Table of Contents

1  INTRODUCTION 1-1

1.1 Purpose of the report 1-1
1.2 Overview of the project 1-1
1.3 SDNP special qualities 1-2
1.4 Structure of the SDNP special qualities assessment report 1-3
1.5 Legislative and policy framework 1-4
1.6 Sub-regional and local planning policy 1-8

LIST OF TABLES
Table 1-1 - SDNP special qualities assessment structure 1-3

2  ASSESSMENT METHODOLOGY 2-1

2.1 Introduction 2-1
2.2 Assessment process 2-1
2.3 Potential impacts 2-3
2.4 Guidance 2-4
2.5 Assessment results 2-12
2.6 Assumptions and limitations 2-13

LIST OF TABLES
Table 2-1 - Types of impact associated with each special quality 2-4
Table 2-2 - Alignment between DMRB and the potential impacts identified 2-6
Table 2-3 - General assumptions and limitations 2-13
3 SPECIAL QUALITY 1: DIVERSE, INSPIRATIONAL LANDSCAPES AND BREATHTAKING VIEWS

3.1 Introduction 3-1
3.2 Assessment methodology 3-2
3.3 Assessment assumptions and limitations 3-5
3.4 Study Area 3-5
3.5 Baseline conditions 3-5
3.6 Scoping 3-5
3.7 Design, mitigation and enhancement 3-6
3.8 Assessment of potential impacts 3-9
3.9 Summary of landscape character, visual amenity and experience 3-18

LIST OF TABLES
Table 3-1 - Assessment assumptions and limitations for SQ1 3-5
Table 3-2 - Scoping 3-6
Table 3-3 - Summary of Impacts and effects on SQ1 – Diverse, inspirational landscape and breathtaking views 3-23

4 SPECIAL QUALITY 2: A RICH VARIETY OF WILDLIFE AND HABITATS INCLUDING RARE AND INTERNATIONALLY IMPORTANT SPECIES 4-1

4.1 Introduction 4-1
4.2 Assessment methodology 4-4
4.3 Assessment assumptions and limitations 4-8
4.4 Study Area 4-9
4.5 Baseline conditions 4-10
4.6 Scoping 4-10
4.7 Design, mitigation and enhancement 4-47
4.8 Assessment of potential impacts 4-51
4.9 Summary 4-61

LIST OF TABLES
Table 4-1 - Assessment assumptions and limitations for the Biodiversity Special Quality 4-8
Table 4-2 - Scoping 4-12
Table 4-3 - Review of features mentioned in SDNP special qualities report 4-46
Table 4-4 - Likely significant effects 4-62
5 SPECIAL QUALITY 3: TRANQUIL AND UNSPOILT PLACES

5.1 Introduction
5.2 Assessment methodology
5.3 Assessment assumptions and limitations
5.4 Study Area
5.5 Baseline conditions
5.6 Scoping
5.7 Design, mitigation and enhancement
5.8 Assessment of potential impacts
5.9 Summary

LIST OF TABLES
Table 5-1 - Assessment assumptions and limitations for SQ3
Table 5-2 - Scoping
Table 5-3 - Magnitude of Operational Noise Impacts in the Short-Term
Table 5-4 - Magnitude of Operational Noise Impacts in the Long-Term
Table 5-5 - Biodiversity receptors in Option 1V5
Table 5-6 - Public rights of way in Option 1V5
Table 5-7 - Biodiversity receptors in Option 1V9
Table 5-8 - Public rights of way in Option 1V9
Table 5-9 - Biodiversity receptors in Option 3V1
Table 5-10 - Public rights of way in Option 3V1
Table 5-11 - Biodiversity receptors in Option 4/5AV1
Table 5-12 - Public rights of way in Option 4/5AV1
Table 5-13 - Biodiversity receptors in Option 4/5AV2
Table 5-14 - Public rights of way in Option 4/5AV2
Table 5-15 - Biodiversity receptors in Option 5BV1
Table 5-16 - Public rights of way in Option 5BV1
Table 5-17 - Summary of Noise and Dark Night Skies Impacts and effects on SQ3
6 SPECIAL QUALITY 4: AN ENVIRONMENT SHAPED BY CENTURIES OF FARMING AND EMBRACING NEW ENTERPRISE 6-1

6.1 Introduction 6-1
6.2 Assessment methodology 6-1
6.3 Assessment assumptions and limitations 6-5
6.4 Study Area 6-7
6.5 Baseline conditions 6-7
6.6 Scoping 6-13
6.7 Design, mitigation and enhancement 6-14
6.8 Assessment of potential impacts 6-17
6.9 Summary 6-25

LIST OF TABLES
Table 6-1 - Reference and guidance documents for SQ4 6-4
Table 6-2 - Assessment assumptions and limitations for SQ4 6-5
Table 6-3 - Study Area for potential impact on SQ4 6-7
Table 6-4 - Potential land take from farm holdings for each Scheme option footprints (in hectares) 6-8
Table 6-5 - Potential land from diversified businesses within each option footprint (in hectares) 6-11
Table 6-6 - Six largest sectors by percentage of total enterprises in the SDNP in 2017 6-12
Table 6-7 - Scoping 6-13
Table 6-8 - Likely significant effects on SQ4 during construction 6-26
Table 6-9 - Likely significant effects on SQ4 during operation 6-27

7 SPECIAL QUALITY 5: GREAT OPPORTUNITIES FOR RECREATIONAL ACTIVITIES AND LEARNING EXPERIENCES 7-1

7.1 Introduction 7-1
7.2 Assessment Methodology 7-1
7.3 Assessment assumptions and limitations 7-7
7.4 Study Area 7-9
7.5 Baseline conditions 7-11
7.6 Scoping 7-27
7.7 Design, mitigation and enhancement 7-29
7.8 Assessment of potential impacts 7-33
7.9 Summary 7-57
LIST OF TABLES
Table 7-1 - Data sources and methodology for SQ5 7-5
Table 7-2 - Assessment assumptions and limitations for SQ5 7-7
Table 7-3 - Study Area for potential impact on the SQ5 7-10
Table 7-4 - Amenity values of public rights of way and key routes within the Study Area and the SDNP 7-12
Table 7-5 - Access to ANG within the SDNP within 300 metres 7-20
Table 7-6 - Access to regional scale ANG within the SDNP within 10 kilometres 7-20
Table 7-7 - Recreational facilities and businesses crossed by the option footprints and potential land take required 7-25
Table 7-8 - Scoping 7-27
Table 7-9 - Likely significant effect on SQ5 during construction 7-58
Table 7-10 - Likely significant effect on SQ5 during operation 7-59

8 SPECIAL QUALITY 6: WELL-CONSERVED HISTORICAL FEATURES AND A RICH CULTURAL HERITAGE 8-1

8.1 Introduction 8-1
8.2 Assessment methodology 8-1
8.3 Assumptions and Limitations 8-7
8.4 Study Area 8-8
8.5 Baseline conditions 8-10
8.6 Scoping 8-12
8.7 Design, mitigation and enhancement 8-13
8.8 Assessment of potential impacts 8-17
8.9 Summary 8-31

LIST OF TABLES
Table 8-2 - Methodology for SDNP Special Quality 6 8-5
Table 8-1 - Significance of Effects Matrix 8-6
Table 8-3 - Assessment assumptions and limitations for Cultural Heritage 8-7
Table 8-4 - Study Areas for potential impacts on SDNP Special Quality 6 8-9
Table 8-5 - Scoping 8-12
Table 8-6 - Likely significance of effects on SQ6 8-32
9 SPECIAL QUALITY 7: DISTINCTIVE TOWNS AND VILLAGES, AND COMMUNITIES WITH REAL PRIDE IN THEIR AREA 9-1

9.1 Introduction 9-1
9.2 Assessment methodology 9-1
9.3 Assessment assumptions and limitations 9-5
9.4 Study Area 9-6
9.5 Baseline conditions 9-7
9.6 Scoping 9-16
9.7 Design, mitigation and enhancement 9-17
9.8 Assessment of potential impacts 9-19
9.9 Summary 9-41

LIST OF TABLES

Table 9-1 - Methodology and reference documents for SQ7 9-4
Table 9-2 - Assessment assumptions and limitations for SQ7 9-5
Table 9-3 - Study Areas for potential impact on the SQ7 9-6
Table 9-4 - Scoping 9-16
Table 9-5 - Likely effects on SQ7 during construction 9-42
Table 9-6 - Likely effects on SQ7 during operation 9-43

10 SUMMARY 10-1

LIST OF TABLES
Table 10-1 – Summary of the special qualities assessment 10-2
LIST OF FIGURES

Figure 1-1 - Scheme location
Figure 5-1 - Option 1V5 – Short term noise impact contours
Figure 5-2 - Option 1V5 – Long term noise impact contours
Figure 5-3 - Option 1V9 – Short term noise impact contours
Figure 5-4 - Option 1V9 – Long term noise impact contours
Figure 5-5 - Option 3V1 – Short term noise impact contours
Figure 5-6 - Option 3V1 – Long term noise impact contours
Figure 5-7 - Option 4/5AV1 – Short term noise impact contours
Figure 5-8 - Option 4/5AV1 – Long term noise impact contours
Figure 5-9 - Option 4/5AV2 – Short term noise impact contours
Figure 5-10 - Option 4/5AV2 – Long term noise impact contours
Figure 5-11 - Option 5BV1 – Short term noise impact contours
Figure 5-12 - Option 5BV1 – Long term noise impact contours
Figure 6-1 - Farm holdings
Figure 8-1 - Non-designated heritage asset location and old Binsted village parish boundary
Figure 8-2 - Designated heritage asset location and old Binsted village parish boundary

LIST OF APPENDICES

Appendix A - SDNPA Position on A27 Route Corridor
Appendix B - Special Quality 7 Additional Information
  - Section 1: Driver stress calculations
  - Section 2: Sites listed under parish council neighbourhood plans
1 Introduction

1.1 Purpose of the report

1.1.1.1 The purpose of this report is to provide an assessment of the impacts of the A27 Arundel Bypass (‘the Scheme’) on the special qualities of South Downs National Park (SDNP). The assessment responds to a request set out at Item 7 in the Position Statement on A27 route corridor (attached as Appendix A) produced by SDNP Authority (SDNPA)¹:

‘In assessing the specific impacts of any detailed options the South Downs National Park Authority will ask the Highways Agency to use the framework of the seven Special Qualities of the National Park’

1.1.1.2 One of the Scheme objectives is to ‘Respect the SDNP and its special qualities in our decision-making’. The special qualities of national parks are referred to in both legislation and policy (discussed in Section 1.4).

1.1.1.3 This report addresses the request from SDNPA for specific assessment against the special qualities and informs the consideration of the Scheme options against the SDNP-specific Scheme objective (to ‘Respect the SDNP and its special qualities in our decision-making’).

1.1.1.4 This report will provide information to enable the special qualities to be considered in the option selection process.

1.1.1.5 This report has been prepared as an appendix to the Environmental Assessment Report (EAR). The report must be read in conjunction with the EAR.

1.2 Overview of the project

1.2.1.1 The Scheme is currently progressing through the Project Control Framework; which is a joint Department for Transport and Highways England approach to managing major projects. The Scheme is in Project Control Framework (PCF) Stage 2, the options selection stage.

1.2.1.2 There are currently six Scheme options under consideration. The footprints of the six Scheme options are illustrated on Figure 1-1. The footprints show the approximate boundary of the permanent works associated with each of the six Scheme options, based on the information available at this stage. The Scheme options are:

- Option 1V5
- Option 1V9
- Option 3V1
- Option 4/5AV1
- Option 4/5AV2
- Option 5BV1.

1.2.1.3 Descriptions of the Scheme options are provided in EAR Chapter 2: The Project.

1.3 SDNP special qualities

1.3.1.1 The SDNP Authority developed a list of special qualities with input from the public including residents and visitors, landowners and farmers, businesses, school pupils and parish councils. One of the purposes of the special qualities is to act as a baseline for measuring changes over time and to hold the National Park Authority and its partners to account for their contributions to its future. The special qualities are:²

1. Diverse, inspirational landscapes and breathtaking views
2. A rich variety of wildlife and habitats including rare and internationally important species
3. Tranquil and unspoilt places
4. An environment shaped by centuries of farming and embracing new enterprise
5. Great opportunities for recreational activities and learning experiences
6. Well-conserved historical features and a rich cultural heritage
7. Distinctive towns and villages and communities with real pride in their area

² SDNP, Why are we a national park? Available at: https://www.southdowns.gov.uk/discover/why-are-we-a-national-park/ [Accessed May 2019]
1.4 Structure of the SDNP special qualities assessment report

1.4.1.1 The structure and scope of this SDNP special qualities assessment report is set out in Table 1-1.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1: Introduction</td>
<td>Describes the purpose of the report, provides an overview of the Scheme and an outline of the structure of the report. It also provides an overview of the legislative and policy framework relevant to the assessment of SDNP special qualities.</td>
</tr>
<tr>
<td>Chapter 2: Assessment Methodology</td>
<td>Sets out the potential impacts anticipated for each special quality for the Scheme (derived from the A27 position statement in Appendix A) and discusses the guidance available and proposed methodologies for assessment of each of the potential impacts. Assumptions and limitations that are generally applicable to the assessments are provided in this chapter. Special quality specific assumptions and limitations are presented in the individual chapters.</td>
</tr>
</tbody>
</table>
| Chapter 3: Diverse, inspirational landscapes and breathtaking views | Sets out for each special quality:  
  - Assessment methodology  
  - Assessment assumptions and limitations  
  - Study Area  
  - Baseline conditions  
  - Scoping  
  - Design, mitigation and enhancement measures  
  - Assessment of the potential impacts of each Scheme option  
  - Summary. |
| Chapter 4: A rich variety of wildlife and habitats including rare and internationally important species |  |
| Chapter 5: Tranquil and unspoilt places                      |  |
| Chapter 6: An environment shaped by centuries of farming and embracing new enterprise |  |
| Chapter 7: Great opportunities for recreational activities and learning experiences |  |
Chapter 1: Introduction

Chapter 8: Well-conserved historical features and a rich cultural heritage

Chapter 9: Distinctive towns and villages and communities with real pride in their area

Chapter 10: Summary

Summarises the results of the assessment on the SDNP special qualities.

1.5 Legislative and policy framework

1.5.1.1 The following sections provide a summary of the legislation and policy relevant to the assessment of the SDNP special qualities. See EAR Chapter 1: Introduction (Section 1.5) for the general legislative and policy framework applicable to the Scheme.

1.5.2 National Parks and Access to the Countryside Act 1949

1.5.2.1 The National Parks and Access to the Countryside Act 1949 provided the framework for the creation of National Parks and Areas of Outstanding Natural Beauty (AONBs). Section 5 of the Act outlines the purposes of National Parks:

‘a) of conserving and enhancing the natural beauty, wildlife and cultural heritage of the areas specified in the next following subsection [Section 5, subsection 2]; and

b) of promoting opportunities for the understanding and enjoyment of the special qualities of those areas by the public’

1.5.2.2 Section 11A outlines the duties of certain bodies and persons, including Highways England, to have regard to the purposes for which National Parks are designated. The purposes include the social and economic well-being of communities, the Act acknowledges that where there is a conflict between the purposes, greater weight should be attached to conserving and enhancing the natural beauty of the area comprised in the National Park.
1.5.3 National Networks National Policy Statement (NN NPS)³

1.5.3.1 The NN NPS sets out Government policy for the need for, and delivery of, nationally significant road and rail projects. The policy states that the Government will deliver national networks that meet the long-term needs of the country and support a thriving and prosperous economy.

1.5.3.2 The NN NPS states a critical need to improve the road network to address congestion, providing safe, resilient and expeditious networks which support social and economic activity. These improvements may also address impacts of networks on quality of life and the environment (NN NPS paragraph 2.2). A well-functioning road network is stated as critical to supporting national and regional economies (NN NPS paragraph 2.13).

1.5.3.3 The Government's policy to address this need is to bring forward enhancements and improvements to the existing network. This includes improvements to trunk roads, in particular, dualling of single carriageway strategic trunk roads to increase capacity and improve performance and resilience.

1.5.3.4 Paragraph 5.148 in the NN NPS states that ‘for significant road widening or the building of new roads in National Parks and the Broads applicants also need to fulfil the requirements set out in Defra’s English national parks and the broads: UK government vision and circular 2010 or successor documents. These requirements should also be complied with for significant road widening or the building of new roads in Areas of Outstanding Natural Beauty.’

1.5.3.5 Paragraph 5.152 in the NN NPS states that ‘there is a strong presumption against any significant road widening or the building of new roads and strategic rail freight interchanges in a National Park, the Broads and Areas of Outstanding Natural Beauty, unless it can be shown there are compelling reasons for the new or enhanced capacity and with any benefits outweighing the costs very significantly. Planning of the Strategic Road Network should encourage routes that avoid National Parks, the Broads and Areas of Outstanding Natural Beauty.’

1.5.4 English national parks and the broads: UK government vision and circular 2010⁴

1.5.4.1 The purpose of this circular is to provide guidance on the English National Parks and the Broads. The Government worked with the English National Park Authorities Association to develop a joint 2030 vision for the Parks. The purpose of the vision is stated as

‘For other public bodies and those with a statutory interest [i.e. Highways England], the vision should be used, alongside relevant Park Management Plans, to inform their decision on how to meet their statutory duty “to have regard to” Park purposes in exercising their functions.’

1.5.4.2 The vision for National Parks and the Broads is that by 2030 English National Parks and the Broads will be places where:

- ‘There are thriving, living, working landscapes notable for their beauty and cultural heritage. They inspire visitors and local communities to live within environmental limits and to tackle climate change. The wide-range of services they provide (from clean water to sustainable food) are in good condition and valued by society.

- Sustainable development can be seen in action. The communities of the Parks take an active part in decisions about their future. They are known for having been pivotal in the transformation to a low carbon society and sustainable living. Renewable energy, sustainable agriculture, low carbon transport and travel and healthy, prosperous communities have long been the norm.

- Wildlife flourishes and habitats are maintained, restored and expanded and linked effectively to other ecological networks. Woodland cover has increased and all woodlands are sustainably managed, with the right trees in the right places. Landscapes and habitats are managed to create resilience and enable adaptation.

Everyone can discover the rich variety of England’s natural and historic environment, and have the chance to value them as places for escape, adventure, enjoyment, inspiration and reflection, and a source of national pride and identity. They will be recognised as fundamental to our prosperity and well-being.’

1.5.4.3 The guidance at paragraph 20 states that the Government continues to “regard National Park designation (together with that for Areas of Outstanding Natural Beauty (‘AONBs’)) as conferring the highest status of protection as far as landscape and natural beauty is concerned. The Parks represent an important contribution to the cultural and natural heritage of the nation. The Parks are living and working landscapes and over the centuries their natural beauty has been influenced by human activity such as farming and land management activities.”

1.5.4.4 In developing and implementing planning policies and management of their areas, Authorities should document and clearly express the special qualities of the Park and the status and condition of these qualities.

1.5.5 National Planning Policy Framework (NPPF)

1.5.5.1 The NPPF provides a framework for the designation of local plans by local authorities and for the consideration of planning applications in England. The policy puts a presumption in favour of sustainable development at the heart of decision making for planning applications made to the local authority.

1.5.5.2 Paragraph 5 of the NPPF states that the Framework does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework). National policy statements form part of the overall framework of national planning policy, and may be a material consideration in preparing plans and making decisions on planning applications.

---

1.5.5.3 Paragraph 172 of the NPPF states that ‘Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest.’

1.6 Sub-regional and local planning policy

1.6.1 SDNP Local Plan 2014-2033

1.6.1.1 The SDNP Authority Local Plan was adopted on 2 July 2019. The adopted Local Plan replaces all existing planning policies across the National Park and sets out how the National Park Authority will manage development over the next 15 years. This is based on the statutory purposes and duty for national parks as specified in the National Parks and Access to the Countryside Act 1949 (see Section 1.5.2).

1.6.1.2 Working in partnership with other Local Authorities (LAs) and other organisations, it also seeks to foster the economic and social well-being of local communities within the SDNP.

1.6.1.3 The adopted Local Plan notes that landscape is the key to all of the special qualities. The South Downs was designated as a National Park in recognition of its exceptional natural beauty, for the opportunities to learn about and appreciate its special qualities, and as a landscape of national importance.

1.6.1.4 The adopted Local Plan is ‘landscape-led’ rather than ‘development-led’ reflecting SDNPA’s remit of nurturing and protecting the SDNP’s special qualities. Further consideration is given to the vision, objectives and policies contained within the Local Plan in Chapter 2: Assessment Methodology.

---

1.6.2 Arun District Council Local Plan

1.6.2.1 The Arun Local Plan 2011-2031 was adopted on 18th July 2018 and replaces the Arun Local Plan 2003 and any saved policies. The Arun Local Plan 2011-2031 sets out the Council’s vision for the development of Arun up to 2031.

1.6.2.2 Policies in this Local Plan are for the area of Arun District excluding the area covered by the SDNP Authority.

1.6.2.3 Key strategic objectives of the Arun Local Plan are:  
- ‘To strengthen Arun’s economic base and provide local job opportunities by increasing, diversifying and improving the quality of employment through the provision of appropriate employment sites, better infrastructure including road access.
- To reduce the need to travel and promote sustainable forms of transport.
- To plan for climate change and work in harmony with the environment to conserve natural resources and increase biodiversity.
- To plan and deliver a range of housing mix and types in locations with good access to employment, services and facilities to meet the District’s housing requirements and the need of Arun’s residents and communities both urban and rural.
- To protect and enhance Arun’s outstanding landscape, countryside, coastline, historic, built and archaeological environment, as well as the setting of the SDNP, thereby reinforcing local character and identity.
- To create vibrant, attractive, safe and accessible towns and villages that build upon their unique characters to provide a wide range of uses.
- To promote strong, well integrated and cohesive communities, through the promotion of healthy lifestyles, provision of good quality accessible community facilities and a safe environment, which delivers an enhanced quality of life to all.’

---

1.6.3 West Sussex County Council Transport Plan 2011 – 2026

1.6.3.1 West Sussex County Council (WSCC) published the third West Sussex Transport Plan for the years 2011 to 2026 in February 2011. The Transport Plan provides the strategic direction for transport within West Sussex, and aligns itself closely with other strategies.

1.6.3.2 The main objectives of the Transport Plan are to:

- promote economic growth
- tackling climate change
- provide access to services, employment and housing; and
- improve safety, security and health.

1.6.3.3 The Transport Plan recognises that the coastal strip of West Sussex adjoins the SDNP and has a high-quality landscape but, in some places, is in need of regeneration. To achieve the main objectives of the Transport Plan, WSCC will work closely with the SDNPA to manage the impact on the transport network of visitors to the area; prepare a National Park Management Plan that includes innovative ways of encouraging people to use the public transport system, and develop opportunities to improve access to, and within the National Park particularly for walking and cycling.

1.6.3.4 One of the highest priorities in the Transport Plan is to improve the A27 trunk road and complementary public transport improvements to bottlenecks at Chichester, Arundel and Worthing to increase capacity, improve reliability, safety and increase the competitiveness of local businesses and attract investment.

---

1.6.3.5 The Transport Plan notes that the A27 at Arundel ‘experiences congestion during peak hours on weekdays and is a honey-pot destination at weekends, causing off-peak congestion on the edge of the SDNP. The unimproved section of the road was designed to be used by around a third of current traffic flows, the majority of which is through traffic. In addition to causing significant congestion at Arundel, this also leads to heavy traffic flows through nearby villages as vehicles divert to avoid the queues. The town is severed by the alignment of the A27 which passes through the south of the town with few crossing points. This has led to a number of casualties, including some killed or seriously injured, which have contributed to a poor safety record on this section.’

1.6.3.6 The principle of major improvements to the A27 at Arundel is clearly supported in The West Sussex Transport Plan. The Plan identifies network efficiency, capacity, and safety concerns and seeks to work with Highways England to develop options to address the key issues for Arundel and the wider area whilst supporting economic development and growth. The Transport Plan does not state any preference for route options. There is therefore County level policy support for the principle and benefits of the Scheme.

1.6.4 SDNPA Position Statement on A27 route corridor

1.6.4.1 The Position Statement (attached as Appendix A) sets out the Authority’s position in the case of any future transport infrastructure projects. ‘In considering proposals the SDNPA will be mindful that the current state of congestion on the A27 can create secondary impacts within the National Park…. Where feasible, the primary impacts of any new schemes must be objectively assessed alongside potential secondary impacts. In assessing the specific impacts of any detailed options, the SDNPA will ask Highways England to use the framework of the seven Special Qualities (SQ) of the National Park.’ These are set out in Section 1.3.

1.6.4.2 The SDNPA expects that any schemes which are ultimately proposed will:\(^{11}\)

- ‘Demonstrate that there is no alternative which would have avoided or had a lesser impact on the seven Special Qualities for which the National Park is nationally designated.
- Set out clearly, based on robust evidence, the nature and scale of these impacts.
- Demonstrate how these impacts would be mitigated or compensated for, bearing in mind that a National Park landscape is of national importance.’

1.6.5 Roads in the South Downs - Enhancing the safety and quality of roads and places in the national park (2015)\(^{12}\)

1.6.5.1 The guide looks to raise awareness of best practice for rural road design and management for highway authorities, the SDNPA Authority and local communities. It is intended to influence decision-making, training and investment and raise awareness of opportunities and challenges in reconciling traffic movement with the inherent qualities and purposes of the National Park.

1.6.5.2 The guide highlights the role of roads in forming the immediate foreground for most visitors to the Park, and the influence of legislation, duties and policies for road design in determining expectations, driver behaviour and values.

1.6.5.3 It is recognised that busy transport highways remain part of the SDNP, but that their design and treatment must take account of the purposes of the Park. Single purpose transport corridors offer opportunities to enhance the SDNP with practical measures to minimise the impact of such routes through quieter road surfaces, careful siting of signs, low-level lighting and drainage capable of encouraging wildlife through reed beds and holding ponds.

