adverse and **significant**
Users of Barrow Wake	**Very high** High susceptibility National value	**Moderate** Large scale Small geographical extent Short term Partially reversible	Very large adverse and **significant**
Users of Leckhampton Hill	**Very high** High susceptibility	**Minor** Small scale	Moderate adverse and **significant**

Receptor	Sensitivity	Magnitude of effect	Preliminary construction significance of effect
	National value	Small geographical extent Short term Partially reversible	
Transport receptors			
A417, A436 and B4070 road users	**Negligible** Medium susceptibility Community value	**Major** Large scale Medium geographical extent Short term Partially reversible	Slight adverse and **not significant**
Road users on minor roads	**Low** Medium susceptibility Community value	**Minor** Medium scale Small geographical extent Short term Partially reversible	Slight adverse and **not significant**

Assessment of visual effects during operational phase year 1

7.10.13 The ZTV highlights several key areas within the 3km wide study area that would likely be affected during year 1 of the operational phase before the mitigation planting has had time to full establish to provide any level of screening. These include at Barrow Wake, Crickley Hill Leckhampton Hill and the upper slopes of the Frome Valley at Cowley.

Table 0-53 Summary of visual effects during operation year 1

Receptor	Sensitivity	Magnitude of effect	Preliminary operation year 1 significance of effect
Recreational receptors			
Walkers on the Cotswold Way National Trail	**Very high** High susceptibility National value	**Major** Large scale Medium geographical extent Medium term Not reversible	Very large adverse and **significant**
Walker on the Gloucestershire Way long distance footpath	**High** High susceptibility National value	**Moderate** Large scale Small geographical extent Medium term Not reversible	Large adverse and **significant**

Receptor	Sensitivity	Magnitude of effect	Preliminary operation year 1 significance of effect
Users of the local PRoW, bridleway and byway networks	**Medium** High susceptibility National value	**Moderate** Large scale Small geographical extent Medium term Not reversible	Moderate adverse and **significant**
Community receptors			
The communities at Little Witcombe and Great Witcombe	**Medium** High susceptibility Community value	**Minor** Medium scale Small geographical extent Medium term Not reversible	Slight, beneficial and **not significant**
Community of Birdlip	**Medium** High susceptibility Community value	**Negligible** Imperceptible scale Small geographical extent Medium term Not reversible	Neutral and **not significant**
Community of Nettleton Bottom	**Medium** High susceptibility Community value	**Minor** Small scale Small geographical extent Medium term Not reversible	Slight beneficial and **not significant**
The community at Stockwell and users of the local PRoW network north of Stockwell	**Medium** High susceptibility Community value	**Moderate** Large scale Small geographical extent Medium term Not reversible	Moderate adverse and **significant**
Community of Shab Hill and surrounding farms	**Medium** High susceptibility Community value	**Moderate** Large scale Small geographical extent Medium term Not reversible	Moderate adverse and **significant**
Community at Cold Slad Lane	**Medium** High susceptibility Community value	**Negligible** Imperceptible scale Small geographical extent Medium term Not reversible	Neutral and **not significant**

Receptor	Sensitivity	Magnitude of effect	Preliminary operation year 1 significance of effect
Tourism receptors			
Visitors of Crickley Hill Country Park	**Very high** High susceptibility National value	**Minor** Medium scale Small geographical extent Medium term Not reversible	Large adverse and **significant**
Users of the Roman Villa car park and PRoW (Brockworth Footpath 16) visiting Great Witcombe Roman Villa scheduled monument	**Very high** High susceptibility National value	**Minor** Small scale Small geographical extent Medium term Not reversible	Moderate adverse and **significant**
Users of Barrow Wake	**Very high** High susceptibility National value	**Moderate** Large scale Small geographical extent Medium term Not reversible	Very large adverse and **significant**
Users of Leckhampton Hill	**Very high** High susceptibility National value	**Negligible** Imperceptible scale Small geographical extent Medium term Not reversible	Slight adverse and **not significant**
Transport receptors			
A417, A436 and B4070 road users	**Negligible** Medium susceptibility Community value	**Moderate** Medium scale Medium geographical extent Medium term Not reversible	Slight adverse and **not significant**
Road users on minor roads	**Low** Medium susceptibility Community value	**Minor** Small scale Small geographical extent Medium term Not reversible	Slight adverse and **not significant**

Assessment of visual effects during operational phase year 15

Table 0-54 Summary of visual effects during operation year 15

Receptor	Sensitivity	Magnitude of effect	Operation year 15 significance of effect
Recreational receptors			
Walkers on the Cotswold Way National Trail	**Very high** High susceptibility National value	**Minor** Small scale Medium geographical extent Long term Not reversible	Moderate adverse and **significant**
Walker on the Gloucestershire Way long distance footpath	**High** High susceptibility National value	**Minor** Small scale Small geographical extent Long term Not reversible	Slight beneficial and **not significant**
Users of the local PRoW, bridleway and byway networks	**Medium** High susceptibility National value	**Minor** Small scale Small geographical extent Long term Not reversible	Slight adverse and **not significant**
Community receptors			
The communities at Little Witcombe and Great Witcombe	**Medium** High susceptibility Community value	**Minor** Small scale Small geographical extent Long term Not reversible	Slight adverse and **not significant**
Community of Birdlip	**Medium** High susceptibility Community value	**Negligible** Imperceptible scale Small geographical extent Long term Not reversible	Neutral and **not significant**
Community of Nettleton Bottom	**Medium** High susceptibility Community value	**Minor** Small scale Small geographical extent Long term Not reversible	Slight beneficial and **not significant**
The community at Stockwell and users of the local PRoW	**Medium** High susceptibility Community value	**Minor** Medium scale	Slight adverse and **not significant**