---

\(^{11}\) South Downs National Park Authority. Position Statement on A27 Route Corridor. Paragraph 8 and 7 of Appendix A

\(^{12}\) Brighton and Hove City Council, East Sussex County Council, Hampshire County Council, South Downs National Park Authority and West Sussex County Council (June 2015). Roads in the South Downs.
1.6.6 Summary

1.6.6.1 The legislation and policies outlined above have been reviewed to determine whether they would be suitable to use in the assessment of effects of the Scheme on the SDNP special qualities.

1.6.6.2 The National Parks and Access to the Countryside Act 1949 and the English national parks and the broads: UK government vision and circular 2010, set out the purpose and vision of National Parks, providing useful context which will be considered when determining the effects, though the documents provide no applicable guidance regarding assessing the impacts of special qualities.

1.6.6.3 The assessment principles set out within the NN NPS, including the position in regard to development of new roads within National Parks will be fully addressed when the Scheme progresses to PCF Stage 3. The Interim Scheme Assessment Report provided as part of the PCF Stage 2 Further Consultation documents seeks to bring together the environmental assessments (along with traffic, economic, safety, operational and technical maintenance) undertaken during PCF Stage 2, in order to help inform consultees views on the various Scheme options.

1.6.6.4 The policy tests contained with the NPPF and Arun Local Plan have been considered, but as the Scheme is a Nationally Significant Infrastructure Project (NSIP), for which a Development Consent Order application will be made, it is to be determined in accordance with the NN NPS.

1.6.6.5 Further consideration has been given to the policies and guidance set out within the SDNPA Local Plan within Chapter 2: Assessment Methodology.
2 Assessment methodology

2.1 Introduction

2.1.1.1 This chapter outlines the general approach taken in the assessment of SDNP special qualities. Further information for the assessment methodology for each special quality is provided in Chapters 3 to 9.

2.2 Assessment process

2.2.1.1 No standard approach is available describing how to assess (as has been requested by SDNPA in Appendix A) the impacts of infrastructure development on the SDNP special qualities.

2.2.1.2 In seeking to develop a methodology, consideration was given to the relevant polices outlined within Section 1.5, in particular, the SDNPA Local Plan (Section 1.6.1), which includes a vision, objectives and sets of policies which together provide a policy framework for assessing planning applications and guiding development in the National Park. The vision, objective and policies reinforce the requirement to consider the special qualities and this is a key thread throughout the Local Plan.

2.2.1.3 Core Policy SD3 of the Local Plan is the policy for determining ‘major development’ applications, the purpose of which is to set out how the SDNPA will determine what constitutes major development and, if an application is deemed to constitute major development, how that application will be considered. Developments defined as ‘major’ are then assessed against the following tests:

- The need for development in the location proposed.
- The possible impact on the local economy, in particular any that is specific to the site or location as opposed to general benefits such as on the construction industry;
- The cost of, and scope for, meeting the need in some other way, on the assumption that it is a local need which should ideally not be met outside the designated area (the National Park);
- Detrimental effects on the environment, including wildlife and cultural heritage, and the extent to which the effects can be moderated;
- Detrimental effects on the landscape and the extent to which the effects can be moderated; and
- Detrimental effects on recreational opportunities and the extent to which the effects can be moderated.
2.2.1.4 The Scheme is a Nationally Significant Infrastructure Project (NSIP), for which a Development Consent Order application will be made. It is to be determined in accordance with the National Networks National Policy Statement (NN NPS), by the Secretary of State for Transport and is not defined as ‘major development’ for the purposes of decision making by the SDNPA under the Local Plan. However, the tests contained within Policy SD3 have been informed by the National Planning Policy Framework and align closely with the requirements of the NN NPS. It is considered that these tests already form part of the wider assessment of the Scheme through the suite of documents prepared for the PCF Stage 2 (Options Selection) process.

2.2.1.5 Policy SD42 of the Local Plan provides the assessment framework for new infrastructure within the National Park. As noted above, the Scheme is a NSIP and not therefore a ‘infrastructure’ project for the purposes of decision making by SDNPA under the Local Plan. However, as with Policy SD3, consideration has been given to the tests contained within the Policy including any development within the National Park representing ‘the least environmentally harmful option reasonably available, also having regard to the operational requirements and technical limitations of the proposed infrastructure’ and that ‘the design minimises the impact on the natural beauty, wildlife and cultural heritage of the National Park and the general amenity of local communities’.

2.2.1.6 The vision, objectives and policies set out within the Local Plan have provided useful context, understanding and evidence, all of which has been used to help develop the baseline and inform the special qualities assessment. However, the application of the policy tests outlined above was deemed not to be the most appropriate way to assess the effects of the Scheme on the SDNP for the reasons stated above.

2.2.1.7 In addition to the Local Plan, the SDNPA also provides a guide as part of the local validation requirements when applying for planning permission in a National Park\(^1\), included within this suite of documents is a guide ‘Advice to Householders and their Agents’.\(^2\)

---


2.2.1.8 These validation requirements were reviewed and considered not to apply to the Scheme due to its status as a NSIP. However, these have been considered in the development of the assessment process. For example, the ‘Advice to Householders and their Agents’ guidance advocates a process of preparation of baseline information, and assessment of the likely future condition with the development. This is derived from Environmental Impact Assessment which forms the basis of this assessment and is expanded on below in paragraph 2.2.1.9.

2.2.1.9 The approach taken to this assessment of the SDNP special qualities is derived from the Environmental Assessment Volume (11) of the Design Manual for Roads and Bridges (DMRB) and general Environmental Impact Assessment best practice and comprises:

- Definition of the topics, that is, the special qualities
- A description of the potential impacts which may arise due to the Scheme
- A description of the baseline information including the relevant receptors. The State of the National Park report has been used to provide guidance on what baseline information should be included in each topic. Whilst the Local Plan and supporting evidence base has been used to gather baseline information.
- An outline of the design, mitigation and enhancement measures which could be undertaken for any of the Scheme options
- Assessment of the potential impacts of each Scheme option
- A summary of the assessment against the special qualities.

2.2.1.10 The terminology within this report generally follows the terminology in the Project Control Framework (PCF) Stage 2 Environmental Assessment Report 2019 (referred to henceforth as the EAR). This document should be read in conjunction with the EAR.

2.3 Potential impacts

2.3.1.1 The SDNPA defined the potential impacts that the Scheme may have on each of the special qualities in the A27 Position Statement (Appendix A). These potential impacts are provided in Table 2-1.

---


Table 2-1 – Types of potential impact associated with each special quality

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse, inspirational landscapes and breathtaking views</td>
<td>Effects on landscape character, experience of the landscape and long, uninterrupted views.</td>
</tr>
<tr>
<td>A rich variety of wildlife and habitats including rare and internationally important species</td>
<td>Effects on internationally, nationally and locally designated and protected habitats and species, fragmentation and connectivity issues.</td>
</tr>
<tr>
<td>Tranquil and unspoilt places</td>
<td>Noise, lighting, effects on dark night skies; reduction of disturbance from some existing roads.</td>
</tr>
<tr>
<td>An environment shaped by centuries of farming and embracing new enterprise</td>
<td>Effects on the farming economy and diversification and the ability of new enterprises to set up and develop sustainable businesses.</td>
</tr>
<tr>
<td>Great opportunities for recreational activities and learning experiences</td>
<td>Effects on rights of way and other access routes, the effects on sustainable transport schemes, severance of the National Park from coastal communities.</td>
</tr>
<tr>
<td>Well-conserved historical features and a rich cultural heritage</td>
<td>Positive and negative effects on historic and protected monuments, historic villages and communities.</td>
</tr>
<tr>
<td>Distinctive towns and villages and communities with real pride in their area</td>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds and access to local services.</td>
</tr>
</tbody>
</table>

2.4 Guidance

2.4.1.1 The environmental assessments undertaken for the Scheme generally follow the assessment process outlined in the Environmental Assessment Volume (11) of the DMRB. Where other guidance has been used for specific special qualities these are set out in Table 2-1. The general alignment between the potential impacts and guidance provided in the DMRB is provide in Table 2-2. The potential impacts in the table generally reflect those assessed in Chapters 3 to 10 of this document, and therefore slightly deviate from the wording in Table 2-1.

2.4.1.2 Certain impacts, or elements of impacts, are not assessed through DMRB processes and where this is the case, professional judgement has been applied. This has been indicated in Table 2-2. Further detail is provided in Chapters 3 to 9.
2.4.1.3 No guidance is available for any of the potential impacts on how to relate the potential impacts to the special quality as a whole. Therefore, overall conclusions of the effects on the special quality will be based on the results of the assessment of individual impacts.
## Table 2-2 – Alignment between DMRB and the potential impacts identified

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Alignment with current DMRB guidance (including IANs or standard guidance)</th>
<th>Elements based on professional judgement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Diverse, inspirational landscapes and breathtaking views</td>
<td>Effects on landscape character</td>
<td>Guidelines for Landscape and Visual Impact Assessment 3rd Edition</td>
<td>Experience of the landscape</td>
</tr>
<tr>
<td></td>
<td>Experience of the landscape</td>
<td>DMRB Volume 11, Section 3, Part 5 - Landscape Effects</td>
<td>(It should be noted that professional judgement is a very important part of landscape and visual impact assessment (LVIA). GLIVIA3 outlines the roll of professional judgement throughout the assessment process, and therefore existing guidance has been applied – which relies on the use of professional judgement. The discussion of this impact is therefore largely based on professional judgement - which follows industry guidance for LVIA).</td>
</tr>
<tr>
<td></td>
<td>Change in views and visual amenity (including long, uninterrupted views)</td>
<td>IAN 135/10 - Landscape and Visual Effects Assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WebTAG – TAG unit A3, Section 6 – Impacts on Landscape (for use in appraisal only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WebTAG – TAG unit A3, Section 7 – Impacts on Townscape (for use in appraisal only).</td>
<td></td>
</tr>
</tbody>
</table>

---


<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Alignment with current DMRB guidance (including IANs or standard guidance)</th>
<th>Elements based on professional judgement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 A rich variety of wildlife and habitats including rare and internationally important species</td>
<td>Effects on internationally, nationally and locally designated sites</td>
<td>Ecology and Nature Conservation (DMRB Volume 11, Section 3, Part 4)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Effects on protected habitats and species, fragmentation and connectivity issues</td>
<td>IAN 130/10 Ecology and Nature Conservation: Criteria for Impact Assessment</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (2018)</td>
<td></td>
</tr>
<tr>
<td>3 Tranquil and unspoilt places</td>
<td>Noise impact</td>
<td>Noise and Vibration (DMRB Volume 11, Section 3, Part 7, HD 213/11)</td>
<td>It should be noted that professional judgement is a very important part of landscape and visual impact assessment (LVIA). GLIVIA3 outlines the roll of professional judgement throughout the assessment process, and therefore existing guidance has been applied – which relies on the use of professional judgement. The discussion of this impact is therefore largely based on professional judgement</td>
</tr>
<tr>
<td></td>
<td>Impact of artificial lighting on the night time environment</td>
<td>IAN 185/15 Updated traffic, air quality and noise advice on the assessment of link speeds and generation of traffic data into speed bands</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Impact of lighting on dark night skies</td>
<td>Guidelines for Landscape and Visual Impact Assessment 3rd Edition</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DMRB Volume 11, Section 3, Part 5 - Landscape Effects</td>
<td></td>
</tr>
<tr>
<td>Special Quality</td>
<td>Potential Impact</td>
<td>Alignment with current DMRB guidance (including IANs or standard guidance)</td>
<td>Elements based on professional judgement</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>4 An environment shaped by centuries of farming and</td>
<td>Reduction of disturbance from some existing roads</td>
<td>IAN 135/10 - Landscape and Visual Effects Assessment</td>
<td>which follows industry guidance for LVIA.</td>
</tr>
<tr>
<td></td>
<td>Effects on the farming economy</td>
<td>WebTAG – TAG unit A3, Section 6 – Impacts on Landscape (for use in appraisal only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Effects on diversification</td>
<td>WebTAG – TAG unit A3, Section 7 – Impacts on Townscape (for use in appraisal only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tranquillity – An Overview (2017)7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Understanding tranquility (2005)8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saving Tranquil Places: How to protect and promote a vital asset9</td>
<td></td>
</tr>
</tbody>
</table>

---

9 Campaign to Protect Rural England (2006) *Saving Tranquil Places: How to protect and promote a vital asset*
<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Alignment with current DMRB guidance (including IANs or standard guidance)</th>
<th>Elements based on professional judgement</th>
</tr>
</thead>
<tbody>
<tr>
<td>embracing new enterprise</td>
<td>Ability of new enterprises to set up and develop sustainable businesses</td>
<td>Volume 11, Section 3, Part 6 Land Use)</td>
<td>Although some guidance has been applied from DMRB, this impact is largely based on professional judgement</td>
</tr>
<tr>
<td>5 Great opportunities for recreational activities and learning experiences</td>
<td>Effects on rights of way and other access routes</td>
<td>Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 8 (Pedestrians, Cyclists, Equestrians and Community Effects) DMRB Volume 5, Section 2, Part 5 HD 42/17 (WCHAR) Highways England Guide to Equality Impact Assessment(^{10}) DMRB Volume 11, Section 3, Part 7(2011) (HD 213/11 Interim Advice Note 185/15</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Effects on sustainable transport schemes</td>
<td>DMRB Volume 11, Section 3, Part 8 Pedestrians, Cyclists, Equestrians and Community Effects</td>
<td>-</td>
</tr>
</tbody>
</table>

\(^{10}\) Highways England, Guide to Equality Impact Assessments.
### Special Quality

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Alignment with current DMRB guidance (including IANs or standard guidance)</th>
<th>Elements based on professional judgement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severance of the National Park from coastal communities</td>
<td>Community Severance (Volume 11 Section 3, Part 8 Pedestrians and Others and Community Effects)</td>
<td>Severance of the SDNP from coastal communities</td>
</tr>
</tbody>
</table>

#### 6 Well-conserved historical features and a rich cultural heritage

| Assessment of effects on settings of designated assets and historic villages and communities | DMRB (Highways Agency, Cultural Heritage, Design Manual for Roads and Bridges, (2007) - Volume 11, Section 3, Part 2 (HA 208/07) | Historic villages and communities have been interpreted to be conservation areas. |
| Assessment of effects on below-ground (buried archaeology) | Historic England 2017, The Setting of Heritage Assets Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) | - |
| Assessment of effects on historic landscapes | | |

#### 7 Distinctive towns and villages and communities with real pride in their area

<p>| Positive and negative effects on any direct or indirect changes in traffic volumes and speeds | Noise and Vibration (DMRB Volume 11, Section 3, Part 7, HD 213/11) |
| - | |
| - | Air Quality (DMRB Volume 11, Section 3, Part 1, HA207/07) |</p>
<table>
<thead>
<tr>
<th>-</th>
<th>IAN 185/15 Updated traffic, air quality and noise advice on the assessment of link speeds and generation of traffic data into speed bands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Quality</td>
<td>Potential Impact</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive and negative effects on access to local services</td>
</tr>
<tr>
<td></td>
<td>Impacts on community pride in the area</td>
</tr>
</tbody>
</table>

\(^{11}\) Highways Agency, Pedestrians, Cyclists, Equestrians and Community Effects, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 8 (June 1993)  
\(^{12}\) Highways Agency, Vehicle Travellers, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 9 (June 1993)
2.5 Assessment results

2.5.1.1 If the topic or potential impact aligns with the DMRB topic as described in Table 2-2 an assessment of the likely significance of the potential impact is provided. This assessment of likely significance is provided in accordance with the significance criteria provided in HA205/08\textsuperscript{13} or the topic specific guidance (discussed in Chapters 3 to 9). The general criteria for determining significance are provided in Chapter 4: Environmental Assessment Methodology of the EAR. These use the terminology:

- Value or sensitivity of receptors/features
- Magnitude of impact (comparison between the future baseline (otherwise known as do minimum scenario) and the with Scheme scenario)
- Significance of effect.

2.5.1.2 The A27 Position Statement requested that we set out the ‘nature and scale of the impacts’, this is considered to be accomplished through this approach.

2.5.1.3 If the topic or potential impact, or parts of the potential impact, do not align with DMRB professional judgement is used with the general criteria provided in EAR Chapter 4: Environmental Assessment Methodology. This approach applies to the following special qualities:

- Special Quality 3: Impact of lighting on the dark night skies
- Special Quality 5: Effects on recreational and educational facilities
- Special Quality 7: Positive and negative effects on any direct or indirect changes in traffic volumes and speeds
- Special Quality 7: Pride in the area

2.5.1.4 The assessment considers both the effects during the construction phase and the operational phase. However, the availability of construction phase information is limited at PCF Stage 2 (options selection) as discussed in EAR Chapter 4: Environmental Assessment Methodology.

2.5.1.5 This approach to determining the significance of effects is considered to be intrinsically linked to the purpose of this report (which is to provide an assessment of the effects of the Scheme on the special qualities of the SDNP). An adverse effect is taken to be one which is inconsistent with the relevant special quality and the significance of effect category (that is Slight, Moderate, Large or Very Large Adverse) is an indication of the severity of the effect.

\textsuperscript{13} Highways Agency (2008) Design Manual for Roads and Bridges (DMRB) Volume 11, Section 2, Part 5 Assessment and Management of Environmental Effects
2.6 Assumptions and limitations

2.6.1.1 The general assumptions and limitations that apply to the assessment of multiple special qualities and the entire assessment of the SDNP special qualities are provided in Table 2-3. The assessments are derived from information in the EAR. Therefore, those assumptions and limitations discussed in EAR Chapter 4: Environmental Assessment Methodology also apply to this assessment.

Table 2-3 – General assumptions and limitations

<table>
<thead>
<tr>
<th>Assumption or limitation</th>
<th>Result of assumption or limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No industry specific guidance is available for the assessment of the effect of an infrastructure scheme on the special qualities of a national park.</td>
<td>The special qualities and potential impacts provided by SDNPA have been assessed using standard environmental impact assessment guidance. Professional judgement has been applied where guidance is not available. Consultation with SDNPA has been undertaken to present the planned approach and gain feedback. This feedback has been applied where possible.</td>
</tr>
<tr>
<td>The information, specifically including the level of design, surveys, and design, mitigation and enhancement measures available to inform this assessment is proportionate to PCF Stage 2, options selection.</td>
<td>Further detail will be provided in subsequent PCF Stages.</td>
</tr>
</tbody>
</table>

14 Meeting with SDNPA undertaken in South Downs Centre, Midhurst on 29 April 2019
3 Special Quality 1: Diverse, inspirational landscapes and breathtaking views

3.1 Introduction

3.1.1.1 The special quality assessed in this chapter is ‘Special Quality 1: Diverse, inspirational landscapes and breathtaking views’. Hereafter, referred to as SQ1. This special quality has been described as:

‘The geology of the South Downs underpins so much of what makes up the special qualities of the area: its diverse landscapes, land use, buildings and culture. The rock types of the National Park are predominately chalk and the alternating series of greensands and clays that form the Western Weald. Over time a diversity of landscapes has been created in a relatively small area which is a key feature of the National Park. These vary from the wooded and heathland ridges on the greensand in the Western Weald to wide open downland on the chalk that spans the length of the National Park, both intersected by river valleys. Within these diverse landscapes are hidden villages, thriving market towns, farms both large and small and historic estates, connected by a network of paths and lanes, many of which are ancient.

There are stunning, panoramic views to the sea and across the Weald as you travel the hundred mile length of the South Downs Way from Winchester to Eastbourne, culminating in the impressive chalk cliffs at Seven Sisters. From near and far, the South Downs is an area of inspirational beauty that can lift the soul.’

---

3.2 Assessment methodology

3.2.1 Potential impacts

3.2.1.1 The potential impacts associated with SQ1, as set out in the A27 Position Statement, are:

- effects on landscape character
- experience of the landscape
- impacts on long, uninterrupted views (which include panoramic views).

3.2.1.2 In the rest of this chapter these potential impacts have been assessed as:

- effects on landscape character
- change in views and visual amenity.

3.2.1.3 The phrase ‘visual amenity’ is used to encompass the pleasantness and attractiveness of the views available to receptors and, even where the type of view is not specifically described, includes consideration of the extent of view available, which may be long and interrupted, broad open and panoramic, or short and enclosed, depending on the receptor location.

3.2.1.4 Experience of the landscape has been qualitatively considered as part of these two impacts.

3.2.1.5 The potential impacts identified have been assessed in both the construction and operational phases for all Scheme options. Relevant DMRB topics which are assessed in the Environmental Assessment Report (EAR) and which are drawn on for this assessment are as follows:

- **EAR Chapter 7: Landscape and visual** – for impacts on landscape character and visual amenity assessment (including experience of the landscape).

3.2.2 Baseline information sources

3.2.2.1 The following sources of information have been used to provide baseline information for this assessment:

- Arun District Local Plan 2011-31²
- Walkover undertaken on 22 to 23 August 2018; 4 to 7 February 2019; 18 to 21 March 2019

---

- Google Maps³
- Multi Agency Geographic Information for the Countryside website⁴
- Natural England National Character Area Profiles⁵
- South Downs Local Plan 2019 (2014-33)⁶
- SDNP: Excerpt of Inspectors Report into the designation of the SDNP, Volume 1, 31/03/2006⁷
- SDNP Tranquillity Study 2017⁸
- State of the National Park Report⁹
- SDNP Landscape Background Paper 2017¹⁰
- South Downs Integrated Landscape Character Assessment 2011¹¹
- The Woodland Trust’s Ancient Inventory map for the UK¹²
- A Strategy for the West Sussex Landscape, October 2005¹³
- Landscape Character Assessment of West Sussex Landscape 2003¹⁴.

---

³ Google Maps [https://www.google.co.uk/maps/] [imagery & Google. Map data ©2019] [Accessed July 2019]
⁴ MAGIC. Available at: [https://magic.defra.gov.uk/] [Accessed July 2019]
¹⁰ SDNPA (2011) South Downs Integrated Landscape Character Assessment. SDNPA [Available at: https://www.southdowns.gov.uk/planning/planning-advice/landscape/]
¹¹ SDNPA (2017) Landscape Background Paper, South Downs Local Plan
¹² Woodland Trust. Ancient Tree Inventory – Tree Search. Available at: [https://ati.woodlandtrust.org.uk/tree-search/?v=1596826&m=map&z=13&nwLat=53.42196803119966&nwLng=-1.6348799218750365&seLat=53.3340049990025726&seLng=-1.3052900781250365] [Accessed July 2019]
¹⁴ West Sussex County Council Landscape Character Assessment of West Sussex (2003). Available at: [https://www.westsussex.gov.uk/media/1771/landscape_strategy.pdf] [accessed May 2019]
3.2.3 Guidance

3.2.3.1 The source guidance for all assessment in relation to National Parks is outlined in national planning policy, including:

- The National Policy Statement for National Networks (2014)\(^{15}\)
- National Policy Planning Framework (2019)\(^{16}\).

3.2.3.2 More specific assessment guidance followed for the assessment of SQ1 comprises the following:

- Guidelines for Landscape and Visual Impact Assessment 3rd Edition\(^{17}\)
- DMRB Volume 11, Section 3, Part 5 - Landscape Effects\(^{18}\)
- IAN 135/10 - Landscape and Visual Effects Assessment\(^{19}\)
- WebTAG – TAG unit A3, Section 6 – Impacts on Landscape\(^{20}\) (for use in appraisal only)
- WebTAG – TAG unit A3, Section 7 – Impacts on Townscape\(^{21}\) (for use in appraisal only).

3.2.3.3 The findings of the EAR have been used to inform this assessment. Chapter 2: Assessment Methodology outlines the relationship between the DMRB assessment and the potential impacts identified within the SDNPA’s A27 Position Statement.

3.2.3.4 As noted in Chapter 2: Assessment Methodology, professional judgement is a very important part of landscape and visual impact assessment (LVIA). GLVIA3 outlines the role of professional judgement throughout the LVIA assessment process. Discussion of impacts on this special quality is largely based on professional judgement, informed by the guidance noted above (paragraph 3.2.3.2) and the qualitative assessments outlined within the relevant EAR Chapter.

---

\(^{15}\) Department for Transport, National Policy Statement for National Networks (December 2014)

\(^{16}\) Department for Communities and Local Government, Revised National Planning Policy Framework (Feb 2019)


\(^{18}\) Highways Agency (June 1993) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 5, Landscape Effects


\(^{21}\) Ibid
3.3 **Assessment assumptions and limitations**

3.3.1.1 The assumptions and limitations which apply to this assessment are outlined in EAR Chapter 7: Landscape and Visual. An additional limitation of specific relevance to this assessment is set out in Table 3-1 along with a description of the corrective actions that have been taken to adjust for this.

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Methodology for assessing 'Inspirational landscapes'</td>
<td>Approach may not fully capture the definition of, and therefore potential impact on 'Inspirational landscapes'. The relevant chapters of the EAR have been used to align with the impacts identified in the SDNP A27 Position Statement, as well a qualitative discussion to provide a more holistic overview. Further investigation on specific aspects would be required at PCF Stage 3.</td>
</tr>
</tbody>
</table>

3.4 **Study Area**

3.4.1.1 The Study Area for assessment of effects on SQ1, and as agreed with the SDNPA, is the same as the Study Area outlined in EAR Chapter 7: Landscape and Visual (see Section 7.5.2 and Figure 7-2). The Study Area covers part of the SDNP and its immediate setting which may be significantly impacted by the Scheme in landscape or visual terms.

3.5 **Baseline conditions**

3.5.1.1 For the purposes of this chapter, the baseline landscape and visual environment is as outlined in EAR Chapter 7: Landscape and Visual (see Section 7.6, particularly sections 7.6.3 – 7.6.5 and Figures 7-1 and 7-2 for baseline landscape environment and sections 7.6.6 – 7.6.8 and Figures 7-3 to 7-69 for baseline visual environment).

3.6 **Scoping**

3.6.1.1 The potential impacts outlined in Section 3.2.1 have been considered with regard to the Scheme. Justification of whether the potential impacts are scoped in or out are provided in Table 3-2.
Table 3-2 - Scoping

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Scoped in/out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on landscape character</td>
<td>Scoped in</td>
<td>A change in landscape character, at the Landscape Character Area (LCA) scale, was anticipated due to the Scheme.</td>
</tr>
<tr>
<td>Experience of the landscape</td>
<td>Scoped in</td>
<td>There is no specific methodology for assessing 'experience'. However, perceptual qualities are included in the consideration of landscape character and visual amenity, in accordance with GLVIA3 and DMRB. Experience of the landscape has therefore been qualitatively considered as part of the other two impact subtopics.</td>
</tr>
<tr>
<td>Change in views and visual amenity (including long, uninterrupted views)</td>
<td>Scoped in</td>
<td>Changes to existing views were anticipated due to the Scheme.</td>
</tr>
</tbody>
</table>

3.7 Design, mitigation and enhancement

3.7.1.1 Detailed mitigation proposals will be produced for the Scheme at PCF Stage 3 (Preliminary Design) once detailed designs are available, including information on construction requirements. However, a summary of mitigation measures appropriate for assessment in PCF Stage 2 (Option Selection) are outlined below.

3.7.2 Construction phase mitigation measures

3.7.2.1 The following construction phase mitigation measures have been identified for the Scheme following site visits and are those which are standard best practice and included in the assessment of effects:

- Temporary construction lighting to be minimal in extent and use.
- Construction working area to be as contained and constrained as possible, by implementation of a Construction Environmental Management Plan
- Noise and dust to be kept to a minimum
- Implementation of a Construction Environmental Management Plan to include consideration of low level and directional lighting, protection of trees and storage of topsoil.
3.7.3 Design and operational phase mitigation measures

3.7.3.1 The internationally accepted mitigation hierarchy\textsuperscript{22}, restated in DMRB guidance\textsuperscript{23} for landscape and visual effects, is always to firstly avoid creating adverse effects then, if this cannot be achieved, to reduce, and finally to replace (or remedy). Where avoidance is not possible, measures such as planting, barriers or earth shaping could help to reduce or possibly remedy a potential adverse landscape or visual effect.

3.7.3.2 In some instances, the scale, location, positioning and design of the road may not allow suitable or sufficient mitigation. In these areas, the opportunity to enhance the surrounding landscape would be explored.

3.7.3.3 The design and operational phase mitigation measures identified for the Scheme following site visits and considering best practice procedures are as follows:

- The design of the horizontal and vertical alignments for the main line of each Scheme option and its side roads and junctions considered, amongst other things, the surrounding topography; vegetation; existing landscape features (such as hedges, water features, woodland, and field systems); proximity of residential properties; and key views and vistas
- Earthworks design to minimise the impact of the cuttings and embankments. Where appropriate, there is the potential for the grading out of earthworks at sensitive locations to avoid disjointed appearance of landform and aid integration of the Scheme options into the landscape
- Retention of existing established trees and vegetation wherever possible
- Consideration of the form and finish of structures
- No artificial lighting along the route, except at existing junctions (Crossbush and its approaches and Ford Road roundabout and its approaches)
- Incorporation of new native woodland planting to integrate with existing (where appropriate)
- Use of native woodland mixes that comprise a mix of trees and scrub species that reflect the inherent woodland composition and enhance biodiversity. This would be developed further at PCF Stage 3 (Preliminary Design)

\textsuperscript{22} Directive 2011/92/EU as amended by Directive 2014/52/EU phrases it (eg in Annex IV point 7) as "avoid, prevent, reduce, or if possible, offset"
\textsuperscript{23} IAN 135/10
- Planting at junctions and structures to help assimilate the structures into the landscape (where appropriate)
- Planting to respect the existing pattern of vegetation
- Limited planting within areas of open landscape character to reflect and reinforce existing floodplain landscape
- Consideration of the use of visual barriers, where planting depth may be insufficient to provide effective screening
- Noise reduction screening and surfacing

### 3.7.4 Opportunities for enhancement

#### 3.7.4.1

The Scheme options provide varying opportunities for enhancement. Although they have not been included in the assessment of effects, the following opportunities for enhancement have been identified for the Scheme and could be further developed at PCF Stage 3:

- Enhancement of the River Arun floodplain character through adopting some of the West Sussex County Council floodplain management objectives
- Enhancement of the river Arun channel through naturalisation of the hard sections of river banks
- Provision of a non-vehicular access route across the flood plain to create new views towards SDNP and historic or cultural features, augmented by interpretive signage
- Enhancing the character of local woodlands, including ancient woodland within the SDNP, in particular in areas such as Tortington Common, Stewards Copse, Barn’s Copse and Hundred House Copse. This could be through the removal of invasive or non-invasive plants (such as rhododendron), planting of native ground cover (shrubs and trees such as black poplar) and creation of hedges and hedge laying
- Reinstatement of field boundaries through hedge planting and hedge laying
- Enhanced ‘gateways’ to the SDNP such as at Crossbush and strategic locations
- Installation of public art at ‘gateways’ to the SDNP such as at Crossbush
- Supporting local environmental groups with their work to enhance the local landscape.
3.8 Assessment of potential impacts

3.8.1 Overview

3.8.1.1 A discussion of the effects on landscape character, visual amenity and experience of the landscape in relation to the SDNP for each Scheme option is provided below. This draws on qualitative information set out in EAR Chapter 7: Landscape and Visual (see Section 7.9.2, 7.9.3 and Figure 7-1 and 7-2 for significance of landscape effects, and see Section 7.9.4, 7.9.5 and Figures 7-3 to 7-68 for significance of visual effects).

3.8.1.2 Discussion of above-ground heritage assets (which contribute to local character) is located in Chapter 8: Special Quality 6.

3.8.2 Effects on landscape character and landscape experience

Option 1V5

3.8.2.1 Option 1V5 would result in relatively limited adverse effects (that is not significant) on the SDNP to the west of Arundel in LCA 2 (Fontwell Upper Coastal Plain), as it shares the alignment of the existing A27 and would not introduce a new, lit, western tie-in junction on the A27. It would, however, intensify the existing awareness of the A27 corridor and result in localised modifications to landform and vegetation loss. Option 1V5 would not fundamentally change the existing components and influences within the SDNP in this area or the experience of the landscape. The inspirational quality of the SDNP landscape will remain largely intact, albeit with an intensification of the A27 corridor along its defining boundary.

3.8.2.2 Within the immediate setting of the SDNP, Option 1V5 would have significant adverse effects on the character and experience of the Lower Arun Valley (LCA 4) and Arundel (LCA 5). These effects would arise due to the elevation and prominence of the flyover structure above Ford Road roundabout and the off-line section across the north of the open floodplain. Option 1V5 would introduce increased traffic movements within this largely static landscape. This would detract from the quality of the existing landscape within the setting of the SDNP and would increase the presence of the existing A27, forming an out of scale and urbanising townscape element on the edge of the historic town.

3.8.2.3 Whilst the existing urban influences of Arundel and the A27 slightly reduce the degree to which Option 1V5 would adversely affect these landscapes, the addition of a new section of road on flyover and across the floodplain would still have a significant adverse effect on the floodplain and its relationship with the SDNP and Arundel. The experience of the landscape on the edge of the
SDNP (including within Arundel, such as from Arundel Castle) would be significantly degraded by the increased urbanising influence of Option 1V5 and it would have a significant adverse effect on the experience of the gateway town for visitors to the SDNP.

3.8.2.4 Whilst Option 1V5 would have a significant adverse effect on the experience of the gateway town of Arundel for visitors to the SDNP, overall it would not fundamentally change the existing components and influences within the SDNP itself, and would be seen in the context of existing urbanising elements. It is therefore likely to have a slight adverse and not significant effect overall on the inspirational landscape and experience of the SDNP itself.

Option 1V9

3.8.2.5 Option 1V9 would result in relatively limited adverse effects (i.e. not significant) on the SDNP to the west of Arundel in LCA 2 (Fontwell Upper Coastal Plain), as it shares the alignment of the existing A27 and would not introduce a new, lit, western tie-in junction on the A27. It would intensify the existing awareness of the A27 corridor and result in localised modifications to landform and vegetation loss. Option 1V9 would not fundamentally change the existing components and influences within the SDNP in this area or the experience of the landscape within this character area. The inspirational quality of the SDNP landscape will remain largely intact, albeit with an intensification of the A27 corridor along its defining boundary.

3.8.2.6 Within the immediate setting of the SDNP, Option 1V9 would have significant adverse effects on the character and experience of the Lower Arun Valley (LCA 4) and Arundel (LCA 5). These effects would arise due to the prominence of Option 1V9 as it diverges from the existing A27 towards Crossbush across the north of the open floodplain. Whilst the existing urban influences of Arundel and the A27 slightly reduce the degree to which Option 1V9 would adversely affect these landscapes, the addition of a new road, with increased traffic movements and headlights in this largely static landscape, would still have a significant adverse effect on the floodplain and its relationship with the SDNP and Arundel.

3.8.2.7 The widening of the existing alignment through Arundel would again increase the presence of the existing A27 and form an out of scale and urbanising townscape element on the edge of the historic town and within the setting of the SDNP landscape. This would have an adverse effect on the experience of the gateway town for visitors to the SDNP but it is unlikely to be significant to the character and inspirational landscape of the SDNP itself.
Option 3V1

3.8.2.8 Option 3V1 would result in significant adverse effects on the SDNP through the introduction of an urbanising, new and lit grade separated western tie-in junction on the existing A27 to the west of Arundel within LCA 2 (Fontwell Upper Coastal Plain) and within the SDNP. It would result in the fragmentation and extensive loss of mostly ancient woodland as it passes through the combined area of Binsted Woods Complex LWS, impacting on the inspirational quality and intimate landscape character of the wooded slopes. These woodlands are located on the southern boundary of the SDNP, creating an extensive secluded and tranquil expanse and greatly contributing to the character of the SDNP and its immediate setting in this area. Option 3V1 would transform this part of the SDNP in terms of both its character and the overall experience of this intimate and inspirational landscape.

3.8.2.9 Option 3V1 would require major earthworks, form a physical barrier and introduce elements at variance with the local landscape character (such as man-made built structures and traffic movements) that would result in a significant shift from the existing experiential qualities of the woodland character and detract from the inspirational quality of the landscape. Whilst some of these changes would exert an influence within the wider landscape, due to the visual containment of Option 3V1 within woodland, its presence would primarily alter the character and landscape experience in the immediate vicinity of the Scheme option, significantly adversely affecting the experience of the historic and tranquil woodlands within this part of the SDNP.

3.8.2.10 The likely reduction in traffic along the existing A27 route corridor will slightly enhance the landscape quality and experience of the landscape at this location within the SDNP but this would not offset the change in landscape quality and character in the SDNP associated with the new Option 4/5 AV1 road corridor.

3.8.2.11 Within the immediate setting of the SDNP, Option 3V1 would have significant adverse effects on the character and experience of the Lower Arun Valley (LCA 4) and Arundel (LCA 5). The alignment would form a prominent and highly visible new and out of character element within the floodplain as it crosses this largely static and exposed landscape. The alignment would have a widespread influence on the perception of the floodplain’s character and quality, as it would deteriorate the continuity of the open landscape that contributes to the setting of the SDNP and Arundel. It would introduce prominent views of traffic movements into the existing static landscape, degrading its relationship with both Arundel and the wider SDNP. The experience of the SDNP in its immediate setting and on its boundary, would be significantly degraded.
Option 4/5AV1

3.8.2.12 Option 4/5AV1 would result in significant adverse effects to the SDNP through the introduction of an urbanising new, grade separated, western tie-in junction on the existing A27 to the west of Arundel within LCA 2 (Fontwell Upper Coastal Plain) and partially within the SDNP. As the alignment heads to the south it would result in further effects both within the SDNP and to its immediate setting south of Barn’s Copse and the combined area of Binsted Woods Complex LWS.

3.8.2.13 The settled rural landscape around Binsted, south of the woods, forms a tranquil setting along the southern boundary of the SDNP. Option 4/5AV1 would pass through this landscape alternating between deep cutting, viaduct and tall embankment, introducing a major new and urbanising component within the village setting and through the more intimate landscapes adjoining the woodlands within the SDNP. In particular, the elevated section of Option 4/5AV1 across Hedger’s Hill towards Binsted Lane, would transform this part of the SDNP with the addition of a major transport corridor. It would be out of scale and out of character within the intimate, secluded landscape and would introduce significant effects to the inspirational landscape quality and experience in this part of the SDNP. The experience of the landscape within the vicinity of Option 4/5AV1 at this location would be so significantly degraded (due to presence of traffic noise, moving traffic, headlights and substantial elevated manmade built form) such that the boundary of the SDNP at this section would become significantly blurred.

3.8.2.14 The likely reduction in traffic along the existing A27 route corridor will slightly enhance the landscape quality and experience of the landscape at this location within the SDNP but this in unlikely to offset the change in landscape quality and character resulting from Option 4/5AV1 in the SDNP to the west at Hedger’s Hill and Binsted.

3.8.2.15 Within the immediate setting of the SDNP, Option 4/5AV1 would have significant adverse effects on the character and experience of the Lower Arun Valley (LCA 4) and Arundel (LCA 5). The alignment would form a prominent and highly visible new and out of character element within the floodplain as it crosses this largely static and exposed landscape. Option 4/5AV1 would have widespread influence on the perception and experience of the floodplain landscape. It would introduce prominent views of traffic movements and manmade structures into the existing static landscape, degrading its relationship with Arundel as well as the continuity of the open landscape that contributes to the setting of the SDNP and Arundel.
Option 4/5AV2

3.8.2.16 Option 4/5AV2 would result in significant adverse effects to the SDNP through the introduction of an urbanising new, grade separated, western tie-in junction on the existing A27 to the west of Arundel within LCA 2 (Fontwell Upper Coastal Plain) and the SDNP. As the alignment heads to the south it would result in further significant adverse effects both within the SDNP and to its immediate setting south of the combined area of Paine’s Wood, Binsted Wood and Tortington Common woodlands. The settled rural landscape around Binsted, south of the woods, forms a tranquil character along the southern boundary of the SDNP. The alignment would pass through this landscape alternating between deep cutting and high embankment, introducing a major new and urbanising component within the village setting and through the more intimate landscapes adjoining the woodlands and Binsted Park within the SDNP.

3.8.2.17 The experience of the landscape around Binsted and Binsted Park would be significantly degraded, with the currently tranquil, intimate and secluded landscape being significantly altered by traffic movements, headlights and substantial manmade structures (whether in cutting or on embankment). Option 4/5AV2 would transform this part of the SDNP in terms of both its character and the overall experience of this intimate and inspirational landscape.

3.8.2.18 The likely reduction in traffic along the existing A27 route corridor will slightly enhance the landscape quality and experience of the landscape at this location within the SDNP but this would not offset the change in landscape quality and character in the SDNP to the west at Binsted and Binsted Park.

3.8.2.19 Within the immediate setting of the SDNP, Option 4/5AV2 would have significant adverse effects on the character and experience of the Lower Arun Valley (LCA 4) and Arundel (LCA 5). The alignment would form a prominent and highly visible new and out of character element within the floodplain as it crosses this largely static and exposed landscape. The alignment would have a widespread influence on the perception and experience of the floodplain landscape, as it would deteriorate the continuity of the open landscape that contributes to the setting of the SDNP and Arundel. It would introduce prominent views of traffic movements and manmade structures into the existing static landscape, degrading its relationship with Arundel as well as the continuity of the open landscape that contributes to the setting of the SDNP and Arundel.

Option 5BV1

3.8.2.20 Option 5BV1 would result in significant adverse effects to the setting of the
SDNP through the introduction of an urbanising new corridor from its western tie-in on the existing A27 within LCA 2 (Fontwell Upper Coastal Plain), to the south of Binsted and Binsted Park. Although outside the boundary of SDNP itself, Option 5BV1 would influence the perception and experience of the landscape at the boundary of the SDNP. The settled rural landscape around Binsted forms a tranquil setting along the southern boundary of the SDNP. Option 5BV1 would pass through this landscape alternating between deep cutting, viaduct (behind St Mary’s church in Binsted) and embankment, introducing a major new and urbanising component within the village setting and through the more intimate landscapes adjoining the woodlands on the boundary of the SDNP. Traffic noise, headlights and the presence of substantial manmade structures would adversely impact the experience of the landscape on the boundary of the SDNP, reducing the sense of isolation and landscape quality that the SDNP offers. Conversely, the likely reduction in traffic along the existing A27 route corridor as a result of Option 5BV1 will slightly enhance the landscape quality and experience of the landscape at this location within the SDNP such that overall effects on the inspirational landscape of the SDNP itself are unlikely to be significant.

3.8.2.21 Within the immediate setting of the SDNP, Option 5BV1 would have significant adverse effects on the character and experience of the Lower Arun Valley (LCA 4) and Arundel (LCA 5). The alignment would form a prominent and highly visible new and out of character element within the floodplain as it crosses this largely static and exposed part of the floodplain. The alignment would have a widespread influence on the perception of this floodplain, as it would deteriorate the continuity of the open landscape that contributes to the setting of the SDNP and Arundel. It would introduce prominent views of traffic movements into the existing static landscape, degrading its relationship with both Arundel and the wider SDNP.

3.8.3 Change in views and visual amenity

Option 1V5

3.8.3.1 The viewpoint assessment has found that significant adverse effects would occur to views towards and from the SDNP. Views north from within the floodplain, which feature the prominent skyline associated with Arundel with the SDNP forming the background (such as from the public right of way along the River Arun, depicted in JMW Turner’s painting ‘Arundel Castle on the River Arun, with a Rainbow c.1824-5), would have a prominent new and detracting urbanising component that would adversely affect the views of the SDNP from the south. Important views to the south across the floodplain from Arundel Castle to the coast would also be similarly affected by the visual presence of Option 1V5. Short-distance views would be degraded, principally
within the setting of the SDNP or on its direct boundary (along the existing A27 corridor).

3.8.3.2 While partially visible from the long-range and panoramic views from within the SDNP (such as from the South Downs Way), the assessment has found that Option 1V5 would not form a major new component of the far reaching and contextual views (such as from the South Downs Way) and would not have a significant effect on the visual experience in this area of the SDNP.

Option 1V9

3.8.3.3 The viewpoint assessment has found that significant adverse effects would occur to views towards and from the SDNP. Views north from within the floodplain, which feature the prominent skyline associated with Arundel with the SDNP forming the background, would have a prominent new and detracting urbanising component that would negatively influence the views of the SDNP from the south. Important views to the south across the floodplain, such as from the public right of way along the river Arun and in panoramic views from Arundel Castle, would also be similarly affected by the visual presence of Option 1V9.

3.8.3.4 While partially visible from the long-range and panoramic views from within the SDNP (such as from the South Downs Way), the assessment has found that Option 1V9 would not form a major new component of the far reaching and contextual views and would not have a significant effect on the visual experience in this area of the SDNP.

Option 3V1

3.8.3.5 The viewpoint assessment has found that significant adverse effects would occur to largely short-distance views from the lanes and footpaths within the Binsted Woods Complex LWS, as well as from around Tortington, and in views to the north taking in Arundel with the SDNP forming the background (such as from Ford Road and Tortington Manor). The visual experience of these short distance views would be severely compromised, with earthworks (cutting and embankment), moving traffic, headlights and manmade structures including bridges and underpasses, forging its way through the local landscape and significantly intruding on the intimate, enclosed views within ancient woodland and the settled farmland around Binsted.

3.8.3.6 Views north from within the floodplain, which feature Arundel, with the SDNP forming the background (such as from the public right of way along the River Arun and from Lyminster looking north), would have a prominent new and detracting urbanising component in the view that would adversely affect the views of the SDNP from the south. The position of Option 3V1 further south away from the more developed surroundings near Arundel would create a
highly discordant component within the wider setting of the SDNP and extend its area of influence in surrounding views. The important views to the south across the floodplain from Arundel Castle to the coast would also be significantly affected by the visual presence of Option 3V1. Conversely, the likely reduction in traffic along the existing A27 route corridor will slightly enhance the visual quality, experience and short-range views of the landscape at this location within the SDNP.

3.8.3.7 The visual assessment has concluded that, where Option 3V1 crosses the floodplain, it would form an obvious new component within long-range and panoramic views from within the SDNP (such as from the South Downs Way at Amberley Mount) but it would not result in significant visual effects in the broad context of these views. It would, however, have a significant adverse effect on the visual experience and short-range views in the intimate landscape of the SDNP close to Option 3V1, particularly within the Binsted Woods Complex LWS.

Option 4/5AV1

3.8.3.8 The viewpoint assessment has found that significant adverse effects would occur to views from along Option 4/5AV1 as it passes to the south of the Binsted Woods Complex LWS between Binsted and Tortington. Views from along the local lanes, footpaths and properties in the vicinity (particularly in relation to the elevated section across the currently secluded, tranquil and natural beauty of the landscape around Hedger’s Hill and Binsted), would be significantly influenced by Option 4/5AV1 throughout this area. Option 4/5AV1, particularly where on embankment, would feature prominently in views from these local lanes, footpaths and properties in the vicinity towards the southern boundary of the SDNP and where the SDNP landscape forms the backdrop (such as from St Mary’s Church in Binsted). It would introduce large scale earthworks and traffic movements within the simple but distinctive setting of the SDNP and fundamentally alter the visual amenity and visual perception of the landscape in this part of the SDNP.

3.8.3.9 Views north from within the floodplain, which feature Arundel, with the SDNP forming the background (such as from the public right of way along the River Arun), would have a prominent new and detracting urbanising component that would adversely affect the views of the SDNP from the south. The position of Option 4/5AV1 further south away from the more developed surroundings near Arundel would result in a discordant component within the wider setting of the SDNP and extend its area of influence in surrounding views. The important views to the south across the floodplain from Arundel Castle would also be similarly affected by the visual presence of Option 4/5AV1. Conversely, the likely reduction in traffic along the existing A27 route
corridor will slightly enhance the visual quality, experience and short-range views of the landscape at this location within the SDNP.

3.8.3.10 As Option 4/5AV1 crosses the floodplain it would form an obvious new component within the long-range and panoramic views from within the SDNP (such as from the South Downs Way at Amberley Mount) but it would not result in significant visual effects in the broad context of these views. It would, however, have a significant adverse effect on the visual amenity and experience of the SDNP close to Option 4/5AV1, particularly around Hedger’s Hill and Binsted.

Option 4/5AV2

3.8.3.11 The viewpoint assessment has found that significant adverse effects would occur to views from along the proposed alignment as it passes through Binsted and Tortington. Views from along the local lanes, footpaths and properties in the vicinity (such as within Paine’s Wood, Binsted Wood and Tortington Common woodlands and from within the settled rural landscape around Binsted and Binsted Park) would be significantly influenced by the alignment throughout this area.

3.8.3.12 Views north from within the floodplain, which feature Arundel, with the SDNP forming the background (such as from the public right of way along the River Arun and from Lyminster, as well as from Ford Road), would have a prominent new and detracting urbanising component that would adversely affect the views of the SDNP from the south. The position of Option 4/5AV2 further south away from the more developed surroundings near Arundel would create a discordant component within the open floodplain and wider setting of the SDNP and extend its area of influence in surrounding views. The highly sensitive views to the south across the floodplain from Arundel Castle would also be similarly affected by the visual presence of Option 4/5AV2. Conversely, the likely reduction in traffic along the existing A27 route corridor will slightly enhance the visual quality, experience and short-range views of the landscape at this location within the SDNP.

3.8.3.13 The visual assessment has concluded that, where it crosses the floodplain, Option 4/5AV2 would form an obvious new component within long-range and panoramic views from within the SDNP (such as from the South Downs Way at Springhead Hill) but would not result in significant visual effects in the broad context of these views. It would, however, have a significant adverse effect on the visual experience in the area of the SDNP close to Option 4/5AV2, particularly on short-distance views within the secluded, intimate landscape around Binsted and Binsted Park.
**Option 5BV1**

3.8.3.14 The viewpoint assessment has found that significant adverse effects to views would occur from along Option 5BV1 as it passes to the south of Binsted and Tortington. Views from along the local lanes, footpaths and properties in the vicinity would be influenced by Option 5BV1 throughout this area, particularly where on embankment, as it would feature prominently in views towards the southern boundary of the SDNP. It would introduce large scale earthworks and traffic movements within the simple but distinctive setting of the SDNP and fundamentally alter the perception of the landscape in this part of the SDNP.

3.8.3.15 Views north from within the floodplain which feature Arundel, with the SDNP forming the background (such as from the public right of way along the River Arun and from Ford Road), would have a prominent new and detracting urbanising component that would adversely affect the views of the SDNP from the south. The position of Option 5BV1 further south away from the more developed surroundings near Arundel would also result in a discordant component within the wider setting of the SDNP and extend the area of influence Option 5BV1 would have in surrounding views. The highly sensitive views to the south across the floodplain from Arundel Castle would also be similarly affected by the visual presence of Option 5BV1. Conversely, the likely reduction in traffic along the existing A27 route corridor will slightly enhance the visual quality, experience and short-range views of the landscape at this location within the SDNP.

3.8.3.16 Whilst Option 5BV1, as it crosses the floodplain, would form an obvious new component within long-range and panoramic views from within the SDNP (such as from the South Downs Way at Amberley Mount), it would not result in significant visual effects in the broad context of these views. It would, however, have a negative influence on the visual experience in the area of the SDNP close to Option 5BV1.

**3.9 Summary of landscape character, visual amenity and experience**

3.9.1.1 The following paragraphs give a discursive summary of the potential effects of the various Scheme options on SQ1. This is followed by Table 3-3 which further summarises the potential impacts and effects and draws conclusions about the potential significance of effects as a result of each Scheme option.

3.9.1.2 The potential impacts to the SDNP of the Scheme would be assessed in more detail at PCF Stage 3.

**Option 1V5**

3.9.1.3 The elevation and prominence of the flyover section above Ford Road
roundabout and the off-line section across the open floodplain would result in increased traffic movements, headlights and man-made structures within this largely static landscape within the setting of the SNDP. It would detract from views both towards the SDNP and from within the SDNP. However, Option 1V5 would not form a major new component in far reaching and contextual views from within the SDNP (such as from the South Downs Way) and would not significantly alter the experience of the SDNP landscape. It would, however, intensify the existing awareness of the A27 corridor and result in localised modifications to landform and vegetation loss. The local landscape character and short-distance views would be degraded, principally within the setting of the SDNP.