Receptor	Sensitivity	Magnitude of effect	Operation year 15 significance of effect
network north of Stockwell		Small geographical extent Long term Not reversible	
Community of Shab Hill and surrounding farms	**Medium** High susceptibility Community value	**Minor** Medium scale Small geographical extent Long term Not reversible	Slight adverse and **not significant**
Community at Cold Slad Lane	**Medium** High susceptibility Community value	**Negligible** Imperceptible scale Small geographical extent Long term Not reversible	Slight and **not significant**
Tourism receptors			
Visitors of Crickley Hill Country Park	**Very high** High susceptibility National value	**Minor** Small scale Small geographical extent Long term Not reversible	Moderate adverse and **significant**
Users of the Roman Villa car park and PRoW (Brockworth Footpath 16) visiting Great Witcombe Roman Villa scheduled monument	**Very high** High susceptibility National value	**Negligible** Imperceptible scale Small geographical extent Long term Not reversible	Slight and **not significant**
Users of Barrow Wake	**Very high** High susceptibility National value	**Minor** Small scale Small geographical extent Long term Not reversible	Moderate, neutral and **significant**
Users of Leckhampton Hill	**Very high** High susceptibility National value	**Negligible** Imperceptible scale Small geographical extent Long term Not reversible	Slight adverse and **not significant**
Transport receptors			
A417, A436 and B4070 road users	**Negligible**	**Minor**	Slight adverse and **not significant**

Receptor	Sensitivity	Magnitude of effect	Operation year 15 significance of effect
	Medium susceptibility Community value	Small scale Medium geographical extent Long term Not reversible	
Road users on minor roads	**Low** Medium susceptibility Community value	**Negligible** Imperceptible scale Small geographical extent Long term Not reversible	Neutral and **not significant**

7.11 Monitoring

7.11.1 DMRB LA104 states that where significant landscape and visual effects have been identified "*projects must undertake proportionate monitoring of associated mitigation measures, in accordance with the EIA Directive*."

7.11.2 DMRB LA107 states that monitoring "*shall determine the effectiveness of delivery of mitigation measures linked to the landscape or screening commitments agreed as part of the assessment process*." [Para 4.1]

7.11.3 All significant effects arising because of the proposed scheme would be monitored across the life of the proposed scheme. Proposed planting would be monitored every year for the first three years under a normal establishment phase to ensure successful establishment and then inspected every 2-5 years for the next 12 years, a total of 15 to ensure the landscape mitigation is successful in mitigation significant effects as predicted.

7.11.4 It is essential that the proposed planting establish well and are monitored and maintained to ensure it thrives and grows to the desired extent, so that it becomes effective as mitigation during the long-term operation of the new road infrastructure.

7.11.5 For the ES, full details will be provided in the Landscape and Ecological Management Plan (LEMP) which will be developed and will set out a framework in which the successful establishment of these measures can be managed and ensured.

7.12 Summary

7.12.1 This LVIA provides information on the landscape and visual baseline conditions between 2018 to early 2020 (winter baseline photography was taken). It sets out the methodology used to assess the significant effects of the proposed scheme on landscape character and views, and the visual resources as experienced by people.

Construction assessment

7.12.2 Construction activities would have significant adverse temporary effects on the area of the AONB within the study area and some special qualities of the Cotswolds AONB.

7.12.3 Landscape character types that would be significantly, adversely affected by the proposed scheme during the construction phase are listed below:

- LCT 2 Escarpment;
- LCT 7 High Wold;
- LCT 8 High Wold Valleys.

7.12.4 Construction activities would have a likely significant adverse temporary effect on the following visual receptors:

- recreational users on the Cotswolds Way National Trail, Gloucestershire Way long distance footpath, byways, bridleways and PRoW including at Barrow Wake, Emma's Grove and Crickley Hill, and in relation to Shab Hill, Stockwell and Nettleton Bottom;
- communities including Nettleton Bottom, Shab Hill and Stockwell; and
- tourism receptors including visitors to the Cotswolds AONB, Great Witcombe roman villa, Crickley Hill Country Park, Barrow Wake, Emma' Grove and Leckhampton Hill.

Operational assessment

7.12.5 The operation of the proposed scheme would have a combination of significant beneficial and adverse permanent effects for character areas directly affected.

7.12.6 The operation of the proposed scheme would have significant beneficial permanent effects on the area of the AONB within the study area and some special qualities of the Cotswolds AONB.

7.12.7 Landscape character types that would be significantly affected by the proposed scheme at year 1 of the operational phase are listed below:

Year 1

- LCT 2 Escarpment (adverse); and
- LCA 7 High Wold (adverse).

7.12.8 There are no significant adverse effects predicted on the landscape character types within the study area.

7.12.9 As a result of the proposed scheme at year 1, there would be adverse permanent significant effects experienced by the following visual receptors:

- recreational users on the Cotswolds Way National Trail, Gloucestershire Way long distance footpath, byways, bridleways and PRoW including at Barrow Wake, Emma's Grove and Crickley Hill, and in relation to Shab Hill and Stockwell;
- visitors to the Crickley Hill Country Park, Great Witcombe Roman Villa, and Barrow Wake; and
- communities including Shab Hill and Stockwell.

7.12.10 As a result of the proposed scheme at year 15, there would be adverse permanent significant effects experienced by the following visual receptors:

- recreational users on the Cotswolds Way National Trail; and
- visitors to the Crickley Hill Country Park, Barrow Wake

7.12.11 Non-significant beneficial effects are experienced at the following receptors:

- communities at Birdlip and Nettleton Bottom.

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