3.9.1.4 Option 1V5 would have a significant adverse effect on the landscape experience of Arundel, the gateway town for visitors to the SDNP, and a significant adverse effect on the landscape character of its immediate surroundings. However, it would not fundamentally change the existing landscape components and influences within the SDNP itself. Taking into account the existing urbanising elements, Option 1V5 is considered likely to have a minor impact and a slight adverse (not significant) effect overall on SQ1.

Option 1V9

3.9.1.5 Option 1V9 would result in relatively limited and not significant adverse effects on the SDNP to the west of Arundel as it shares the alignment of the existing A27. It would intensify the existing awareness of the A27 corridor and result in localised modifications to landform and vegetation loss. Option 1V9 would not fundamentally change the existing components and influences within the SDNP in this area or the experience of the landscape. However, Option 1V9 would have significant adverse effects on landscape character where the route diverges from the existing A27 across the open floodplain, due to introduced and increased traffic movements, that would detract from views from both within and towards the SDNP.

3.9.1.6 Option 1V9 would have a significant adverse effect on the landscape experience of Arundel, the gateway town for visitors to the SDNP, and a significant adverse effect on the landscape character of its immediate surroundings. However, it would not fundamentally change the existing landscape components and influences within the SDNP itself. Taking into account the existing urbanising elements, Option 1V9 is considered likely to have a minor impact and a slight adverse and not significant effect overall on the inspirational landscape and breath-taking views of the SDNP.
**Option 3V1**

3.9.1.7 Option 3V1 would result in significant adverse effects on the landscape and visual amenity of the SDNP through the introduction of urbanising infrastructure elements, the fragmentation and extensive loss of mostly ancient woodland and the degradation of the experience of the landscape, which is currently one of a secluded, beautiful, tranquil expanse of woodland within the SDNP, and open, largely static floodplain landscape within its setting.

3.9.1.8 Within the SDNP, short distance views from the lanes and footpaths close to the alignment would be significantly altered (such as views within the Binsted Woods Complex LWS). Significant adverse effects would also occur in a range of views to and from the SDNP from within the floodplain, including from Arundel Castle. Option 3V1 would not result in significant visual effects in the broad context of panoramic, long distance views (such as from the South Downs Way), but it would have a significant adverse effect on the visual experience in the area of the SDNP close to Option 3V1 and would fundamentally alter the perception of the landscape in this part of the SDNP.

**Option 4/5AV1**

3.9.1.9 Option 4/5AV1 would result in significant adverse effects to the SDNP through the introduction of urbanising new infrastructure, moving traffic and headlights. This is particularly so in relation to the elevated section across the currently secluded, tranquil and natural beauty of the landscape around Hedger’s Hill and Binsted. The experience of the landscape at this specific location, in terms of landscape character and short distance views, would be so significantly degraded such that the boundary of the SDNP at this section would be significantly blurred.

3.9.1.10 Option 4/5AV1 would also form a prominent and highly visible new and out of character element within the floodplain, adversely influencing the perception and experience of the floodplain and the continuity of the open landscape that is so important to the setting of the SDNP and Arundel. Option 4/5AV1 would introduce large scale earthworks and traffic movements within the simple but distinctive setting of the SDNP, and would be a prominent feature in long distance and panoramic views from within the SDNP (such as from the South Downs Way). It would significantly alter short-distance views and the inspirational quality of the landscape within a small part of the SDNP (around Hedger’s Hill and Binsted), but is unlikely to significantly alter breathtaking views from within the wider SDNP landscape.

**Option 4/5AV2**

3.9.1.11 Option 4/5AV2 would result in significant adverse effects on the landscape
and visual amenity of the SDNP through the introduction of urbanising infrastructure elements, the fragmentation and loss of trees, parkland and ancient woodland and the degradation of the experience of the landscape. The experience of the landscape around Binsted and Binsted Park would be significantly degraded, with the currently tranquil, intimate and secluded landscape being torn apart by traffic movements, headlights and substantial manmade structures (whether in cutting or on embankment). Option 4/5AV2 would transform this part of the SDNP in terms of both its character and the overall experience of the landscape.

### 3.9.1.12

Within the SDNP, short distance views from the lanes and footpaths in close proximity to the alignment would be significantly altered (such as views from within Paine’s Wood, Binsted Wood and Tortington Common woodlands) and from within the settled rural landscape around Binsted and Binsted Park. Significant adverse effects would also occur in a range of views to and from the SDNP from within the floodplain, including from Arundel Castle. Option 4/5AV2 would not result in significant visual effects in the broad context of panoramic, long distance views (such as from the South Downs Way), but it would have a significant adverse effect on the visual experience in the area of the SDNP in close proximity to Option 4/5AV2 (particularly around Binsted) and would fundamentally alter the perception of the landscape in this part of the SDNP.

**Option 5BV1**

### 3.9.1.13

Option 5BV1 would introduce an extensive new element into the setting of the SDNP only, and to that extent would not directly impact on the natural beauty and experiential quality of the SDNP itself. It would, however, introduce a highly incongruent new feature into the immediate setting of the SDNP, and exert an influence on its boundary due to proximity. This would be particularly true around Binsted. The presence of moving traffic, headlights, and hard engineering components would be at variance with the natural beauty of the park, impacting on short-distance views and the local character and quality of the landscape. However, the relocation of traffic away from the existing A27 would be beneficial to the inspirational landscape within the SDNP, both in terms of landscape character (particularly of the Fontwell Upper Coastal Plain and Arundel) and visual amenity of short distance views along the existing A27 corridor.

### 3.9.1.14

Given that Option 5BV1 lies outside the SDNP boundary, its effects would be most noticeable in terms of visual detractions to the experiential quality of the SDNP in areas close to its boundary around Binsted. Whilst this would not affect the intrinsic inspirational landscape of the SDNP itself, it would influence the visual experience of the SDNP where in close proximity to
Option 5BV1. It would form an obvious component in long distance and panoramic views from within the SDNP but would not result in significant visual effects in the broad context of these views. It is therefore unlikely to have a significant effect on the existing breathtaking views from within the SDNP.
<table>
<thead>
<tr>
<th>Option</th>
<th>Summary of impacts and effects relating to overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views)</th>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1V5</td>
<td>Overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views):   ▪ Increased traffic, highway infrastructure and car headlights will detract from the setting of the SDNP and panoramic views towards the SDNP. Panoramic and long-distance views from within the SDNP would be partially degraded   ▪ Existing A27 and built form of Arundel already a detractor to local landscape character, visual amenity and experience of the landscape   ▪ Increased influence of the A27   ▪ Significant adverse effects on landscape character of Arundel and Lower Arun Valley (within the setting of the SDNP)   ▪ Non-significant adverse effects on local landscape character within the SDNP itself   ▪ Non-significant effect on long-distance and panoramic views from within the SDNP   ▪ Significant adverse effects on short-distance views along the route corridor, including within the SDNP.</td>
<td>Inspirational landscapes: Slight – Moderate Adverse (Not Significant) Breathtaking views (long distance and panoramic views within the SDNP): Slight Adverse (Not Significant)</td>
</tr>
<tr>
<td>1V9</td>
<td>Overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views):   ▪ Increased traffic, highway infrastructure and car headlights will detract from the setting of the SDNP and panoramic views towards the SDNP. Panoramic and long-distance views from within the SDNP would be partially degraded   ▪ Existing A27 and built form of Arundel already a detractor to local landscape character, visual amenity and experience of the landscape</td>
<td>Inspirational landscapes: Slight – Moderate Adverse (Not Significant) Breathtaking views (long distance and panoramic views within the SDNP): Slight Adverse (Not Significant)</td>
</tr>
</tbody>
</table>
### Option Summary of impacts and effects relating to overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views)

<table>
<thead>
<tr>
<th>Option</th>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>3V1</td>
<td>Inspirational landscapes: Very Large Adverse (Significant) Breathtaking views (long distance and panoramic views within the SDNP): Slight Adverse (Not Significant)</td>
</tr>
</tbody>
</table>

#### Potential effect
- Increased influence of the A27
- Significant adverse effects on landscape character of Arundel and Lower Arun Valley (within the setting of the SDNP)
- Non-significant adverse effects on local landscape character within the SDNP itself
- Non-significant effect on long-distance and panoramic views from within the SDNP
- Significant adverse effects on short-distance views along the route corridor, including within the SDNP.
### Option 4/5AV1
**Summary of impacts and effects relating to overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views):**

- New and detracting element within the SDNP and its setting
- Exerts greatest adverse influence on user experience of the landscape (including local character, quality and short distance views) where it intrudes into the SDNP boundary at Hedger’s Hill and Binsted Park
- Likely reduction in traffic along the existing A27 route corridor will slightly enhance the quality, experience and visual amenity of the landscape at this location
- Presence of moving traffic, headlights, and hard engineering components would significantly degrade local landscape character, quality and visual amenity around Hedger’s Hill and Binsted
- Non-significant effect on long-distance and panoramic views from within the SDNP
- Significant adverse effects on short-distance views along the route corridor, including within the SDNP at Hedger’s Hill and Binsted Park.

**Potential effect**

- Inspirational landscapes: Moderate - Large Adverse (Significant)
- Breathtaking views (long distance and panoramic views within the SDNP): Slight Adverse (Not Significant)

### Option 4/5AV2
**Summary of impacts and effects relating to overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views):**

- New and extensive detracting elements in the SDNP and its setting
- Increased traffic, highway infrastructure and car headlights on new alignment will significantly reduce quality of the local landscape, short distance views and experience of the inspirational landscape in proximity to the alignment. The fragmentation of woodland tracts and Binsted Park will further degrade the landscape character and its appreciation at this location

**Potential effect**

- Inspirational landscapes: Large Adverse (Significant)
- Breathtaking views (long distance and panoramic views within the SDNP):
### Option 5BV1

<table>
<thead>
<tr>
<th>Summary of impacts and effects relating to overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views)</th>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Likely reduction in traffic along the existing A27 route corridor will slightly enhance the quality, experience and visual amenity of the landscape at this location&lt;br&gt;- Screening by existing woodland may limit visual and experiential intrusion into the wider landscape&lt;br&gt;- Non-significant effect on long-distance and panoramic views from within the SDNP&lt;br&gt;- Significant adverse effects on short-distance views along the route corridor, including within the SDNP at Binsted and Binsted Park.</td>
<td>Slight Adverse (Not Significant)</td>
</tr>
<tr>
<td>Overall experience of the landscape, including landscape character and visual amenity (both short distance views and long distance, panoramic views):&lt;br&gt;- Slight changes to experience of the landscape at Binsted due to traffic noise, movement, headlights and visual intrusion of hard engineering components within the setting of the SDNP&lt;br&gt;- Extensive new element into the setting of the SDNP exerting an influence on its boundary&lt;br&gt;- Increased traffic, highway infrastructure and car headlights on new alignment will reduce quality of the local landscape, short distance views and experience of the inspirational landscape in proximity to the alignment&lt;br&gt;- Likely reduction in traffic along the existing A27 route corridor will slightly enhance the quality, experience and visual amenity of the landscape at this location&lt;br&gt;- Non-significant effect on long-distance and panoramic views from within the SDNP&lt;br&gt;- Significant adverse effects on short-distance views along the route corridor, but largely within the setting of the SDNP.</td>
<td>Inspirational landscapes: Slight - Moderate Adverse (Not Significant)</td>
</tr>
</tbody>
</table>
4 Special Quality 2: A rich variety of wildlife and habitats including rare and internationally important species

4.1 Introduction

4.1.1.1 The special quality assessed in this chapter is: ‘A rich variety of wildlife and habitats including rare and internationally important species’. Hereafter referred to as Special Quality 2 (SQ2). SQ2 has been described as:

‘The unique combination of geology and microclimates of the South Downs has created a rich mosaic of habitats that supports many rare and internationally important wildlife species.’

The SDNP Special Qualities report identifies the following features within SQ2 (it is assumed that this is not an exhaustive list):

- ‘Sheep-grazed downland is the iconic habitat of the chalk landscape. Here you can find rare plants such as the round-headed rampion, orchids ranging from the burnt orchid and early spider orchid to autumn lady’s tresses, and butterflies including the Adonis blue and chalkhill blue.
- The greensand of the Western Weald contains important lowland heathland habitats including the internationally designated Woolmer Forest, the only site in the British Isles where all our native reptile and amphibian species
- There are large areas of ancient woodland, for example the yew woodlands of Kingley Vale and the magnificent ‘hanging’ woodlands of the Hampshire Hangers
- The extensive farmland habitats of the South Downs are important for many species of wildlife, including rare arable wildflowers and nationally

---

declining farmland birds. Corn bunting, skylark, lapwing, yellowhammer and grey partridge are notable examples.

- The river valleys intersecting the South Downs support wetland habitats and a wealth of birdlife, notably at Pulborough Brooks. Many fish, amphibians and invertebrates thrive in the clear chalk streams of the Meon and Itchen in Hampshire where elusive wild mammals such as otter and water vole may also be spotted.

- The extensive chalk sea cliffs and shoreline in the East host a wide range of coastal wildlife including breeding colonies of seabirds such as kittiwakes and fulmars.

4.1.1.2 A review of the occurrence of these features (or otherwise) in land affected by the Scheme is provided in Table 4-3.

4.1.1.3 The State of the South Downs National Park Report \(^3\) presents available trend information for a range of biodiversity indicators present in the SDNP (indicators were selected by SDNPA). Largely these mirror national trends and/or they relate to specific SSSIs and/or European sites that are unlikely to be affected by the Scheme. The following indicators were selected by the SDNPA to reflect the success of landscape scale conservation efforts (those coordinated across the landscape) (quotes from pages 52 and 53). Those feature types indicated by an asterisk (*) occur in land in or adjacent to the Scheme, the other features occur in the SDNP but not in land in or adjacent to the Scheme, other than incidentally/as vagrants. EAR Chapter 8: Biodiversity and Technical Appendix 8-22: Terrestrial Invertebrates provide a review of desk study and field survey information relating to butterflies:

- Bat populations* – “The Defra bat index measures national population changes in six widespread bat species. Bat populations experienced major declines both nationally and in the National Park during the latter half of the 20th century. However, since 2000, bat populations in England have increased by 21 per cent”

- Duke of Burgundy – “The Duke of Burgundy is one of Britain’s fastest declining butterflies, having declined nationally by nearly 50 per cent over the past 10 years. However the National Park is one of our national

---

strongholds for this rare butterfly, and has some of the largest remaining colonies in the country (e.g. at Butser Hill).”

- **Farmland birds** – “Breeding farmland bird populations in the UK are at their lowest levels ever recorded, at half of what they were in 1970. Most of the declines occurred between the late seventies and the early nineties, but there has also been a national decline of 9.4 per cent overall in the last five years. There is currently insufficient data to estimate breeding farmland bird populations and trends for the National Park accurately”

- **Local Wildlife Sites** – “47 per cent (408) are assessed as being in positive conservation management, 9 per cent (77) are not in positive management, and the management is unknown for 44 per cent (381)”

- **Habitat quality** – for ancient woodland* the report states – “17,351ha within the National Park. The condition is not well known, apart from where it forms part of an SSSI, which is only 8 per cent of ancient woodland within the National Park. 70 per cent of the ancient woodland within SSISIs in the National Park is assessed as being in favourable condition.”

- **Ecological status of rivers and lakes** – “15 per cent of rivers are classified as good or high ecological status’ – 9.7 per cent of lakes are classified as’ good or high ecological status’.”

- **Habitat specialist butterflies** – “The national population declined by 60 per cent between 1970 and 1998, and declined by a further third by 2004. Although the National Park retains some colonies (most notably Rewell Wood in West Sussex), the national trend has been mirrored here with reduced numbers of sites and generally dwindling colony sizes.”

- **Adonis blue** – “While subject to a long-term decline in numbers in Britain, the Adonis blue has shown some signs of recovery since the early 1980s. The past decade has seen the small and fragmented populations of the National Park gradually increase in size, particularly in the east”

- **Silver-studded blue** – “Silver-studded blue populations have declined both nationally and in the National Park over the last century with accelerated rates of decline over the past few decades (breeding records have declined by nearly half over the past 30 years). Populations in the National Park are mostly small and isolated.”
Populations on Iping and Stedham commons have recovered and stabilised after near extinction on these sites.”

- Water vole* – “The water vole is Britain’s fastest declining mammal with the national population declining by 90–95 per cent over the past few decades. This decline has been mirrored in the National Park. However, the last few years there have been signs of a promising population recovery in some parts of the National Park.”

4.1.1.4 In this assessment use of the term ‘Scheme’ is to refer to all Scheme options. Reference to individual options is preceded by stating the Scheme option under consideration (for example Option 3V1).

4.2 Assessment methodology

4.2.1 Potential impacts

4.2.1.1 The potential impacts associated with SQ2, as set out in the A27 position statement (Appendix A) are:

- effects on internationally, nationally and locally designated protected habitats and species
- habitat fragmentation leading to connectivity issues.

4.2.1.2 The potential impacts defined above are encompassed by the impacts assessed in EAR Chapter 8: Biodiversity. These include (but are not limited to) the following construction and operational phase potential impacts:

- Construction Phase
  - Habitat loss, habitat severance and loss of supporting habitat
  - Disturbance from construction related noise, vibration, lighting and human presence
  - Indirect impacts caused by changes to hydrological and air quality conditions
  - Indirect ‘edge’ effects leading to exposure to altered humidity, wind and additional sunlight
  - Mortality and injury of notable and protected animals.

- Operational Phase
  - Disturbance from operational noise, vibration, lighting and human presence
  - Indirect impacts caused by changes to hydrological, air quality and exposure to altered humidity, wind and sunlight
- Mortality and injury of notable and protected animals.

4.2.2 Assessment process

4.2.2.1 **EAR Chapter 8: Biodiversity** assesses ecological impacts associated with the Scheme and outlines the requirements of the National Networks National Policy Statement, other planning policy and legislation protecting species and habitats (Section 8.2 of **EAR Chapter 8: Biodiversity** provides a list of relevant policy and legislation).

4.2.2.2 The assessment of SQ2 is based on relevant sections of the PCF Stage 2 **EAR Chapter 8: Biodiversity**. This is a robust approach because the scope of **EAR Chapter 8: Biodiversity** encompasses all attributes of SQ2 (that is internationally, nationally and locally designated protected habitats and species, and ecological connectivity) which were identified by the SDNPA (see **paragraph 4.2.1.1**).

4.2.2.3 The assessment process followed in this chapter follows a three-step process:

1. Identification of ecological features subject to residual significant adverse ecological effects in **EAR Chapter 8: Biodiversity** or features where only a provisional conclusion of ‘no significant effect’ could be reached at PCF Stage 2 pending detailed design information in PCF Stage 3

2. Consideration of whether features which are subject to residual significant adverse ecological effects are inside the SDNP, or are ecological (functionally) linked to habitats and species populations inside the SDNP

3. Ecological features meeting the criteria set-out in Step 1 and Step 2 were ‘scoped in’ to the assessment of SQ2. Features not meeting these criteria were ‘scoped out’ of this assessment.

4.2.2.4 **EAR Chapter 8: Biodiversity** provides a comprehensive biodiversity assessment and it is fully aligned with the requirements for assessing SQ2 (as set by SDNPA in **paragraph 4.2.1.1** in this chapter). It is therefore valid to equate residual adverse biodiversity impacts identified in the EAR with those that are relevant to SQ2.

4.2.2.5 **Section 4.2.4** of this chapter provides guidance underpinning the assessment work undertaken in **EAR Chapter 8: Biodiversity**.
4.2.3 Baseline data sources

4.2.3.1 The following sources of information have been used to provide baseline information for this assessment:

- EAR Chapter 8: Biodiversity Desk Study Sources:
  - Ordnance Survey mapping available on the Government's Multi Agency Geographic Information for the Countryside website (checked July 2019)
  - A data search provided by Sussex Biodiversity Records Centre in 2018
  - The Government’s Multi Agency Geographic Information for the Countryside website
  - Natural England’s Ancient Woodland Inventory and Priority Habitat maps (note that Natural England's Ancient Woodland Inventory includes woodland classified as ancient semi-natural woodland (ASNW) and plantation on an ancient woodland site (PAWS)); note that Priority Habitats are called HPIs in this report as the UK Biodiversity Action Plan has been discontinued and following the Natural Environment and Rural Communities Act, 2006 terminology)
  - SDNP Habitat Connectivity / Ecological Networks Mapping Report
  - SDNP State of the National Park Report
  - SDNP Biodiversity Background Paper
  - The Woodland Trust’s Ancient Tree Inventory map for the UK
  - Aerial photography

---

- Ecological survey work undertaken by Mid-Arun Valley Environmental Survey and published in 2017\(^9\) and further information provided from their survey activities in 2018\(^{11}\)
- An Ecological Impact Assessment undertaken by the Department of Transport in 1992\(^{12}\)
- Ecological data provided by consultees including Natural England.

**Field Survey Sources:**
- A Phase 1 Habitat Survey following the Joint Nature Conservation Committee method\(^{13}\) was undertaken between 2016 and 2018
- Botanical surveys including National Vegetation Classification surveys were undertaken between May 2017 and August 2018
- Protected and notable species surveys were undertaken between May 2017 and February 2019.

**4.2.4 Guidance**

**4.2.4.1** The assessment of biodiversity impacts presented in EAR Chapter 8: **Biodiversity** and used to inform an assessment of SQ2 used the following guidance:

- The Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 4 (Nature Conservation)\(^{14}\)
- Highways England Interim Advice Note 130/10, Volume 11, Section 2, Part 5 (HA 205/08)\(^{15}\)

---


\(^{10}\) Thompson, J. (October, 2017). The Mid-Arun Valley 2015 – 2017; A27 Arundel Bypass Road Options 1, 3 and 5A; Ecological Impact Report. Wildlife Splash on behalf of the Mid-Arun Environmental Survey.

\(^{11}\) Further ecological information was provided to Highways England in MS Excel spreadsheet format and not part of a published report.


\(^{15}\) Design Manual for Bridges and Roads (2010) Interim Advice Note 130/10 Ecology & Nature Conservation
4.2.4.2 The characterisation of potential impacts and the assessment of likely significant effects in this report is based on the impact assessment method and rationale outlined in EAR Chapter 8: Biodiversity.

4.2.4.3 Following the guidance set out in Interim Advice Note 130/10, all residual adverse ecological effects are considered significant. The magnitude of significance is expressed on a scale of Slight to Very Large depending on the geographical importance of the affected feature. This approach is set out in Section 8-3 of EAR Chapter 8: Biodiversity.

4.2.4.4 The assessment of effects will be made assuming that design, embedded mitigation and standard construction practice measures are implemented. Significant effects reported here are likely residual effects, post-mitigation as reported in the EAR.

4.3 Assessment assumptions and limitations

4.3.1.1 Assumptions and limitations applicable to the assessment of SQ2 are detailed in EAR Chapter 8: Biodiversity. Two additional limitations apply, when extrapolating the assessment to consider significant effects on the SQ2 assessment (see Table 4-1). The consequences of these limitations are explained, as are corrective actions that have been taken to adjust for any limitations in this assessment.

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No detailed population status studies occur for faunal species in the SDNP</td>
<td>It is not possible to determine the population trend or status of many species in the SDNP – as separate from trends applicable to the wider countryside.</td>
<td>Qualitative assessment has been used in lieu of quantitative assessment based on professional judgement. Instances of uncertainty are fully acknowledged. Where species data is lacking species are assumed to be present or of conservation importance.</td>
</tr>
</tbody>
</table>

4.4 Study Area

4.4.1.1 The Study Area within which ecological resources have been investigated has been determined in accordance with guidance provided in Section 4.2.2 and various other sources of best practice survey guidance as described in the habitat and species survey baseline reports (see EAR Appendices 8-2 to 8-22).

4.4.1.2 Various Study Areas have been determined for the desk study and the field surveys in accordance with differences in the sensitivity of ecological features and relevant DMRB guidance\(^\text{17}\) and published literature. The desk study and field survey areas used are defined in EAR Chapter 8: Biodiversity and vary for the different habitat and species groups being considered (as detailed in Section 4.4.2 and 4.4.3).

4.4.2 Desk Study Areas

4.4.2.1 The Desk Study Areas comprise the following measured from the Scheme boundary:

- International statutory designated sites – 2 kilometres, extended to 30 kilometres for Special Areas of Conservation (SACs) designated specifically for the protection of bats
- National statutory and non-statutory designated sites – 2 kilometres
- Protected and notable species and habitats – 2 kilometres.

4.4.2.2 Potential impacts on international designated sites or SSSIs within 200 metres of the Affected Road Network (ARN)\(^\text{18}\) were also assessed. This distance is recommended in the air quality assessment specification of the DMRB Advice Note HA 207/07\(^\text{19}\).

4.4.3 Field Survey Areas

4.4.3.1 The following Field Survey Areas were used. Distances have been measured from the Scheme boundary (the outer edge of all option footprints combined):

- Habitats (terrestrial and aquatic) – 250 metres

---

\(^\text{17}\) Highways England, Design Manual for Roads and Bridges (DMRB) Volume 10, Section 4: Nature Conservation Advice Notes HA 84/01, HA 80/99, HA 81/99, HA 97/01, HA 98/01 and HA 116/05.

\(^\text{18}\) The affected road network is the part of the road network linking to the A27 that meets the criteria of an affected road as outlined in DMRB Air Quality Advice Note HA 207/07.

\(^\text{19}\) Highways England, Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment: Air Quality. Advice Note HA 207/07
- Aquatic ecology (fish and aquatic invertebrates) – 250 metres
- Badger – 250 metres
- Barn owl – 1,500 metres
- Bats (roost identification and emergence surveys) – 100 metres
- Bats (Bat Conservation Trust bat activity transects and static surveys) – 250 metres
- Bats (DEFRA local scale and crossing point surveys) – within option footprint
- Bats (radiotracking) – distance determined by radio-tagged bat movements during trapping and radio-tracking surveys
- Breeding birds and wintering birds – 250 metres
- Great crested newt – 250 metres
- Hazel dormouse – 100 metres
- Otter and water vole – 250 metres
- Reptiles – 100 metres
- Terrestrial invertebrates – 100 metres.

4.4.3.2 Use of the term ‘Desk Study Area’ or ‘Field Survey Area’ follows the areas specified for different habitat and species groups in the EAR Appendices 8-2 to 8-22 and summarised in this document (directly above). Note that the Field Survey Area for different species is a different size thus the term ‘Field Survey Area’ is relative to the species group under discussion.

4.4.3.3 The Study Area has been discussed and agreed with Natural England.

4.5 Baseline conditions

4.5.1.1 Baseline ecological conditions are fully detailed in EAR Chapter 8: Biodiversity and accompanying EAR Appendices 8-2 to 8-22. A summary of key information is provided in Table 4-2.

4.6 Scoping

4.6.1.1 Use of the term ‘scoping’ in this assessment relates to identification of those impacts assessed in the EAR relevant to the assessment of SQ2.

---

4.6.1.2 The potential impacts on the SQ2 are outlined in Section 4.2.1. Impacts are 'scoped in' for further consideration (in Table 4-2) in this assessment if they meet the criteria outlined in paragraph 4.2.2.3.
### Table 4-2 - Scoping

<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singleton and Cocking Tunnels SAC</td>
<td>Baseline provided in <strong>EAR Chapter 8: Biodiversity</strong> (Table 8-5 and Section 8.6.3)</td>
<td>Impacts are provisionally considered unlikely as these SAC are too distant from the Scheme.</td>
<td>These SACs are key sites for maintaining bat conservation status in the SDNP. Scoped in on the basis that the EAR assessment is provisional until PCF Stage 3 information is available.</td>
<td>Not significant – neutral (all Scheme options)&lt;sup&gt;21&lt;/sup&gt;</td>
<td>Scoped in</td>
</tr>
<tr>
<td>The Mens SAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ebernoe Common SAC</td>
<td>Habitat Regulations Screening Assessment (<strong>EAR Appendix 8-1</strong>).</td>
<td></td>
<td></td>
<td>Not significant – neutral (all Scheme options)&lt;sup&gt;21&lt;/sup&gt;</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Arun Valley SAC, SPA and Ramsar site&lt;sup&gt;22&lt;/sup&gt;</td>
<td></td>
<td>The Habitat Regulations Screening Assessment contains a provisional assessment that impacts are considered unlikely</td>
<td>These European sites are key for maintaining the conservation</td>
<td>Not significant – neutral (all Scheme options)&lt;sup&gt;21&lt;/sup&gt;</td>
<td>Scoped in</td>
</tr>
</tbody>
</table>

<sup>21</sup> Note that the conclusion of ‘Not significant – neutral’ is a provisional one; further investigation is required at PCF Stage 3. See EAR Chapter 8: Biodiversity and Technical Appendix 8-1 for additional detail on this conclusion.<br><sup>22</sup> Note that these three sites have overlapping but slightly different boundaries.
<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solent and Dorset Coast pSPA&lt;sup&gt;23&lt;/sup&gt;</td>
<td></td>
<td>as these sites are distant and are upstream of the Scheme. Further assessment is required at PCF Stage 3 when detailed design information is available.</td>
<td>status of birds and wetland wildlife in the SDNP. Scoped in on the basis that the EAR assessment is provisional until PCF Stage 3 information is available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impacts are unlikely as this pSPA is distant and downstream of the Scheme and best practice mitigation measures are likely to address the risk of pollution. Further assessment is required at PCF Stage 3 when detailed design information is available.</td>
<td>This pSPA outside of the SDNP and is not likely to form part of SQ2.</td>
<td>Not significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
</tbody>
</table>

<sup>23</sup> Potential Special Protection Area
<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arundel Park SSSI</td>
<td>Baseline provided in <strong>EAR Chapter 8: Biodiversity</strong> (Table 8-5 and Section 8.6.3)</td>
<td>There will be no direct impacts on either SSSI. No significant changes in air quality arising from construction and operational activities are likely (see <strong>EAR Chapter 5: Air Quality</strong>).</td>
<td>Arundel Park SSSI is inside the SDNP and is key to maintaining the conservation status of chalk grassland and parkland habitats and their associated fauna in the SDNP. Air quality modelling demonstrates that beneficial effects are likely.</td>
<td>Significant – Slight Beneficial (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Fairmile Bottom SSSI</td>
<td></td>
<td></td>
<td>Fairmile Bottom SSSI is inside the SDNP and is key to maintaining the conservation status of chalk grassland, ancient woodland and their</td>
<td>Significant – Slight Beneficial (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Binsted Wood Complex LWS</td>
<td>Baseline provided in EAR Chapter 8: Biodiversity (Table 8-5 and Section 8.6.4)</td>
<td>The construction of Options 1V5, 1V9, 3V1.4/5AV1 and 4/5AV2 would all result in the loss of ancient woodland and non-ancient lowland mixed deciduous woodland HPI from this LWS. Construction of Option 5BV1 would not directly affect the LWS. Construction of Option 3V1 would result in the largest area of woodland loss.</td>
<td>This LWS is inside the SDNP and forms a large area of ancient and non-ancient woodland habitat (among other small habitat types) in the south of the SDNP and is important for maintaining the conservation status of woodland in the SDNP.</td>
<td>Significant – Very Large Adverse (Option 3V1 and 4/5AV2)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Poling Copse LWS</td>
<td></td>
<td>Option 1V5 and Option 1V9 would mainly affect woodland adjacent to the existing A27.</td>
<td>This LWS is inside the SDNP and is important for maintaining the conservation status of woodland in the SDNP. No residual effects are anticipated.</td>
<td>Not significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Warningcamp Hill and New Down LWS</td>
<td></td>
<td>No direct or indirect impacts on this LWS are anticipated.</td>
<td>This LWS is inside the SDNP and is important for maintaining the conservation status of chalk grassland and ancient woodland habitats and the fauna they</td>
<td>Not significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Rewell Wood Complex LWS</td>
<td></td>
<td>The construction of Options 1V5, 1V9 and 3V1 would all result in the loss of ancient woodland comprising ASNW, PAWS or deciduous woodland HPI from the Rewell Wood Complex LWS. Options 4/5AV1, 4/5AV2 and 5BV1 would not directly affect the LWS.</td>
<td>This LWS is inside the SDNP and is part of the woodland habitat present in the south of the SDNP.</td>
<td>Significant – Large Averse</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Arun Valley, Watersfield to Arundel (includes Arundel Wetland Centre) LWS</td>
<td></td>
<td>Ditches in the LWS may be connected to the ditch network, south of the existing A27 where the Scheme will be constructed. There is a potential pathway for water affected by construction activities to enter the LWS, which could lead to changes in water quality in the LWS.</td>
<td>This LWS is in the SDNP and is important for maintaining the conservation status of breeding and wintering wetland birds, plants and other wetland</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Slindon Bottom LWS</td>
<td></td>
<td>No direct or indirect impacts on this LWS are anticipated.</td>
<td>This LWS is in the SDNP and is important for maintaining the conservation status of ancient woodland habitat and the fauna it supports in the SDNP. No residual effects are anticipated.</td>
<td>Not Significant – Neutral (all Scheme options).</td>
<td>Scoped out</td>
</tr>
<tr>
<td>A27 Avisford 'site A'</td>
<td></td>
<td>The construction of Options 3V1, 4/5AV1 and 4/5AV2 would result in the loss of unimproved grassland and/or invertebrate habitat from the Notable Road Verge. Options 1V5, 1V9 and</td>
<td>This Notable Road Verge is in the SDNP and is important for maintaining the conservation</td>
<td>Significant -Slight Adverse (Options 3V1, 4/5AV1 and 4/5AV2)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Notable Road Verges</td>
<td></td>
<td>5BV1 would not result in any loss of Notable Road Verge.</td>
<td>status of unimproved grassland habitat and populations of grassland plant species.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ancient woodland</td>
<td>Technical Appendix 8-17: Habitats – woodland Technical Appendix 8-20: Phase 1 Habitat Survey.</td>
<td>The construction of Options 1V5, 1V9, 3V1, 4/5AV1 and 4/5AV2 will lead to the loss of ancient woodland habitat comprising both ASNW and PAWS. The approximate areas of loss are stated in the EAR but in order of lost – highest to lowers – the Options may be ranked: Option 3V1, Option 1V5, Option 4/5AV2, Option 1V9 and Option 4/5AV1. In terms of severance Option 3V1 and Option 4/5AV2 would result in marked severance whereas the other options result in the loss of ancient woodland</td>
<td>Ancient woodland in the Field Survey Area is mainly in the SDNP and is key to maintaining the conservation status of this habitat in the south of the SDNP.</td>
<td>Significant – Very Large Adverse (Option 3V1 and 4/5AV2)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>-------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Wood Pasture and Parkland HPI and Ancient Veteran Trees</td>
<td>Technical Appendix 8-17: Habitats – woodland Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>from the edges of woodlands or either side of an existing road (the A27) in the case of Option 1V5 and Option 1V9. Option 5BV1 will not remove or sever ancient woodland.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The construction of Option 1V5, 1V9 (both Options would remove &lt;0.01 ha of this habitat) and 4/5AV2 (approximately 0.7 ha of this habitat) will lead to the approximate loss of Wood Pasture and Parkland. Option 3V1, 4/5AV1 and 5BV1 would not result in the loss of Wood Pasture and Parkland HPI.</td>
<td>Significant – Very Large Adverse (Option 4/5AV2)</td>
<td></td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ancient or Veteran Trees</td>
<td>Technical Appendix 7-</td>
<td>A small number of ancient/veteran trees occurring</td>
<td>Ancient/veteran trees affected by Significant – Very Large Adverse</td>
<td></td>
<td>Scoped in</td>
</tr>
</tbody>
</table>
### Deciduous Woodland HPI

<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>3: Arboriculture</td>
<td>3: Arboriculture</td>
<td>outside of Ancient Woodland will be lost due to the construction of Scheme for all Options save for Option 3V1 which is likely to remove numerous ancient/veteran trees.</td>
<td>the Scheme are both in and outside the SDNP.</td>
<td>(Options 1V5, 1V9, 4/5AV1, 4/5AV2 and 5BV1)</td>
<td></td>
</tr>
<tr>
<td>Technical Appendix 8-17: Habitats – woodland</td>
<td>Technical Appendix 8-17: Habitats – woodland</td>
<td>All Scheme Options will result in the loss of deciduous woodland HPI. The majority of deciduous woodland HPI in the Field Survey Area is also ancient woodland and some is not ancient woodland but is of comparable diversity and nature conservation importance.</td>
<td>The same comments apply as stated under ancient woodland, on the basis that much of the deciduous woodland HPI in the Field Survey Area is also ancient woodland or similar to ancient woodland.</td>
<td>Significant – Very Large Adverse (Option 3V1 and 4/5AV2)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Options 1V5 and 1V9 are unlikely to result in direct loss or hydrological impacts on wet woodland HPI.</td>
<td>Wet woodland HPI in the Field Survey Area is inside the SDNP</td>
<td>Wet Woodland HPI is a component part of Binsted Wood Complex LWS –</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>---------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Traditional Orchard HPI</td>
<td>Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Option 3V1 Option 4/5AV1 and Option 5BV1 will be constructed close to wet woodland HPI and may result in hydrological change. Option 4/5AV2 will remove wet woodland HPI in two places – Hundredhouse Copse/Little Danes Wood and Paine’s Wood both of which are inside Binsted Wood Complex LWS and are also ancient woodland.</td>
<td>and is important to maintaining the conservation status of this habitat in the SDNP.</td>
<td>effect significance as per Binsted Wood Complex LWS</td>
<td>Significant – Moderate Adverse (Option 4/5AV1)</td>
</tr>
<tr>
<td></td>
<td>Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>The construction of Scheme Option 4/5AV1 will result in the loss of traditional orchard HPI. Options 1V5, 1V9, 3V1, 4/5AV2 and 5BV1 will not result in the loss of traditional orchard HPI.</td>
<td>Although Option 4/5V1 is likely to result in a significant residual adverse effect this feature type, the Traditional Orchard HPI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Coastal and floodplain grazing marsh HPI, Reedbed HPI and Lowland Fen HPI</td>
<td>Technical Appendix 8-2: Aquatic ecology Technical Appendix 8-16: Habitats – watercourse Technical Appendix 8-</td>
<td>Construction of all Scheme options will result in the loss of coastal and floodplain grazing marsh HPI. These habitat losses mainly occur on the River Arun’s east floodplain where the Scheme crosses the floodplain. The loss of this habitat is greatest for Option 3V1, Option 4/5AV1, Option 4/5AV2 and Option 5BV1 (which all cross the River Arun floodplain and Binsted Rife and/or Tortington</td>
<td>The wetland habitats may be functionally linked to those in the SDNP.</td>
<td>Significant – Large Adverse + (Option 3V1, 4/5AV1, 4/5AV2 and 5BV1)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>18: Habitats - grassland Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Rife) and are lower for Option 1V5 and Option 1V9 which only cross the River Arun floodplain. All Options will remove standing water habitat, marshy grassland and swamp habitat which may qualify as reedbed HPI in the same proportions as outlined or coastal and floodplain grazing marsh HPI (the two habitats overlap each other). Options 4/5AV1, 4/5AV2 and 5BV1 would directly impact the valley of Tortington Rife where sedge-rich marshy grassland and notable plant populations occurs. Option 5BV1 would cross Binsted Rife where Lowland Fen HPI is present removing small areas of this and shading others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>River HPI</td>
<td>Technical Appendix 8-2: Aquatic ecology</td>
<td>Options 1V5 and 1V9 would cross the River Arun on a newly constructed bridge. The bridge is likely to result in the shading of HPI in this vicinity. Construction of the bridge across the River Arun for Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 will result in the loss of riparian vegetation associated with the River Arun riverbank. New and expanded crossings of the River Arun will not require construction in the river but will shade small sections of river. Options 4/5AV1, 4/5AV2 and 5BV1 would cross the valley of Tortington Rife. Option 5BV1 would cross the valley of Binsted Rife. Losses of riparian habitat and shading will also apply to these locations.</td>
<td>It is assumed that localised loss of riparian vegetation and shading may be compensated. No residual significant effect predicted.</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>---------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Coastal saltmarsh HPI</td>
<td>Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Construction of Scheme Options 3V1, 4/5AV1 and 4/5AV2 will result in the loss of very small areas of coastal saltmarsh HPI. Options 1V5 and 1V9 will not result in the loss of coastal saltmarsh HPI.</td>
<td>The loss of fragments of saltmarsh HPI inside the embanked channel of the River Arun is not a significant effect.</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Lowland meadow HPI and other grassland</td>
<td>Technical Appendix 8-18: Habitats – grassland Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>None of the Scheme option will result in the loss of lowland meadow HPI. Options 3V1, Option 4/5AV1, Option 4/5AV2 and Option 5BV1 may result in the loss of a small area of tall fescue marshy grassland (TQ0182105927) on the east floodplain of the River Arun. All Scheme options are likely to result in the loss of semi-improved neutral grassland on</td>
<td>It is assumed that localised loss of semi-improved grassland may be compensated. No residual significant effect predicted.</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Hedgerow habitat</td>
<td>Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Construction of all of the Scheme options will result in the loss of hedgerow habitat. These habitat losses mainly occur adjacent to the existing A27 carriageway, and where field boundaries are crossed by the Scheme options. Those Scheme options that cross a greater area of farmland (Options 4/5AV1, 4/5AV2 and 5BV1) will result in a larger hedgerow loss. Option 4/5AV1, Option 4/5AV2 and Option 5BV1 are likely to result in greater hedgerow loss. Option 3V1, Option 1V5 and Option 1V9 are likely to have a lesser risk of impact on hedgerow habitat.</td>
<td>It is assumed that localised loss of hedgerow may be compensated. It is assumed that localised loss of riparian vegetation and shading may be compensated No residual significant effect predicted.</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Mudflat HPI</td>
<td>Technical Appendix 8-20: Phase 1</td>
<td>Construction of all Scheme options will result in the shading of fragments of mudflat HPI</td>
<td>The loss of fragments of mudflat HPI</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Arable Field Margin HPI</td>
<td>Habitat Survey</td>
<td>of small areas of mudflat HPI where they cross the River Arun.</td>
<td>inside the embanked channel of the River Arun is not a significant effect.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other habitats</td>
<td>Technical Appendix 8-15: Habitats – arable Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Construction of all Scheme options will result in the loss of arable field margin HPI where all Options cross arable land between the River Arun and land north of Walberton.</td>
<td>The loss of small areas of Arable Field Margin HPI will be compensated. No residual significant effect predicted.</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td></td>
<td>Technical Appendix 8-20: Phase 1 Habitat Survey</td>
<td>Construction of all Scheme options will result in the loss of poor semi-improved and improved grassland habitat. These habitat losses mainly occur on the River Arun’s east floodplain.</td>
<td>Loss of other habitats will be compensated. No residual significant effect predicted.</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Amphibians</td>
<td>Technical Appendix 8-13: Great crested newt</td>
<td>Construction of all Scheme options will also result in that loss of ponds and scattered deciduous trees.</td>
<td>Impacts on common toad populations occurring at the southern edge of Binsted Wood Complex LWS are in the SDNP. It is assumed that these losses will be compensated. No residual significant effect predicted.</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Scheme Options are unlikely to significantly impact great crested newt as no evidence for this species has yet been found in the Field Survey Area.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction of any of the Scheme options would result in the loss of terrestrial and aquatic habitats that are suitable for use by common toad for breeding, foraging and hibernating.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Options 1V5 and 1V9 have a lower risk of compromising common toad populations given their smaller extent and close proximity to the existing A27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>---------------------------------</td>
<td>---------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Aquatic ecology</td>
<td>Technical Appendix 8-2: Aquatic ecology</td>
<td>Construction of any of the Scheme options will result in the loss of coastal and floodplain grazing marsh HPI. Watercourses will not be removed but are likely to be culverted as part of the Scheme and the loss of short sections of</td>
<td>Affected wetland and watercourse habitat may be functionally linked to the SDNP.</td>
<td>Significant – Moderate Adverse (Option 4/5AV1, 4/5AV2 and 5BV1)</td>
<td>Scoped in</td>
</tr>
</tbody>
</table>

Road. Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 are likely to have a greater risk of impact because of their larger footprint.

Construction of Option 4/5AV1 would sever two common toad breeding ponds (Madonna Pond and a pond in Lake Copse) from core terrestrial habitat that may be used for foraging and hibernating. The Scheme options will create a barrier to toad dispersal and is likely to result in increased levels of toad mortality.
<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>watercourse riparian and river bed habitat are likely. These habitats mainly occur on the River Arun's east floodplain and in the valleys of Tortington Rife and Binsted Rife. These habitat losses are likely to reduce foraging and sheltering resources for fish and aquatic invertebrates. Options 1V5 and 1V9 have a lower risk of impact. Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 are likely to have a larger risk of impact because of their larger footprint. Construction of any of the Scheme options will sever watercourses on the River Arun’s east and west floodplain. The Scheme may create a barrier to animal passage through the introduction of</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
<td></td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Badger</td>
<td>Technical Appendix 8-3: Badger</td>
<td>Construction of any of the Scheme options will result in the loss of terrestrial habitats that are suitable for use by badgers for breeding and foraging. Options 3V1, 4/5V1, 4/5V2 and 5BV1 will all sever badger habitat, whereas Option 1V5 and Option 3V1 and Option 4/5AV1 will result in loss and severance of badger habitat in the SDNP. The other Options will may remove and</td>
<td>Option 3V1 and Option 4/5AV1 will result in loss and severance of badger habitat in the SDNP. The other Options will</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Option 1V5 and 1V9 are in close proximity to the existing A27 road. Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 are likely to have a greater risk of impact as the footprint crosses through the centre of the River Arun’s floodplain and will fragment the floodplain into separate areas on either side of the new road. Options 1V5 and 1V9 are in close proximity to the existing A27 so are unlikely to exhibit a severance impact.
<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bats</td>
<td>Technical Appendix 8-5: Bats - activity (DEFRA &amp; BCT) Technical Appendix 8-6: Bats - radiotracking Technical Appendix 8-7: Bats -</td>
<td>Construction of any of the Scheme options will result in the loss of woodland, trees used by bats for foraging and roosting. These habitats occur in Binsted Wood Complex LWS and a number of other locations in the Field Survey Area. Options 1V5 and 1V9 would result in a lower risk of habitat loss because of their smaller footprint. In contrast, Options 3V1, 4/5AV1 and 4/5AV2 have a higher risk of impact because of their larger footprint. Option 5BV1 is likely to</td>
<td>Populations of bats in the Field Survey Area are strongly associated with woodland habitats in the SDNP (those in Binsted Wood Complex LWS and Rewell Wood Complex LWS). The populations of barbastelle,</td>
<td>Significant – Very Large Adverse (Option 3V1 and 4/5AV2)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>structures and emergence</td>
<td>Technical Appendix 8-8: Bats activity - DEFRA Technical Appendix 8-9: Bats Preliminary Roost Assessment &amp; hibernation</td>
<td>have a moderate level of impact given the option is more distant from core foraging and roosting locations, reducing the likelihood of the loss of roosting habitat. Option 3V1 would sever a large area of bat foraging and roosting habitat in Tortington Common and Pinewoods used by breeding populations Bechstein’s bat, barbastelle and other uncommon woodland bats. Corridor 4/5AV1 would sever hedgerow and woodland habitat between Ford Road and the western part of Binsted Lane which have been confirmed as bat flight paths. In addition, Hundredhouse Copse and surrounding woodland, Lake Copse, the Shaw and Binsted Park would be severed from farmland south of the Field</td>
<td>Bechstein’s bat and Alcathoe bat may represent southern outposts of these species in the SDNP and one of few populations of these species in the SDNP. Operation of the Scheme may increase the mortality from road traffic collision experienced by populations of bats in the SDNP.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Ecological Feature

<table>
<thead>
<tr>
<th>Survey Area which is used by multiple species for foraging.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 4/5AV2 will sever hedgerows and woodland used as flight paths south of Binsted Wood Complex LWS, severing the LWS from farmland south of the Field Survey Area which is used by multiple species for foraging. Option 5BV1 will result in a similar range of impacts to Options 4/5AV1 and 4/5AV2 however severance would be of a lower impact magnitude as Option 5BV1 is more distant from core foraging and roosting locations used by woodland bats.</td>
</tr>
<tr>
<td>Options 1V5 and 1V9 are in close proximity to the existing A27 road so are unlikely to exhibit a severance impact.</td>
</tr>
</tbody>
</table>

### EAR and EAR Technical Appendix Reference

<table>
<thead>
<tr>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey Area which is used by multiple species for foraging.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 4/5AV2 will sever hedgerows and woodland used as flight paths south of Binsted Wood Complex LWS, severing the LWS from farmland south of the Field Survey Area which is used by multiple species for foraging. Option 5BV1 will result in a similar range of impacts to Options 4/5AV1 and 4/5AV2 however severance would be of a lower impact magnitude as Option 5BV1 is more distant from core foraging and roosting locations used by woodland bats.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options 1V5 and 1V9 are in close proximity to the existing A27 road so are unlikely to exhibit a severance impact.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
| **Birds**<sup>24</sup> | Technical Appendix 8-10: Birds – breeding  
Technical Appendix 8-11: Birds – wintering  
Technical Appendix 8-12: Birds – barn owl | Construction of any of the Scheme options will result in the loss of wetland and woodland terrestrial habitat used by breeding birds.  
Option 3V1 would likely result in a greater risk of impact on woodland bird assemblages as it results in the greatest degree of woodland loss and severance.  
Options 1V5, 1V9, 3V1, 4/5AV1, 4/5AV2 and 5BV1 are likely to result in loss of habitat used by wetland bird assemblages on the River Arun’s east floodplain. | Wetland and arable bird habitats affected by the Scheme are mainly outside the SDNP.  
Woodland habitat affected by the Scheme is mainly in the SDNP.  
Barn owl and nightjar territories affected by the Scheme are likely to include land in the SDNP. | Significant – Large Adverse + (Option 3V1 for woodland birds) | Scoped in |

---

<sup>24</sup> Birds are discussed in terms of breeding (arable, wetland, woodland), wintering and barn owl in **EAR Chapter 8: Biodiversity**. Please refer to the EAR for additional detail.
<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazel dormouse</td>
<td>Technical Appendix 8-14: Hazel dormouse</td>
<td>All Scheme options aside from Option 1V5 and Option 1V9 will affect farmland birds.</td>
<td>Operation of the Scheme may increase the mortality from road traffic collision experienced by barn owl populations in the SDNP.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction of any of the Scheme options would result in the loss of terrestrial habitats that offer breeding, foraging, sheltering and hibernating habitat for hazel dormice. These habitats are centred on Binsted Wood Complex LWS and Rewell Wood Complex LWS. Options 1V5 and 1V9 are likely to have a lower level of impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hazel dormouse habitat in the SDNP would be affected by the Scheme.</td>
<td></td>
<td>Significant – Large Adverse + (Option 3V1)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Otter</td>
<td>Technical Appendix 8-19: Otter and water vole</td>
<td>No otter is likely to be present and thus this species will not be impacted by the Scheme (see the Ear and Technical Appendix 8.19 for evidence).</td>
<td>Otter not present – N/A</td>
<td>Scoped out</td>
<td></td>
</tr>
<tr>
<td>Reptiles</td>
<td>Technical Appendix 8-21: Reptiles</td>
<td>Construction of any of the Scheme options will result in the loss of terrestrial habitats used by reptiles for basking, commuting, foraging and hibernating. These habitats mainly occur on the River Arun’s east floodplain and in woodland edges and ridges associated with the Binsted Wood Complex LWS and Rewell Wood Complex LWS. Options 1V5 and 1V9 will</td>
<td>Options 3V1, 4/5V2 affect reptile habitats which are in the SDNP most prominently whereas the other Scheme Options affect reptile habitat which is mainly</td>
<td>Not Significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
</tr>
</tbody>
</table>

Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 are likely a higher risk of impact due to their larger footprint.
### Terrestrial invertebrates

<table>
<thead>
<tr>
<th>Technical Appendix 8-22: Terrestrial Invertebrates</th>
<th>Construction of any of the Scheme options will result in the loss of terrestrial habitats that are suitable for use by protected and notable invertebrate</th>
<th>Affected woodland terrestrial invertebrate</th>
<th>Significant – Very Large Adverse + (Option 3V1 and 4/5AV1)</th>
<th>Scoped in</th>
</tr>
</thead>
</table>

- **Key EAR Impacts**: result in the smallest overall habitat loss because of their smaller footprint. Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 are likely to result in the greatest loss of suitable habitat to the same degree as they share the same footprint across the River Arun floodplain. Options 1V5 and 1V9 will have the lowest impact as they would not sever any new reptile habitat. Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 will sever reptile habitat along the River Arun, woodland rides in Binsted Wood Complex LWS and along Tortington Rife (4/5AV1) and Binsted Rife (4/5AV2 and 5BV1).

- **Justification of Scoping Decision**: outside the SDNP.

- **Residual significant adverse effect (worst case)**: All Scheme Options may sever reptile habitat south of the SDNP from habitat in the SDNP.

- **Scoping Decision**:
  - It is assumed these losses and severance may be compensated.
  - No residual significant effect predicted.
<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>species. These habitats mainly occur within Binsted Complex LWS and Rewell Wood Complex LWS, as well as wetland habitat on the River Arun floodplain and in the valleys of Tortington Rife and Binsted Rife. Option 3V1 would result in the greatest loss of woodland habitat. Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 would result in the loss of wetland habitat to the same degree as they share the same footprint where they cross the River Arun floodplain. Option 5BV1 is the only option to directly affect lowland fen HPI in the valley of Binsted Rife. Options 1V5 and 1V9 will result in the smallest overall habitat</td>
<td>habitat is inside the SDNP.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Water vole</td>
<td>Technical Appendix 8-19: Otter and water vole</td>
<td>Construction of any of the Scheme options will result in the loss of terrestrial and aquatic habitats which are suitable for use by water vole for breeding, foraging and sheltering. These habitats mainly occur on the River Arun’s east floodplain and to the west of the Field Survey Area at Tortington Rife and Binsted Rife. The losses of these habitats are likely to reduce the availability of breeding and foraging habitats for water vole. Options 1V5 and 1V9 are likely to result in the least damaging impact as these alignments would result in relatively little loss of habitat and would result in the loss of wetland habitat close to an existing road.</td>
<td>Loss of water vole habitat will be mainly outside the SDNP. However, severance may separate water vole populations south of the Scheme from those in the SDNP which may disrupt population dynamics of this species in part of the SDNP (e.g. reduced colonisation, increased in-breeding etc).</td>
<td>Significant – Moderate Adverse (Option 3V1, 4/5AV1, 4/5AV2 and 5BV1)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Options 3V1, 4/5AV1, 4/5AV2 and 5BV1 are likely to result in the greatest loss of suitable habitat where they cross the River Arun floodplain. Construction of any of the Scheme options will result in severance of watercourses. Where Scheme options cross the River Arun, Binsted Rife and Tortington Rife, this is likely to be on a viaduct or bridge structure which will allow free movement of water vole underneath. Across the floodplain east of the River Arun watercourses are likely to be culverted under the road which may impede water vole movement. Severance of water vole populations on the Arun floodplain from a possible source population in the Arundel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Wetlands Centre may result in long-term decline.</td>
<td>Construction of any of the Scheme options would result in the loss and severance of terrestrial habitat which are suitable for use by notable species such as hedgehogs, harvest mouse and brown hare.</td>
<td>Aside from hedgehog, loss of notable mammal species habitat will be mainly outside the SDNP. However, severance may separate notable mammal populations south of the Scheme from those in the SDNP which may disrupt population dynamics of this species in part of the SDNP (e.g. reduced colonisation,</td>
<td>Not significant – Neutral (all Scheme options)</td>
<td>Scoped out</td>
<td></td>
</tr>
</tbody>
</table>
### Ecological Feature

<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>EAR and EAR Technical Appendix Reference</th>
<th>Key EAR Impacts</th>
<th>Justification of Scoping Decision</th>
<th>Residual significant adverse effect (worst case)</th>
<th>Scoping Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected/Notable Plants</td>
<td>Technical Appendix 8-23: Preliminary Ecological</td>
<td>Construction of any of the Scheme options would result in the direct loss of habitat or shading of habitat which is suitable for notable plant species. It is unlikely that</td>
<td>Increased in-breeding etc). To some extent the existing A27 road already severs land affected by the Scheme from land north of the A27 in the SDNP. It is assumed that localised loss and severance may be compensated. No residual significant effect predicted.</td>
<td>Significant – Large Adverse + (Option 3V1, 4/5AV1, 4/5AV2 and 5BV1)</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Ecological Feature</td>
<td>EAR and EAR Technical Appendix Reference</td>
<td>Key EAR Impacts</td>
<td>Justification of Scoping Decision</td>
<td>Residual significant adverse effect (worst case)</td>
<td>Scoping Decision</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>Appraisal report</strong></td>
<td>construction of the Scheme options will remove an entire plant population from the Field Survey Area – as the Scheme represents only a portion of the Field Survey Area - but may remove a proportion of it. For wetland and arable plants restricted to a small number of locations, habitat loss may result in local decline.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4-3 provides a commentary of the ecological features which are specifically mentioned in the SDNP Special Qualities report and why they are not material to the assessment of the Scheme options.

**Table 4-3 – Review of features mentioned in SDNP special qualities report**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep-grazed downland is the iconic habitat of the chalk landscape</td>
<td>This habitat is not impacted by the Scheme.</td>
</tr>
<tr>
<td>The greensand of the Western Weald contains important lowland heathland habitats including the internationally designated Woolmer Forest, the only site in the British Isles where all our native reptile and amphibian species</td>
<td>This feature is distant from the Scheme and will not be impacted.</td>
</tr>
<tr>
<td>There are large areas of ancient woodland, for example the yew woodlands of Kingley Vale and the magnificent 'hanging' woodlands of the Hampshire Hangers</td>
<td>Kingley Vale and Hampshire woodlands are too distant to be impacted. Other than those two specific locations which are excluded, ancient woodland is fully considered in this assessment.</td>
</tr>
<tr>
<td>The extensive farmland habitats of the South Downs are important for many species of wildlife, including rare arable wildflowers and nationally declining farmland birds. Corn bunting, skylark, lapwing, yellowhammer and grey partridge are notable examples</td>
<td>The Scheme will impact small areas of farmland in the SDNP some supporting farmland birds – these impacts are fully considered in the EAR and in this assessment.</td>
</tr>
<tr>
<td>The river valleys intersecting the South Downs support wetland habitats and a wealth of birdlife, notably at Pulborough Brooks. Many fish, amphibians and invertebrates thrive in the clear chalk streams of the Meon and Itchen in Hampshire where elusive wild mammals such as otter and water vole may also be spotted</td>
<td>The Scheme will impact the River Arun over 5km downstream of Pulborough Brooks, impacts on the River Arun are not likely to result in significant residual impacts, once mitigation measures are in place, thus a significant adverse effect is considered unlikely on this important feature in the SDNP.</td>
</tr>
</tbody>
</table>
The Scheme will not impact the River Meon or the River Itchen.

The extensive chalk sea cliffs and shoreline in the East host a wide range of coastal wildlife including breeding colonies of seabirds such as kittiwakes and fulmars.

The Scheme will not impact this feature.

4.7 Design, mitigation and enhancement

4.7.1.1 This section summarises the mitigation (taken to mean avoidance, mitigation and compensation) measures that are described in the EAR.

4.7.1.2 It is assumed that the following general measures will be implemented:

- Where the Scheme crosses an important bat flight path on a structure (for example a bridge) it is assumed that the space between ground level and the base of the structure will have a height of at least four metres with woody vegetation (that is hedgerow, tree and shrubs) provided leading up to the structure. This assumption is based on available literature relating to bat species present in the Field Survey Area\textsuperscript{25,26}.
- ‘Oversized’ culverts will be used wherever feasible to encourage the passage of otter, water vole, fish, aquatic invertebrates and plants.
- Scheme options have been designed to minimise the loss of ancient woodland, ancient and veteran trees and other habitats as far as practicable having regard to the alignment in question.

---


4.7.2 Construction phase mitigation measures

4.7.2.1 The following construction phase mitigation measures are proposed:

- implementation of a Construction Environmental Management Plan
- adherence to all relevant environmental permits, best practice guidance and regulations, British Standards, and monitoring in respect of air quality, noise and vibration, hydrology and protection of ecological features
- implementation of industry standard methods and procedures to ensure air quality impacts are minimised throughout all phases of the project
- timing of works to avoid sensitive periods for particular species, such as avoidance of the bird nesting season for habitat clearance.

4.7.2.2 These measures are standard industry best practice measures routinely used and demonstrated to be effective in preventing indirect impacts on the SDNP arising from dust, pollution, lighting and noise and vibration arising during the construction phase and effective at protecting trees situated in or around the construction area.

4.7.2.3 Where impacts on habitats and species cannot be avoided or mitigated through adherence to standard best practice measures, and this would otherwise result in a significant adverse effect, compensation measures will be undertaken. These will constitute a range of different approaches which are outlined in EAR Technical Appendix 8-12, depending on the target species/species group/habitat.

4.7.2.4 The main mitigation and compensation interventions may be grouped into the following general approaches:

- Habitat creation - creation of new areas of woodland, wetland and grassland to replace those lost to the Scheme.
- Habitat restoration – areas of habitat in the landscape around the Scheme will be managed to improve their condition for wildlife (only applicable when in poor existing condition).
- Translocation/displacement - areas of woodland, hedgerow, trees and populations of animals will be moved or displaced from an area affected by the Scheme (the donor site) to a new receptor site which will be managed for wildlife.
- Creation of features to offer replacement breeding, sheltering and hibernating opportunities for animal species, for example, newt/reptile hibernacula, bat and bird boxes and artificial badger setts.
• Creation of structures and features to replace severed connections used by animal species prior to Scheme construction, for example, green bridges to replace severed bat flight paths and tunnels to allow badger to cross the road.

4.7.2.5 The impacted ecological features listed in EAR require three main types of habitat creation as compensation:

• Woodland - to compensate for potential impacts on woodland habitats and plants, bats, hazel dormouse, badgers and birds.
• Grassland - to compensate for potential impacts on semi-natural grassland, notable mammal species, reptiles and terrestrial invertebrates.
• Wetland - to compensate for potential impacts on coastal and floodplain and grazing marsh HPI (and other wetland habitats therein), aquatic invertebrates, amphibians, breeding birds and water vole.

4.7.2.6 It is acknowledged that irreplaceable habitats cannot be compensated (e.g. ancient woodlands or veteran trees). EAR Chapter 8 Biodiversity identifies irreplaceable habitats impacted by the Scheme.

4.7.2.7 Highways England will consult the SDNPA on the approach to habitat creation/restoration/translocation and displacement within the SDNP. This will include selection of suitable locations for habitat creation and restoration which may add value to existing conservation initiatives in the SDNP. Account will be taken of the SDNP habitat creation study27 and its recommendations.

4.7.3 Operational phase mitigation measures

4.7.3.1 The following operational phase mitigation measures are proposed:

• Implementation of a habitat management plan to ensure that newly created key habitats reach their target condition.
• The use of screening to intercept noise, vibration and dust next to key wildlife habitats.
• Wildlife fencing to direct animals to designated crossings structures to minimise road mortality.
• Avoidance of lighting where practicable and/or use of sensitive lighting to minimise impacts on bats and other light sensitive species.

---

4.7.3.2 It is assumed that barn owl mortality will be increased by operation of a new road in locations crossing suitable barn owl habitat where there was no main road previously (this mainly applies to Option 4/5AV1, Option 4/5AV2 and Option 5BV1). The increase in barn owl mortality will be offset by provision of barn owl nest boxes away from the Scheme to encourage the breeding success of barn owl in the wider landscape following established mitigation approaches for this species.

4.7.4 Opportunities for enhancement

4.7.4.1 The following are provisional proposals for ecological enhancement that could be included delivered alongside the Scheme or accompany mandated ecological mitigation and compensation measures. These opportunities will be considered further at PCF Stage 3:

- Restoration of degraded coppice woodland in the Field Survey Area - beyond measures that are required to compensate/address impacts on ancient woodland and other woodland habitats. Rewell Wood Complex LWS is an active coppice woodland north of the existing A27 in the SDNP and contains several Species of Principal Importance including the pearl-bordered fritillary butterfly (Boloria euphrosyne) and the nightjar (Caprimulgus europaeus). These species are not regularly recorded in Binsted Wood Complex LWS which has not been coppiced in many places for a long period of time. Careful reinstatement of coppicing in selected locations may assist these coppice species to expand their range in the SDNP (to the other side of the existing A27).

- Surveys undertaken to inform the EAR indicate that the floodplain of the River Arun south of the existing A27 contains a subset of the aquatic plants, invertebrates and bird species which occur further upstream in the River Arun valley (e.g. inside the Arun Valley Ramsar site). Wetland habitat creation may increase the value of this land to wildlife. Design solutions which do not impede connectivity along the River Arun and associated wetland habitats would maximise the overall integrity of newly created wetland habitat.

- Provision of features to enable pedestrians and wildlife to cross the Scheme could be designed to provide improved access to nature for

---

local residents and to complement the existing footpath network in the SDNP.

4.8 Assessment of potential impacts

4.8.1.1 This section compiles assessment information presented in the EAR Chapter 8: Biodiversity for those ecological features which were scoped-in in Table 4-2 of this chapter following application of the process described in Section 4.4.2 of this chapter.

4.8.1.2 Each of the impacts considered in this section is relevant to the assessment of SQ2 because it concerns an ecological feature type that is: a) subject to residual significant adverse ecological impacts; and b) inside or functionally linked to the SDNP.

4.8.1.3 The scope of EAR Chapter 8: Biodiversity is fully aligned with the scope of what the SDNPA requires consideration of, under SQ2. Thus the approach to assessment of compiling information from the EAR is appropriate for the assessment of SQ2.

4.8.2 European Sites

4.8.2.1 The following European sites are considered in the EAR Chapter 8: Biodiversity and in EAR Technical Appendix 8-1. It is concluded that although unlikely, significant adverse effects cannot be fully discounted until detailed design information is available at PCF Stage 3. A full Appropriate Assessment is required for these European Sites. This conclusion is equally applicable to all Scheme options:

- Singleton and Cocking Tunnels SAC
- Arun Valley SAC, SPA and Ramsar site.

4.8.2.2 It has been agreed with Natural England that owing to the distance of these European sites from the Scheme, significant adverse effects are unlikely:

- The Mens SAC
- Ebernoe Common SAC.
4.8.3 **Binsted Wood Complex LWS**

4.8.3.1 Option 5BV1 will not result in direct or indirect impacts on Binsted Wood Complex LWS. Construction of all other Scheme options are likely to have a significant adverse effect on Binsted Wood Complex LWS. All Scheme options (excluding Option 5BV1) remove features for which the LWS is designated and irreplaceable habitats (for example ancient woodland). Beyond direct habitat loss indirect ‘edge’ effects would permeate into the previously enclosed woodland thus exposing the woodland habitat to additional light, wind and altered humidity, likely leading to the degradation of ancient woodland adjacent to the newly created road.

4.8.3.2 All Scheme options (excluding Option 5BV1) are likely to result in significant adverse effects on this LWS.

4.8.3.3 Option 1V5 and Option 1V9 will affect habitats along the northern edge of the LWS adjacent to an existing road. These impacts are regarded as resulting in Large Adverse significance of effects as they remove irreplaceable habitat but are unlikely to undermine the integrity of the woodland ecosystem in the LWS as they affect only the northern edge of the site and do not sever it.

4.8.3.4 Option 4/5AV1 will affect habitats along the southern edge of the LWS which are not next to an existing road. These impacts are regarded as resulting in Large Adverse significance of effects as they are unlikely to completely undermine the integrity of the woodland ecosystem in the LWS.

4.8.3.5 Option 3V1 will sever the LWS along its central axis and Option 4/5AV2 will sever Lake Copse, the Shaw and the Lag from the main body of the LWS. These impacts are regarded as resulting in Very Large Adverse significance of effects as they are likely to undermine LWS integrity.

4.8.4 **Rewell Wood Complex LWS**

4.8.4.1 The construction of Option 1V5, Option 1V9 and Option 3V1 are likely to have a significant adverse effect on Rewell Wood Complex LWS. Indirect effects, as reported for Binsted Wood Complex LWS, will occur a further distance from the area of direct land take. Irreplaceable ancient woodland will be removed. However, the area of ancient woodland loss is relatively small compared to the overall size of the LWS and the integrity of the LWS is unlikely to be compromised. This impact is likely to be Large Adverse.

4.8.4.2 Construction of Option 4/5AV2, Option 4/5AV1 and Option 5BV1 are unlikely to have any direct or indirect impacts on Rewell Wood Complex LWS as they do not result in direct land take and they are a sufficient distance away to exclude indirect impacts.
4.8.5 Avisford Sites A, B and C Notable Road Verges

4.8.5.1 The construction of the Scheme is likely to have a significant Slight Adverse effect on the structure and function of unimproved grassland associated with the Notable Road Verge. Options 3V1, 4/5AV1 and 4/5AV2 would result in the loss of unimproved grassland. Unimproved grassland is a declining habitat and recreation of this habitat is dependent on the presence of poor neutral soils which have not been enriched through fertilisation or ploughing.

4.8.5.2 Option 3V1, 4/5AV1 and 4/5AV2 will remove small areas of habitat adjacent to the existing carriageway. The significance of effect is Slight Adverse significance of effect as this loss is not likely to undermine the function of this habitat type.

4.8.5.3 Option 1V5, 1V9 and 5BV1 will not have a significant adverse effect as these options will not impact on the Notable Road Verge.

4.8.6 Ancient woodland

4.8.6.1 All Scheme options (except Option 5BV1) would result in the permanent loss of ancient woodland comprising both ASNW and PAWS. The conservation status of ancient woodland is dependent on the maintenance of its extent, species composition and the range of different woodland types it supports. It is likely that Options 3V1 and 4/5AV2, which cross large blocks of ancient woodland, will diminish the quality of this ancient woodland as the habitats adjacent to the new road will be degraded as a result of changes to light, wind and humidity.

4.8.6.2 As ancient woodland is irreplaceable it cannot be directly compensated for. Option 3V1 and Option 4/5AV2, would result in Very Large Adverse significance of effect. Options 1V5 and 1V9 would result in a Large Adverse significance of effect. Option 4/5AV1 would result in a Moderate Adverse significance of effect, as small areas of ancient woodland would be removed from the edge of woodlands with little severance occurring. Option 5BV1 would result in a Neutral significance of effect.
Wood Pasture and Parkland HPI

4.8.6.3 The construction of Option 1V5, 1V9 and Option 4/5AV2 is likely to have a significant adverse effect on wood pasture and parkland HPI in habitat east of Scotland Barn (Option 1V5 and Option 1V9) and Binsted Park Complex (Option 4/5AV2) respectively. These impacts may diminish the range of age classes present in the habitat and increase the distance between remaining ancient or veteran trees. They would result in a Moderate Adverse (Option 1V5 and Option 1V9) and a Very Large Adverse significance (Option 4/5AV2) of effect. The difference between effect levels results from the very small loss of this HPI associated with Option 1V5 and 1V9 compared to Option 4/5AV2.

4.8.6.4 Option 3V1, 4/5AV1 and 5BV1 will not have a significant adverse effect as these options will not impact wood pasture and parkland HPI.

Ancient or Veteran Trees

4.8.6.5 The loss of ancient and veteran trees (outside of wood pasture and parkland HPI and outside of ancient woodland) is likely to have a Very Large Adverse significant adverse effect on this habitat type for all Scheme options aside from Option 3V1 where ancient and veteran trees are assessed as part of ancient woodland. No ancient and veteran trees will be lost from outside areas of ancient woodland for Option 3V1.

Deciduous Woodland HPI

4.8.6.6 All of the Scheme options will result in the loss of deciduous woodland HPI which is likely to have a significant adverse effect on this habitat. Options 4/5AV2 and 3V1 will remove deciduous woodland HPI from Binsted Wood Complex LWS which is similar in composition and character to ancient woodland in the woodland complex. This woodland is a component part of Binsted Wood Complex LWS. Options 3V1 and 4/5AV2 would generate the highest significance of effect (Very Large Adverse), followed by Options 1V5 and 1V9 (Large Adverse significance of effect) and Options 5BV1 and 4/5AV1 will have the lowest significance of effect (Slight Adverse significance of effect) as small areas of deciduous woodland on the edge of woodlands will be affected which is unlikely to undermine the function of this habitat type.
Coastal and floodplain grazing marsh HPI, Reedbed HPI and Lowland Fen HPI

4.8.6.7 All Scheme options will result in the loss of coastal and floodplain grazing marsh HPI including ditches supporting notable aquatic plants or areas of lowland fen HPI, reedbed HPI and marshy grassland. The degree to which wetland compensation measures can successfully recreate the hydrological (water quality and quantity) and soil moisture conditions required by these plant communities varies by Scheme option and depends on the extent of habitat affected and degree to which hydrology is disrupted (these issues will be fully assessed at PCF Stage 3 (Preliminary Design)).

4.8.6.8 Uncertainty concerning the efficacy of mitigation will likely result in a different residual impact significance between Scheme options as follows:

- Option 1V5 and Option 1V9 – Moderate Adverse significance of effect as relatively small areas of habitat will be affected. Few populations of notable plant are likely to be affected.
- Option 3V1 – Large Adverse significance of effect as habitat on the River Arun floodplain will be mainly affected and wetland habitats and notable plant populations in Tortington Rife and Binsted Rife avoided.
- Option 4/5AV1, Option 4/5AV2 and Option 5BV1 – Large Adverse significance of effect as habitat on the River Arun floodplain and notable habitats and plant populations in Tortington Rife and Binsted Rife will be impacted.

Aquatic ecology

4.8.6.9 The construction of the Scheme is unlikely to have a significant adverse effect on the conservation status of fish and aquatic invertebrate populations because:

- Aquatic surveys show that aquatic macroinvertebrate assemblages were typically species-poor and contained pollution adapted species which may be attributable to the lack of habitat diversity, agricultural activities and saline intrusion.
- Fish surveys recorded three species of fish, with no species of conservation concern identified.
- There are extensive habitats outside of the Scheme that are likely to be used for foraging and dispersal which will remain unaffected.
- Wetland creation measures are likely to be successful in recreating the conditions required by these species as compensation.
Potential effects to the water courses through the transmission of waterborne pollution from fuel spillage, material wash off or dust, will be avoided or ameliorated to insignificant levels following the implementation of best practice measures.

Provision of underpasses or wildlife friendly culverts would be implemented where the Scheme severs aquatic habitats on the River Arun floodplain to adequately mitigate for the effects of habitat severance and to allow for fish movement across the floodplain.

Un-surveyed areas in the valley of Binsted Rife may be impacted by Option 4/5AV1, Option 4/5AV2 and Option 5BV1 across upper sections of Binsted Rife. These Scheme options could result in changes to the downstream hydrology. As the aquatic ecological conservation importance of this feature is not fully understood it cannot be guaranteed that successful compensation measures can be delivered and thus a residual significance of effect of Moderate Adverse is assumed on a precautionary basis. Option 1V5, Option 1V9 and Option 3V1 are unlikely to have a significant adverse effect on aquatic wildlife.

**Bats**

The construction and operation of the Scheme are likely to have a number of residual significant adverse effects on the conservation status of bats. The persistence of residual effects is the result of uncertainty in the efficacy of the impact mitigation measures for certain impacts. The success of mitigation measures including roost replacement measures and measures to ensure that bats can safely cross the operational scheme are part experimental. Disruption to the complex habitat use patterns by different bat species cannot be fully predicted and thus uncertainty remains over the impact assessment and mitigation efficacy. Likely residual impacts for the different Scheme options are provided below:

- Option 1V5 and Option 1V9 – These options would remove woodland potentially used for roosting and foraging by a population of Bechstein’s bat in Steward’s Copse. These options would increase the width of operational road where the existing A27 is potentially reducing connectivity for a range of bat species including whiskered bat and Bechstein’s bat which have been shown to cross the existing A27 to access foraging and roosting areas either side of the A27. However, relatively small areas of important bat habitat would be affected and
large areas of bat habitat would remain. A residual impact of Moderate Adverse significance of effect is likely.

- **Option 3V1** – This option would remove large areas of woodland used by Bechstein’s bat and other species for foraging and roosting. Option 3V1 would also sever woodland bat habitat along the two remaining halves of the Binsted Wood Complex LWS. Option 3V1 would expose bats to mortality from collision with vehicles along a long front. A residual impact of Very Large Adverse significance is probable.

- **Option 4/5AV2** – This option would likely result in loss of Alcathoe bat roosts in Hundredhouse Copse of potential bat roosting habitat in the Lag and the Shaw. It would also sever flight paths used by multiple species including Alcathoe bat, Bechstein’s bat and barbastelle. Option 4/5AV2 would be constructed near to an assumed maternity roost of barbastelle in Tortington Common and could result in roost loss caused by disturbance or severance from foraging habitat. A residual impact of Very Large Adverse significance is likely.

- **Option 4/5AV1** – This option will also sever flight paths used by multiple species including Alcathoe bat, Bechstein’s bat and barbastelle. Alcathoe bat roost loss and barbastelle roost loss are less likely than Option 4/5AV2 and loss of potential roosting and foraging habitat in the Lag and the Shaw would not occur. A residual impact of Large Adverse significance is likely.

- **Option 5BV1** – This option is also likely to sever flight paths used by multiple bat species, however the likelihood of roost loss and severance are further reduced as this Option is more remote from the core foraging and roosting locations used by woodland bats. A residual impact of Moderate Adverse significance is likely.

**Birds**

4.8.6.12 The construction of the Scheme is likely to result in a significant adverse residual effect on the conservation status of woodland birds.
4.8.6.13 The woodland bird assemblage includes a diverse, relatively intact community including a number of Bird of Conservation Concern Red List species that are associated with mature woodland containing old trees and dead wood (for example lesser spotted woodpecker and marsh tit). Uncertainty remains whether woodland creation measures will be able to replicate the conditions required by the woodland bird community and particular Red List species. A Large Adverse significant residual effect is likely for Option 3V1 which has the greatest extent of woodland loss/severance; a Moderate Adverse significant residual effect is likely for 4/5AV2 which results in lower amount of woodland loss but several instances of severance; and Slight Adverse significant residual effect for Option 1V5, 1V9 and 4/5AV1 which have the least degree of woodland loss and severance. Option 5BV1 does not result in marked amounts of woodland loss and therefore will not result in a significant adverse effect.

4.8.6.14 Barn owl is a low, slow-flying species and research has shown that where this species roosts or forages in close proximity to operating major roads it is likely that road traffic mortality will deplete local populations. Provision of artificial roost boxes for barn owl greater than one kilometre from the Scheme is likely to bolster populations of barn owl in the wider landscape, compensating for the impact of mortality at the population level. However, a Moderate Adverse effect will remain close to the operational Scheme. This impact is likely to be less pronounced for Option 1V5 and Option 1V9 as they expand an existing road where barn owl is already exposed to road traffic mortality rather than introducing the impact to a new area which the other Scheme options do.

**Hazel dormouse**

4.8.6.15 The hazel dormouse population centred on the Binsted Wood Complex LWS may represent a core population supporting smaller, more isolated sub-populations in the surrounding landscape. The Scheme options are likely to result in residual significant adverse effects on this species.

- Option 1V5 and Option 1V9 will remove woodland potentially used for nesting and foraging by hazel dormouse. These Scheme options will widen the A27 which is likely to be an existing partial barrier to hazel dormouse dispersal. This will potentially reduce connectivity for hazel dormouse populations which are considered likely to cross the existing road considering their presence has been recorded in woodlands on the north and south side. However, relatively small areas of hazel dormouse habitat will be affected and there are extensive areas in the wider
landscape that would remain unaffected. A residual significant effect of Moderate Adverse is considered likely.

- Options 3V1 and 4/5AV2 will remove large areas of woodland habitat used by hazel dormouse. Option 3V1 will sever the central section of Binsted Wood Complex LWS, whilst Option 4/5AV2 will sever Lake Copse, the Shaw and the Lag. Suitable wildlife crossing structures are likely to be required to enable severance to be adequately mitigated and to satisfy the requirements of the Favourable Conservation Status test for hazel dormice. Dormice have been shown to use wildlife crossings but definitive evidence of the efficacy of wildlife crossings to mitigate for effects on dormice at the population level is not currently available and therefore the mitigation technique must be viewed as part experimental. A Large Adverse residual significant effect is likely.

- Options 4/5AV1 and 5BV1 will remove small areas of woodland from the edge of Lake Copse, Little Danes Wood and Potwell Copse. However, relatively small areas of hazel dormouse habitat will be affected and there are extensive areas in the wider landscape that would remain unaffected. A residual significant effect of Moderate Adverse is considered likely.

**Terrestrial invertebrates**

4.8.6.16 The construction of the Scheme is likely to remove habitat of high value to terrestrial invertebrates including ancient woodland. As ancient woodland is an irreplaceable habitat, it cannot be directly compensated for resulting in significant effect on the conservation status of terrestrial invertebrates.

4.8.6.17 All effects are significant, but at different magnitude levels as follows in accordance with the extent of ancient woodland lost as follows: Options 1V5 and 1V9 (Moderate Adverse), Option 3V1 and Option 4/5AV2 (Very Large Adverse), Option 4/5AV1 (Slight Adverse) and Option 5BV1 (Slight Adverse).
4.8.6.18 The construction of the Scheme is unlikely to have a significant adverse residual effect on the conservation status of water vole. The Scheme will result in the loss of burrowing and foraging habitat. However, there are large areas of alternative habitat outside of the Scheme which will provide alternative burrowing and foraging habitat and will not be affected. Wetland habitat creation measures, and measures to displace or translocate water vole are anticipated to be successful at providing replacement habitat for this species. Measures to facilitate animal movement across the Scheme are likely to allow water vole to continue to use areas of the River Arun floodplain and other watercourses during the operational phase.

4.8.6.19 Option 1V5 and Option 1V9 require the least extent of wetland habitat loss and have the lowest requirement for mitigation. A residual significant effect is considered unlikely. Option 3V1, Option 4/5AV1, Option 4/5AV2 and Option 5BV1 would disrupt larger areas of water vole habitat on the River Arun floodplain and trigger a greater mitigation requirement which would be technically more complex to deliver. Option 4/5AV1, Option 4/5AV2, Option 5BV1 would all also disrupt water vole habitat (assumed) in the valleys of Binsted Rife or Tortington Rife – these options would necessitate the greatest, most complex water vole mitigation requirement. A residual significant effect of Moderate Adverse is considered likely for Options 3V1, 4/5AV1, 4/5AV2 and 5BV1.

4.8.6.20 Uncertainty remains if the complex wetland conditions required by certain species of marshy grassland or aquatic notable plant can be recreated, as stated under coastal and floodplain grazing marsh HPI. The likely residual significance of effect for each Scheme options is:

- Option 1V5 and Option 1V9 – Moderate Adverse as relatively small area of habitat will be affected and few populations of notable plant are likely to be affected.
- Option 3V1 – Large Adverse as habitat on the River Arun floodplain will be mainly affected and wetland habitats/notable plant populations in Tortington Rife and Binsted Rife avoided.
- Option 4/5AV1, Option 4/5AV2 and Option 5BV1 – Large Adverse as habitat on the River Arun floodplain and notable habitats/plant populations in Tortington Rife and Binsted Rife will be impacted.
4.9 Summary

4.9.1.1 Table 4-4 summarises the significance of effect for each of the scoped in ecological features in both construction and operational phases. EAR Chapter 8: Biodiversity should be referred to for a full description of how effect significance categories have been determined.

4.9.1.2 A significant adverse effect is taken here to be one which is inconsistent with SQ2 and the significance of effect category (that is Slight, Moderate, Large or Very Large Adverse) is an indication of the scale of the effect on SQ2.

4.9.1.3 All of the Scheme options result in significant adverse effects which are inconsistent with SQ2. Option 3V1 and Option 4/5AV2 rank as the Scheme options which are likely to have the greatest impact on SQ2 as they result in a greater number of significant effects on ecological feature types of higher geographical importance, resulting in higher effect significance levels. All other Scheme options will impact on SQ2 to a lesser degree for different ecological feature types. Option 1V5 and 1V9 are in the SDNP, and on that basis inherently more likely to trigger an impact on the SQ2. However, they mainly affect habitats and species already impacted to some degree by the existing A27 and do not sever ecological habitats to the same degree (as severance already occurs as a result of the existing road). Option 4/5AV1 is mostly outside the SDNP and Option 5BV1 is outside the SDNP but they sever habitat features used by important bat, hazel dormouse, water vole and other species populations that rely on habitat both inside and outside of the SDNP.
### Table 4-4 - Likely significant effects

<table>
<thead>
<tr>
<th>Ecological Feature29</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binsted Wood Complex LWS</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Very Large Adverse</td>
<td>Large Adverse +</td>
<td>Very Large Adverse</td>
<td>N/A</td>
</tr>
<tr>
<td>Rewell Wood Complex LWS</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Large Adverse +</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>A27 Avisford 'site A' A27 Avisford 'site B' A27 Avisford 'site C' Notable Road Verges</td>
<td>N/A</td>
<td>N/A</td>
<td>Significant - Slight Adverse</td>
<td>Significant - Slight Adverse</td>
<td>Significant - Slight Adverse</td>
<td>N/A</td>
</tr>
<tr>
<td>Ancient woodland</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Very Large Adverse</td>
<td>Significant - Moderate Adverse +</td>
<td>Significant - Very Large Adverse</td>
<td>N/A</td>
</tr>
<tr>
<td>Wood Pasture and Parkland HPI</td>
<td>Significant - Moderate Adverse +</td>
<td>Significant - Moderate Adverse</td>
<td>N/A</td>
<td>N/A</td>
<td>Significant - Very Large Adverse</td>
<td>N/A</td>
</tr>
<tr>
<td>Ancient or Veteran Trees</td>
<td>Significant - Very Large Adverse</td>
<td>Significant - Very Large Adverse</td>
<td>Neutral</td>
<td>Significant - Very Large Adverse</td>
<td>Significant - Very Large Adverse</td>
<td>Significant - Very Large Adverse</td>
</tr>
</tbody>
</table>

29 EAR Chapter 8: Biodiversity should be referred to for a full description of how effect significance categories have been arrived at.
<table>
<thead>
<tr>
<th>Ecological Feature29</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deciduous Woodland</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Very Large Adverse</td>
<td>Significant - Slight Adverse</td>
<td>Significant - Very Large Adverse</td>
<td>Significant - Slight Adverse</td>
</tr>
<tr>
<td>HPI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wet Woodland HPI</td>
<td>Not assessed separately – the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>impact assessment for Binsted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wood Complex LWS incorporates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wet Woodland HPI which is inside this LWS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal and</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Large Adverse +</td>
<td>Significant – Large Adverse +</td>
<td>Significant – Large Adverse +</td>
<td>Significant – Large Adverse +</td>
</tr>
<tr>
<td>floodplain grazing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>marsh HPI and other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wetland HPIs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic Ecology</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Bats</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Very Large Adverse</td>
<td>Significant – Very Large Adverse</td>
<td>Significant – Very Large Adverse</td>
<td>Significant – Very Large Adverse</td>
</tr>
<tr>
<td>Birds (woodland</td>
<td>Significant – Slight Adverse +</td>
<td>Significant – Slight Adverse +</td>
<td>Significant – Large Adverse +</td>
<td>Significant – Slight Adverse +</td>
<td>Significant – Slight Adverse +</td>
<td>N/A</td>
</tr>
<tr>
<td>birds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barn owl</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Hazel dormouse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Large Adverse +</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Large Adverse +</td>
<td>Significant – Moderate Adverse</td>
</tr>
</tbody>
</table>
### Ecological Feature 29

<table>
<thead>
<tr>
<th>Ecological Feature</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrestrial invertebrates</td>
<td>Significant – Moderate Adverse +</td>
<td>Significant – Moderate Adverse +</td>
<td>Significant – Very Large Adverse +</td>
<td>Significant – Slight Adverse +</td>
<td>Significant – Very Large Adverse +</td>
<td>Significant – Slight Adverse +</td>
</tr>
<tr>
<td>Water vole</td>
<td>N/A</td>
<td>N/A</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Protected/Notable Plants</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Large Adverse+</td>
<td>Significant – Large Adverse+</td>
<td>Significant – Large Adverse+</td>
<td>Significant – Large Adverse+</td>
</tr>
</tbody>
</table>

+ The significance of effect category applied is a deviation from those described in Table 3 of IAN 130/10. To allow for differentiation of the effects per Scheme option professional judgement has been used where an effect is deemed to be of lower magnitude.
5 Special Quality 3: Tranquil and unspoilt places

5.1 Introduction

5.1.1.1 The special quality assessed in this chapter is ‘Tranquil and unspoilt places’. Hereafter, referred to as Special Quality 3 (SQ3). This special quality has been described as:

‘The South Downs National Park is in South East England, one of the most crowded parts of the United Kingdom. Although its most popular locations are heavily visited, many people greatly value the sense of tranquillity and unspoilt places which give them a feeling of peace and space. In some areas the landscape seems to possess a timeless quality, largely lacking intrusive development and retaining areas of dark night skies. This is a place where people seek to escape from the hustle and bustle in this busy part of England, to relax, unwind and re-charge their batteries.’

5.2 Assessment methodology

5.2.1 Potential impacts

5.2.1.1 The potential impacts associated with SQ3, as set out in the A27 Position Statement, are:

- noise
- lighting
- effects on dark night skies
- reduction of disturbance from some existing roads.

5.2.1.2 Specific consideration of disturbance from some existing roads is covered within discussion of Special Quality 7 (Distinctive towns and villages, and communities with real pride in their area) within Chapter 9 and will therefore not be discussed separately here.

5.2.1.3 All potential effects identified herein, relate to both construction and operational phases for all Scheme options. The overall conclusions are

qualitative and draw on the qualitative and quantitative findings of the following EAR chapters:

- **EAR Chapter 7: Landscape and Visual** – for effects on landscape character and Visual amenity assessment (including tranquillity)
- **EAR Chapter 11: Noise and Vibration** – for effects on residential and biodiversity receptors (including tranquillity).

### 5.2.2 Baseline information sources

#### 5.2.2.1 Information sources used to provide baseline information for this assessment are outlined in the respective EAR Chapters. However, the following sources of information are of particular relevance here:

- Campaign to Protect Rural England (2006) *Saving Tranquil Places: How to protect and promote a vital asset*[^2]
- Campaign to Protect Rural England (2016) *Night Blight – interactive mapping of light intrusion*[^3]
- Landscape Field Survey Sources:
  - Walkover undertaken on 22-23 August 2018
  - Walkover undertaken on 4-7 February 2019
  - Walkover undertaken on 18-21 March 2019
- SDNP: Excerpt of Inspectors Report into the designation of the SDNP, Volume 1, 31/03/2006[^6]
- SDNP Tranquillity Study 2017[^7]
- SDNP Dark Skies Technical Advice Note 2018[^8]

[^2]: Campaign to Protect Rural England (2006) *Saving Tranquil Places: How to protect and promote a vital asset*
[^3]: https://www.nightblight.cpre.org.uk/maps/?_ga=2.107477954.1970294187.1561478794-1950826457.1543338340
[^8]: South Downs National Park Authority (2018) *Dark Skies – Technical Advice Note*
5.2.3 Guidance

5.2.3.1 The source guidance for all assessment in relation to National Parks is outlined in national planning policy, including:

- The National Policy Statement for National Networks (2014)\(^{11}\)
- National Policy Planning Framework (2019)\(^{12}\)
- Noise Policy Statement for England (2010)\(^{13}\)

5.2.3.2 More specific assessment guidance followed for consideration of SQ3 comprises the following:

- Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA3)\(^{14}\)
- DMRB Volume 11, Section 3, Part 5 - Landscape Effects\(^{15}\)
- DMRB Volume 11, Section 3, Part 7 – HD 213/11
- IAN 135/10 - Landscape and Visual Effects Assessment\(^{16}\)
- WebTAG – TAG unit A3, Section 6 – Impacts on Landscape\(^{(for use in appraisal only)}\)
- WebTAG – TAG unit A3, Section 7 – Impacts on Townscape\(^{(for use in appraisal only)}\)
- Tranquillity – An Overview (2017)\(^{19}\)

---


10 South Downs National Park Authority (2017) Landscape Background Paper, South Downs Local Plan

11 2 Department for Transport, National Policy Statement for National Networks (December 2014)

12 Department for Communities and Local Government, Revised National Planning Policy Framework (Feb 2019)


15 Highways Agency (June 1993) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 5, Landscape Effects


5.2.3.3 Although there is no specific guidance on the consideration of ‘tranquil and unspoilt places’, the findings of the PCF Stage 2 EAR have been used to inform this assessment. In addition, Chapter 2: Assessment Methodology outlines the relationship between the DMRB assessment and the potential effects identified within the SDNPA Position Statement on the A27 Route Corridor.

5.2.3.4 The definition of ‘tranquillity’ and ‘unspoilt’ places varies between guidance documents, and without a definition of the two, it is difficult to identify a methodology for assessing change. The Landscape Institute’s technical information note on Tranquillity provides numerous published definitions on tranquillity, including The Campaign to Protect Rural England’s (CPRE’s) definition (which is similar to the GLVIA3 definition) and is perhaps the most appropriate to use for this assessment: ‘the quality of calm experienced in places with mainly natural features and activities, free from disturbance from manmade ones’ (CPRE 2006).

5.2.3.5 Tranquillity therefore needs to consider human perception as well as factual evidence. Consideration of human perception, or the perceptual qualities, of tranquillity has long been included in landscape character assessment. Similarly, when considering landscapes for Area of Natural Beauty (AONB) and National Park designation, they are assessed against the Natural Beauty Criterion, defined by Natural England. This criterion includes ‘Relative Tranquillity’ - defined as ‘the degree to which relative tranquillity can be perceived in the landscape’.

---

21 Campaign to Protect Rural England (2006) Saving Tranquil Places: How to protect and promote a vital asset
22 Landscape Institute (2017) Tranquillity – an overview (Technical Information Note 01/2017)
24 GLVIA3 definition in the Glossary defines Tranquillity as ‘A state of calm and quietude associated with peace, considered to be a significant asset of landscape
25 Campaign to Protect Rural England (2006) Saving Tranquil Places: How to protect and promote a vital asset
27 Natural England (2011) Guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England, Table 3
5.2.3.6 As well as ‘Relative Tranquillity’, indicators defined by Natural England\(^{28}\) also include Contributors to Tranquillity (presence and/or perceptions of natural landscape, birdsong, peace and quiet, natural-looking woodland, stars at night, stream, sea, natural sounds and similar influences) and Detractors from Tranquillity (presence and/or perceptions of traffic noise, large numbers of people, urban development, overhead light pollution, low flying aircraft, power lines and similar influences).

5.2.3.7 The South Downs Local Plan includes a strategic policy on relative tranquillity. The purpose of Policy SD8 is to ensure that development does not harm the relative tranquillity of the National Park and to encourage the conservation and enhancement of positive tranquillity factors. To inform this policy, the SDNP has produced its own Tranquillity Study\(^{29}\) and accompanying tranquillity map\(^{30}\), covering the whole of the SDNP. The methodology used for this was based on CPRE methodology outlined in 2005\(^{31}\). This is largely participatory-led and requires participants to go out in the field and document their perceived level of tranquillity based on a variety of factors.

5.2.3.8 It is not possible at this stage to undertake participatory-led methodologies due to timescales and proportionality of work for assessment of SQ3. As part of the baseline work leading up to production of EAR Chapter 7: Landscape and Visual however, numerous site visits were undertaken by professional landscape architects, which included review of existing local landscape character and quality. Contributing factors to character and quality include relative tranquillity of the landscape (as identified in GLVIA3) and therefore some level of participatory assessment has informed this discussion.

5.2.3.9 Whilst there is methodology in place for identifying the relative existing tranquillity of an area, there is none for determining how to assess potential levels of change to this tranquillity. As an initial indicator, the ‘noise’ impact section will provide some quantitative analysis of the baseline acoustic environment, as outlined in EAR Chapter 11: Noise and Vibration.

5.2.3.10 In terms of assessment of ‘unspoilt places’, the Cambridge Dictionary describes ‘unspoilt’ as a place that is ‘beautiful because it has not been

\(^{28}\) Natural England (2011) Guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England, Appendix 1

\(^{29}\) South Downs National Park Authority (2017) Tranquillity Study 2017

\(^{30}\) South Downs National Park Authority (2017) Tranquillity Study 2017 Appendix 1

changed or damaged by people\textsuperscript{32}. The Oxford Dictionary describes ‘unspoilt’ as ‘Not spoiled, in particular (of a place) not marred by development\textsuperscript{33}’. Given that the SDNP has been, and is, influenced by both people and development, consideration of the wider ‘Natural Beauty’ criterion may be more tangible for discussion purposes. This includes consideration of cultural heritage, natural heritage, relative wildness, relative tranquillity, and landscape and scenic quality\textsuperscript{34}. Many of these aspects are already considered within the EAR, particularly in relation to landscape character and visual amenity outlined in EAR Chapter 7: Landscape and Visual.

5.2.3.11 Assessment of SQ3 therefore draws on existing guidance on tranquillity, particularly those outlined in paragraph 5.2.3.2 above as well as the quantitative and qualitative based assessments in EAR Chapter 7: Landscape and Visual and EAR Chapter 11: Noise and Vibration. However, given the current stage in the design process, and being mindful or proportionality in assessment, it has not been possible to undertake participatory methods to identify existing levels of tranquillity. Even if such methods were undertaken however, there is no methodology available to identify how the perceived levels of existing tranquillity would be altered as a result of any new scheme. Professional judgement has therefore been used to draw conclusions on potential impacts on tranquillity.

5.2.3.12 As set out in Chapter 2: Assessment Methodology, professional judgement is a very important part of landscape and visual impact assessment (LVIA), and GLVIA3 explains the role of professional judgement in the LVIA assessment process. Discussion of impacts on this special quality is largely based on professional judgement but also draws on existing guidance on tranquillity and the quantitative and qualitative based assessments in the relevant EAR Chapters.

5.3 Assessment assumptions and limitations

5.3.1.1 The assumptions and limitations of specific relevance to this assessment are outlined in Table 5-1 and include the assumptions and limitations outlined in the relevant EAR Chapter 7: Landscape and Visual and EAR Chapter 11: Noise and Vibration. For each assumption or limitation an explanation of the

\textsuperscript{32} https://dictionary.cambridge.org/dictionary/english/unspoiled?q=unspoilt
\textsuperscript{33} https://www.lexico.com/en/definition/unspoiled
\textsuperscript{34} Natural England (2011) Guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England, Appendix 1
possible effect of the assumption has been provided as well as a description of any corrective actions that have been taken to adjust for any limitations.

Table 5-1 - Assessment assumptions and limitations for SQ3

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk Study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night-time lighting assessments have not been undertaken for this PCF stage 2.</td>
<td>All of the potential effects at construction and operation may not be fully considered.</td>
<td>Design information available in the Interim Scheme Assessment Report (Section 8.16), shows that artificial lighting is only included at existing lit junctions (Ford Road and Crossbush) with short additional sections between Ford Road roundabout and the Community Hospital. As these sections are already lit, it is considered that no correction is necessary. In addition, requirements for artificial lighting at construction are not known at this stage. However, qualitative consideration is given to effects of lighting and traffic headlights on the night time environment. It is considered that this is a suitable approach for comparison of the Scheme options for PCF Stage 2. Further investigation may be required at PCF Stage 3 for the selected option.</td>
</tr>
<tr>
<td>Lack of Methodology for assessing ‘tranquil and unspoilt places’</td>
<td>Approach may not fully capture the definition and therefore potential effects on ‘tranquil and unspoilt places’</td>
<td>Published methodology (as outlined in Section 5.2.3) has been used to align with the effects identified in the SDNP A27 Position Statement. Qualitative discussion is provided to give a more holistic overview.</td>
</tr>
</tbody>
</table>
Assumption or Limitation | Result of Assumption or Limitation | Correction for Assumption or Limitation
--- | --- | ---
 |  | Further investigation on specific aspects may be required at PCF Stage 3.

### 5.4 Study Area

#### 5.4.1.1 The Study Area for assessment of effects on dark night skies and to inform the qualitative discussion of tranquillity, and as agreed with the South Downs National Park Authority, is the same as the Study Area outlined in EAR Chapter 7: Landscape and Visual (see Section 7.5.2 and Figure 7-2 for reference). The Study Area covers part of the SDNP and its immediate setting which may be significantly impacted by the Scheme in landscape or visual terms.

#### 5.4.1.2 The Study Area for assessment of noise effects and to inform the qualitative discussion of tranquillity has been derived in accordance with DMRB HD 213/11 and it is the same as the Study Area outlined in EAR Chapter 11: Noise and Vibration. The Study Area covers part of the SDNP.

### 5.5 Baseline conditions

#### 5.5.1.1 For the purposes of this chapter, the baseline landscape and visual environment is as given in EAR Chapter 7: Landscape and Visual (see Section 7.6, particularly sections 7.6.3 – 7.6.5 and Figures 7-1 and 7-2 for baseline landscape environment and sections 7.6.6 – 7.6.8 and Figures 7-3 to 7-69 for baseline visual environment).

#### 5.5.1.2 The baseline noise environment is as given in EAR Chapter 11: Noise and Vibration (Section 11.6).

### 5.6 Scoping

#### 5.6.1.1 The potential impacts outlined in Section 5.2.1 have been considered with regard to the Scheme. Justification of whether the potential impacts are scoped in or out are provided in Table 5-2.

---

35 Meeting with the SDNPA undertaken in South Downs Centre, Midhurst on 29 April 2019
<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Scoped in/out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise Impact</td>
<td>Scoped in</td>
<td>A change to existing noise levels are anticipated due to the Scheme.</td>
</tr>
<tr>
<td>Impact of artificial lighting on the nighttime environment</td>
<td>Scoped in</td>
<td>Design information available in the Interim Scheme Assessment Report (Section 8.16) shows that artificial lighting is only included at existing lit junctions at operation. Requirements for artificial lighting at construction are not known at this stage. No night time quantitative assessment has therefore been undertaken. However, qualitative consideration is given to effects of lighting and traffic headlights on the night time environment.</td>
</tr>
<tr>
<td>Impact of lighting on dark night skies</td>
<td>Scoped in</td>
<td>A change to existing levels of lighting (primarily due to traffic headlights) are anticipated due to the Scheme.</td>
</tr>
<tr>
<td>Impact of reduction of disturbance from some existing roads.</td>
<td>Scoped in</td>
<td>This element will be considered as part of the discussion of Special Quality 7 in Chapter 9.</td>
</tr>
</tbody>
</table>
5.7 Design, mitigation and enhancement

5.7.1.1 Detailed mitigation proposals will be produced for the Scheme at PCF Stage 3 (Preliminary Design) and once detailed designs are available, including detailed information on construction requirements. However, a summary of mitigation measures appropriate for this assessment in PCF Stage 2 (Option Selection) are outlined below.

5.7.2 Construction phase mitigation measures

5.7.2.1 The following construction phase mitigation measures have been identified for the Scheme following site visits and are those which are standard best practice and included in the assessment of effects:

- Temporary construction lighting to be minimal in extent and use
- Construction working area to be as contained and constrained as possible, by implementation of a Construction Environmental Management Plan
- Noise and dust to be kept to a minimum
- Implementation of a Construction Environmental Management Plan to include consideration of low level and directional lighting, protection of trees and storage of topsoil.

5.7.3 Design and operational phase mitigation measures

5.7.3.1 The internationally accepted mitigation hierarchy\(^{36}\), restated in DMRB guidance\(^{37}\) for landscape and visual effects is always to firstly avoid creating adverse effects, then, if this cannot be achieved, to reduce, and finally to replace (or remedy). Where avoidance is not possible, measures such as planting, barriers or earth shaping could help to reduce or possibly remedy a potential adverse landscape or visual effect that would otherwise result from the Scheme.

5.7.3.2 In some instances, the scale, location, positioning and design of the road will not be able to accommodate suitable mitigation. In these areas, the opportunity to enhance the surrounding landscape would be explored.

---

\(^{36}\) Directive 2011/92/EU as amended by Directive 2014/52/EU phrases it (eg in Annex IV point 7) as “avoid, prevent, reduce, or if possible, offset”

\(^{37}\) IAN 135/10
5.7.3.3 The design and operational phase mitigation measures identified for the Scheme following site visits and considering best practice procedures are as follows:

- The design of the horizontal and vertical alignments for the main line of each Scheme option and its side roads and junctions considered, amongst other things, the surrounding topography; vegetation; existing landscape features (such as hedges, water features, woodland, and field systems); proximity of residential properties; and key views and vistas
- Earthworks design to minimise the impact of the cuttings and embankments. Where appropriate, there is the potential for the grading out of earthworks at sensitive locations to avoid disjointed appearance of landform and aid integration of the Scheme options into the landscape
- Consideration of the form and finish of structures, including bridges
- No artificial lighting along the Scheme, except at existing junctions (Crossbush and its approaches and Ford Road roundabout and its approaches)
- Cuttings: All Scheme options benefit from the noise-reducing properties of cuttings at key sensitive noise locations, provided that the line-of-sight is obstructed
- Retention of existing established trees and vegetation wherever possible
- Incorporation of new native woodland planting to integrate with existing (where appropriate)
- Use of native woodland mixes that comprise a mix of trees and scrub species that reflect the inherent woodland composition and enhance biodiversity. This would be developed further at PCF Stage 3 (Preliminary Design)
- Planting at junctions and structures to help assimilate the structures into the landscape (where appropriate)
- Planting to respect the existing pattern of vegetation
- Limited planting within areas of open landscape character to reflect and reinforce existing floodplain landscape
- Consideration of the use of visual barriers, where planting depth may be insufficient to provide effective screening
- Noise reduction screening. Noise barriers (earth bunding or acoustic fencing or a combination) at specific locations could be a worthwhile control measure in certain areas. **EAR Chapter 11: Noise and Vibration** (Table 11-12) provides a description of the barrier lengths considered in each Scheme option
- Noise reduction surfacing. (It has been assumed that the entirety of the Scheme will benefit from a low noise surface to reduce noise arising from tyre-surface interaction. At the appropriate time, an assessment of the effect of noise with and without this surface treatment should be undertaken to ascertain the potential cost-benefit of this measure).
5.7.4 Opportunities for enhancement

5.7.4.1 The Scheme options provide varying opportunities for enhancement (which may indirectly enhance tranquillity or dark night skies through providing screening or improved perception of landscape quality or relative wildness). Although they have not been included in the assessment of effects, the following opportunities for enhancement have been identified for the Scheme for further consideration in PCF Stage 3:

- Enhancement of the River Arun floodplain character through adopting some of the West Sussex County Council management objectives for the floodplain
- Enhancement of the river Arun river channel through naturalisation and planting of the river banks
- Provision of a non-vehicular access route across the flood plain
- Enhancing the character of local woodlands where appropriate
- Reinstatement of field boundaries
- Enhanced ‘gateways’ to the SDNP such as at Crossbush

5.8 Assessment of potential impacts

5.8.1 Position Statement - Potential impact 1: noise

5.8.1.1 Criteria relating to the significance of noise impacts is described in EAR Chapter 11: Noise and Vibration, however, no statutory guidance is currently available for consideration of ‘tranquil and unspoilt places’. The noise level changes inferred as part of this assessment have the potential to undermine the tranquil characteristics of some areas of the national park in proximity to the Scheme. The magnitude of operational noise for short-term and long-term is described in EAR Chapter 11: Noise and Vibration (Tables 11-3 and 11-4). Maps of long and short-term impacts are provided in EAR Chapter 11: Noise and Vibration (Figure 11-1 to Figure 11-55). Short-terms are the likely impacts during the year of opening and long-term impacts correspond to 15 years after opening.

Table 5-3 and Table 5-4 below show the relationship between change in noise measurements and the operational magnitude of impact for the short-and long-term assessments respectively. The approach to determining significance is defined in EAR Chapter 11: Noise and Vibration (Section 11.3.3).

<table>
<thead>
<tr>
<th>Noise change, $L_{A10,18h}$ dB</th>
<th>Magnitude of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>0.1 - 0.9</td>
<td>Negligible</td>
</tr>
<tr>
<td>1 - 2.9</td>
<td>Minor</td>
</tr>
<tr>
<td>3 - 4.9</td>
<td>Moderate</td>
</tr>
<tr>
<td>5+</td>
<td>Major</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Noise change, $L_{A10,18h}$ dB</th>
<th>Magnitude of impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No change</td>
</tr>
<tr>
<td>0.1 - 2.9</td>
<td>Negligible</td>
</tr>
<tr>
<td>3 - 4.9</td>
<td>Minor</td>
</tr>
<tr>
<td>5 - 9.9</td>
<td>Moderate</td>
</tr>
<tr>
<td>10+</td>
<td>Major</td>
</tr>
</tbody>
</table>

Sensitive receptors have been identified and they are described in EAR Chapter 11: Noise and Vibration (Section 11.6.8). A discussion of the potential impacts on residential properties, biodiversity receptors (Ancient Woodland, Wood pasture and parkland HPI and the Coastal and Floodplain Grazing Marsh HPI) and Public Rights of Way (Footpaths and bridleways) is outlined below.

Option 1V5

Figure 5-1 shows the operational noise impacts in the short-term and Figure 5-2 shows the noise impacts in the long-term. For the short-term, the majority of the SDNP within the Study Area would experience either a negligible or a minor adverse noise impact, therefore not significant. This would equate to a noise level change of less than 3dB. For the long-term, the majority of the SDNP within the Study Area would experience a negligible noise impact. This would equate to a noise level change of less than 3dB.

In terms of residential properties, there are likely to be significant operational noise effects on properties along the route (east and south of Crossbush,
north of Ford Road roundabout, Fitzalan Road, Ford Road, and south of A27/ west of Ford Road roundabout). There would not be significant effects on properties at Tortington, Binsted or Walberton.

5.8.1.6 In terms of biodiversity areas, the ancient woodland would experience an increase up to 5dB, and areas along the Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain could experience an increase of over 5dB. Table 5-5 describes the biodiversity receptors for Option 1V5 reproduced from the EAR.

Table 5-5 - Biodiversity receptors in Option 1V5

<table>
<thead>
<tr>
<th>Area</th>
<th>Changes in noise levels in the opening year (dB)</th>
<th>Design year noise level $L_{10}$ (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Woodland</td>
<td>-1 to +5</td>
<td>50-65</td>
</tr>
<tr>
<td>Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain</td>
<td>-1 to &gt;5</td>
<td>50-70</td>
</tr>
<tr>
<td>Wood pasture and parkland HPI</td>
<td>-5 to +5</td>
<td>45-70</td>
</tr>
</tbody>
</table>

5.8.1.7 The percentage of footpaths experiencing an increase in noise of over 3dB in the short term is around 4%, with around 45% experiencing noise levels of over 50dB due to road noise in the opening year. This is compared with 86% of bridleways experiencing noise levels over 50dB due to road noise in the opening year. These results relate to the percentage of footpaths within the EAR Study Area for the option.

Table 5-6 - Public rights of way in Option 1V5

<table>
<thead>
<tr>
<th>PROW</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% footpaths experiencing an increase in noise of &gt;3dB in opening year</td>
<td>4%</td>
</tr>
<tr>
<td>footpaths over 50dB in design year</td>
<td>45%</td>
</tr>
<tr>
<td>% bridleways experiencing an increase in noise of &gt;3dB in opening year</td>
<td>0%</td>
</tr>
<tr>
<td>% bridleways over 50dB in design year</td>
<td>86%</td>
</tr>
</tbody>
</table>
Option 1V9

5.8.1.8 Figure 5-3 shows the operational noise impacts in the short-term and Figure 5-4 shows the noise impacts in the long-term. For the short-term, the majority of the SDNP within the Study Area would experience either a negligible or a minor adverse noise impact, therefore not significant. This would equate to a noise level change of less than 3dB. For the long-term, the majority of the SDNP within the Study Area would experience a negligible noise impact. This would equate to a noise level change of less than 3dB.

5.8.1.9 In terms of residential properties, there are likely to be significant operational noise effects on properties along the route (east and south of Crossbush, north of Ford Road roundabout, Fitzalan Road, Ford Road, and south of A27/ west of Ford Road roundabout). There would not be significant effects on properties at Tortington, Binsted or Walberton.

5.8.1.10 In terms of biodiversity areas, the ancient woodland could experience an increase of up to 3dB. Areas along the Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain could experience an increase of over 5dB, and Wood pasture and parkland HPI an increase of up to 5dB. Table 5-7 describes the biodiversity receptors for Option 1V9 reproduced from the EAR.

Table 5-7 - Biodiversity receptors in Option 1V9

<table>
<thead>
<tr>
<th>Area</th>
<th>Changes in noise levels in the opening year (dB)</th>
<th>Design year noise level L_{10} (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Woodland</td>
<td>-3 to +3</td>
<td>50-65</td>
</tr>
<tr>
<td>Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain</td>
<td>-1 to &gt;+5</td>
<td>50-70</td>
</tr>
<tr>
<td>Wood pasture and parkland HPI</td>
<td>-5 to +5</td>
<td>45-70</td>
</tr>
</tbody>
</table>

5.8.1.11 The percentage of footpaths experiencing an increase in noise of over 3dB in the short term is around 4%, with around 50% experiencing noise levels of over 50dB due to road noise in the opening year. This is compared with 86% of bridleways experiencing noise levels over 50dB due to road noise in the opening year. These results relate to the percentage of footpaths within the EAR Study Area for the option.
### Option 3V1

5.8.1.12 **Figure 5-5** shows the operational noise impacts in the short-term and **Figure 5-6** shows the noise impacts in the long-term. For the short-term, the majority of the SDNP within the Study Area would experience a negligible noise impact, therefore not significant. This would equate to a noise level change of less than 1dB. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.13 For the long-term, the majority of the SDNP within the Study Area would experience a negligible noise impact. This would equate to a noise level change of less than 3dB. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.14 In terms of residential properties, there are likely to be significant operational noise effects on properties along the route (east and south of Crossbush, Fitzalan Road, Ford Road, south of A27/ west of Ford Road roundabout and Tortington). There would not be significant effects on properties in Binsted, Walberton or north of Ford Road roundabout.

5.8.1.15 In terms of biodiversity areas, the ancient woodland and areas along the Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain could experience an increase of over 5dB. Wood pasture and parkland HPI could experience an increase of up to 3dB. **Table 5-9** describes the biodiversity receptors for Option 3V1 reproduced from the EAR.

**Table 5-8 - Public rights of way in Option 1V9**

<table>
<thead>
<tr>
<th>PROW</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% footpaths experiencing an increase in noise of &gt;3dB in opening year</td>
<td>4%</td>
</tr>
<tr>
<td>footpaths over 50dB in design year</td>
<td>44%</td>
</tr>
<tr>
<td>% bridleways experiencing an increase in noise of &gt;3dB in opening year</td>
<td>0%</td>
</tr>
<tr>
<td>% bridleways over 50dB in design year</td>
<td>86%</td>
</tr>
</tbody>
</table>
Table 5-9 - Biodiversity receptors in Option 3V1

<table>
<thead>
<tr>
<th>Area</th>
<th>Changes in noise levels in the opening year (dB)</th>
<th>Design year noise level L_{10} (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Woodland</td>
<td>-3 to &gt;+5</td>
<td>50-70</td>
</tr>
<tr>
<td>Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain</td>
<td>-3 to &gt;+5</td>
<td>50-70</td>
</tr>
<tr>
<td>Wood pasture and parkland HPI</td>
<td>-5 to +3</td>
<td>45-70</td>
</tr>
</tbody>
</table>

5.8.1.16 The percentage of footpaths experiencing an increase in noise of over 3dB in the short term is around 8%, with around 52% experiencing noise levels of over 50dB due to road noise in the opening year. This is compared with 84% of bridleways experiencing noise levels over 50dB due to road noise in the opening year. These results relate to the percentage of footpaths within the EAR Study Area for the option.

Table 5-10 - Public rights of way in Option 3V1

<table>
<thead>
<tr>
<th>PROW</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% footpaths experiencing an increase in noise of &gt;3dB in opening year</td>
<td>8%</td>
</tr>
<tr>
<td>footpaths over 50dB in design year</td>
<td>52%</td>
</tr>
<tr>
<td>% bridleways experiencing an increase in noise of &gt;3dB in opening year</td>
<td>3%</td>
</tr>
<tr>
<td>% bridleways over 50dB in design year</td>
<td>84%</td>
</tr>
</tbody>
</table>

Option 4/5AV1

5.8.1.17 **Figure 5-7** shows the operational noise impacts in the short-term and **Figure 5-8** shows the noise impacts in the long-term. For the short-term, the majority of the SDNP within the Study Area would experience a negligible noise impact, therefore not significant. This would equate to a noise level change of less than 1dB. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.18 For the long-term, the majority of the SDNP within the Study Area would experience a negligible noise impact. This would equate to a noise level change of less than 3dB. Limited areas would be subject to a minor, moderate
and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.19 In terms of residential properties, there are likely to be significant operational noise effects on properties along the route (east and south of Crossbush, Fitzalan Road, south of A27/ west of Ford Road roundabout, Tortington and Binsted). There would not be significant effect on properties at Walberton, north of Ford Road roundabout or along Ford Road.

5.8.1.20 In terms of biodiversity areas, the ancient woodland and areas along the Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain could experience an increase of up to 5dB. Wood pasture and parkland HPI could experience an increase of over 5dB. **Table 5-11** describes the biodiversity receptors for Option 4/5AV1 reproduced from the EAR.

**Table 5-11 - Biodiversity receptors in Option 4/5AV1**

<table>
<thead>
<tr>
<th>Area</th>
<th>Changes in noise levels in the opening year (dB)</th>
<th>Design year noise level L_{10} (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Woodland</td>
<td>&lt;-5 to +5</td>
<td>45-55</td>
</tr>
<tr>
<td>Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain</td>
<td>-3 to &gt;+5</td>
<td>50-70</td>
</tr>
<tr>
<td>Wood pasture and parkland HPI</td>
<td>-5 to &gt;5</td>
<td>45-70</td>
</tr>
</tbody>
</table>

5.8.1.21 The percentage of footpaths experiencing an increase in noise of over 3dB in the short term is around 12%, with around 52% experiencing noise levels of over 50dB due to road noise in the opening year. This is compared with 63% of bridleways experiencing noise levels over 50dB due to road noise in the opening year. These results relate to the percentage of footpaths within the EAR Study Area for the option.

**Table 5-12 - Public rights of way in Option 4/5AV1**

<table>
<thead>
<tr>
<th>PROW</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% footpaths experiencing an increase in noise of &gt;3dB in opening year</td>
<td>12%</td>
</tr>
<tr>
<td>footpaths over 50dB in design year</td>
<td>52%</td>
</tr>
<tr>
<td>% bridleways experiencing an increase in noise of &gt;3dB in opening year</td>
<td>29%</td>
</tr>
</tbody>
</table>
SDNP Special Quality Assessment
Chapter 5: Special Quality 3
A27 Arundel Bypass – PCF Stage 2 Further Consultation

PROW (%)

% bridleways over 50dB in design year 63%

**Option 4/5AV2**

5.8.1.22 **Figure 5-9** shows the operational noise impacts in the short-term and **Figure 5-10** shows the noise impacts in the long-term. For the short-term, the majority of the SDNP within the Study Area would experience a negligible noise impact, therefore not significant. This would equate to a noise level change of less than 1dB. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.23 For the long-term, the majority of the SDNP within the Study Area would experience a negligible noise impact. This would equate to a noise level change of less than 3dB. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.24 In terms of residential properties, there are likely to be significant operational noise effects on properties along the route (east and south of Crossbush, Fitzalan Road, south of A27/ west of Ford Road roundabout, Tortington and Binsted). There would not be significant effects on properties at Walberton, north of Ford Road roundabout or along Ford Road.

5.8.1.25 In terms of biodiversity areas, the ancient woodland and areas along the Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain could experience an increase of up to 5dB. Wood pasture and parkland HPI could experience an increase of over 5dB. **Table 5-13** describes the biodiversity receptors for Option 4/5AV2 reproduced from the EAR.

**Table 5-13 - Biodiversity receptors in Option 4/5AV2**

<table>
<thead>
<tr>
<th>Area</th>
<th>Changes in noise levels in the opening year (dB)</th>
<th>Design year noise level L_{10} (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Woodland</td>
<td>&lt;-5 to +5</td>
<td>50-65</td>
</tr>
<tr>
<td>Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain</td>
<td>-3 to &gt;+5</td>
<td>50-70</td>
</tr>
<tr>
<td>Wood pasture and parkland HPI</td>
<td>-5 to &gt;5</td>
<td>45-70</td>
</tr>
</tbody>
</table>
5.8.1.26 The percentage of footpaths experiencing an increase in noise of over 3dB in the short term is around 12%, with around 53% experiencing noise levels of over 50dB due to road noise in the opening year. This is compared with 66% of bridleways experiencing noise levels over 50dB due to road noise in the opening year. These results relate to the percentage of footpaths within the EAR Study Area for the option.

Table 5-14 - Public rights of way in Option 4/5AV2

<table>
<thead>
<tr>
<th>PROW</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% footpaths experiencing an increase in noise of &gt;3dB in opening year</td>
<td>12%</td>
</tr>
<tr>
<td>footpaths over 50dB in design year</td>
<td>53%</td>
</tr>
<tr>
<td>% bridleways experiencing an increase in noise of &gt;3dB in opening year</td>
<td>26%</td>
</tr>
<tr>
<td>% bridleways over 50dB in design year</td>
<td>66%</td>
</tr>
</tbody>
</table>

Option 5BV1

5.8.1.27 Figure 5-11 shows the operational noise impacts in the short-term and Figure 5-12 shows the noise impacts in the long-term. For the short-term, the majority of the SDNP within the Study Area would experience a negligible noise impact, therefore not significant. This would equate to a noise level change of less than 1dB. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.28 For the long-term, the majority of the SDNP within the Study Area would experience a negligible noise impact. This would equate to a noise level change of less than 3dB. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

5.8.1.29 In terms of residential properties, there are likely to be significant operational noise effects on properties along the route, including east and south of Crossbush, Fitzalan Road, south of A27 and west of Ford Road roundabout, Tortington, Binsted and Walberton. There would not be significant effects on properties north of Ford Road roundabout or along Ford Road.

5.8.1.30 In terms of biodiversity areas, the ancient woodland and areas along the Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain could experience an increase of over 5dB. Wood pasture and parkland HPI could experience an increase of over 5dB, and across the River Arun floodplain
south of the existing A27, an increase of over 5dB could be experienced. **Table 5-15** describes the biodiversity receptors for Option 5BV1 reproduced from the EAR.

### Table 5-15 - Biodiversity receptors in Option 5BV1

<table>
<thead>
<tr>
<th>Area</th>
<th>Changes in noise levels in the opening year (dB)</th>
<th>Design year noise level L₁₀ (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Woodland</td>
<td>&lt;-5 to +3</td>
<td>50-70</td>
</tr>
<tr>
<td>Coastal and Floodplain Grazing Marsh HPI on the River Arun floodplain</td>
<td>-3 to &gt;+5</td>
<td>50-70</td>
</tr>
<tr>
<td>Wood pasture and parkland HPI</td>
<td>-5 to &gt;+5</td>
<td>50-70</td>
</tr>
</tbody>
</table>

5.8.1.31 The percentage of footpaths experiencing an increase in noise of over 3dB in the short term is around 11%, with around 51% experiencing noise levels of over 50dB due to road noise in the opening year. This is compared with 56% of bridleways experience noise levels over 50dB due to road noise in the opening year. These results relate to the percentage of footpaths within the EAR Study Area for the option.

### Table 5-16 - Public rights of way in Option 5BV1

<table>
<thead>
<tr>
<th>PROW</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% footpaths experiencing an increase in noise of &gt;3dB in opening year</td>
<td>11%</td>
</tr>
<tr>
<td>footpaths over 50dB in design year</td>
<td>51%</td>
</tr>
<tr>
<td>% bridleways experiencing an increase in noise of &gt;3dB in opening year</td>
<td>39%</td>
</tr>
<tr>
<td>% bridleways over 50dB in design year</td>
<td>56%</td>
</tr>
</tbody>
</table>

5.8.2 Position Statement - Potential impact 2: effect on dark night skies

5.8.2.1 Consideration of the effect on dark night skies draws on information given in **EAR Chapter 7: Landscape and Visual** and professional judgment to provide a qualitative discussion of this aspect of the special quality.

5.8.2.2 The operational lighting design for the Scheme options is not available at this stage of the assessment and therefore the findings are based on the assumption that only Crossbush junction and its approaches would be lit (for all Scheme options), along with Ford Road roundabout and its approaches (from the community hospital to Ford Road roundabout for example) for
Option 1V5 and Option 1V9. Proposed lighting will be to the required standards at the time. As such, the Scheme options will each have the potential to increase lighting within the immediate environment and may impact locally on the quality of the dark skies within the International Dark Sky Reserve.

5.8.2.3 The existing and emerging policy of the relevant local authorities all have safeguards for preventing or minimising light pollution within the landscape. The SDNP Local Plan 2019 provides greater detail regarding proposed lighting in relation to the International Dark Sky Reserve as well as across the whole of the South Downs. Policy SD8 applies throughout the SDNP and contains detail of the likely restrictions and conditions within specific Dark Sky Zones that the lighting design should adhere to, in order to conserve and enhance the intrinsic quality of dark night skies and the integrity of the Dark Sky Core.

5.8.2.4 The Dark Sky Zones present within the SDNP, as shown on the SD8 Dark Night Skies Map, include the following:

- Dark Sky Core (E0)
- Two-kilometre Buffer Zone (E1a)
- Transition Zone (E1b)
- Urban areas (E3/4).

5.8.2.5 Proposed lighting within or near these zones should have regard to the lighting level requirements set out in Policy SD8.

5.8.2.6 In addition, CPRE Night Blight – interactive mapping of light intrusion\(^{39}\) indicate that the area around Binsted incorporates some of the darkest skies in the survey (<0.25 NanoWatts / cm\(^2\)/sr). Light intrusion becomes much more visible at Arundel and Crossbush (increasing to 4 - 8 NanoWatts / cm\(^2\)/sr). Brighter levels are also associated with Ford, Walberton and Yapton, at 2 - 4 NanoWatts / cm\(^2\)/sr. It is clear that light intrusion is brightest around settlements, with a reduction in light intrusion within woodlands and at a distance from built settlements.

**Option 1V5**

5.8.2.7 The proposed A27 mainline in Option 1V5 would be unlit along its length, although lighting on the bypassed existing A27 would be retained. In addition,
it is assumed that Option 1V5 would require new lighting on the A284 at the proposed Crossbush junction, consistent with the existing lighting, as well as new lighting on the tops of the slip roads at this junction. This location is on the boundary of the SDNP and the Transitional Zone (outside the designated Dark Skies reserve or its 2km buffer zone) but there would be a slightly increased level of lighting associated with a more extensive junction arrangement and lighting should have regard to applicable lighting restrictions (as outlined in Policy SD8 of the SDNP Local Plan).

5.8.2.8 Option 1V5 broadly follows the same alignment as the existing A27 and would therefore not introduce significant additional lighting impacts as a result of traffic movements - the general direction and location of the light source being similar (with the exception of the new link crossing the Arun floodplain and new elevated section over Ford Road roundabout). Although slightly increasing the physical extent of lighting (and potentially extending the influence of vehicular headlights on elevated sections due to their height in the landscape), this would generally be in the context of lighting from the existing A27 and street lighting associated with Arundel.

5.8.2.9 Option 1V5 is therefore not anticipated to substantially increase light levels or impact on the integrity of the designated Dark Sky reserve or its two-kilometre buffer zone.

**Option 1V9**

5.8.2.10 Option 1V9 would require an upgrade of the existing lit roundabout at Ford Road within Arundel and would have a lit mainline section from west of the community hospital through to the divergence with the existing A27 to the east of Fitzalan Road (that is new lighting to replace existing extent of lighting along this section). Part of this section is within or on the boundary of the SDNP and therefore within its dark skies Transition Zone (but outside the designated Dark Skies reserve of its 2km buffer zone). New, modern lighting is likely to perform better with regards to control of light pollution than existing roadside lighting (due to more appropriately designed luminaires, shielding and light colour) and is therefore unlikely to result in significantly increased artificial lighting levels. The lighting strategy should, however, have regard to applicable lighting restrictions (as outlined in Policy SD8 of the SDNP Local Plan).

5.8.2.11 Option 1V9 would also require new lighting added to the existing lit junction at Crossbush and its approaches; similarly, this location is on the boundary of the Transitional Zone and there would be a slightly increased physical extent of lighting associated with a more extensive junction arrangement.
5.8.2.12 Option 1V9 broadly follows the same alignment as the existing A27 and would therefore not introduce significant additional lighting impacts as a result of traffic movements - the general direction and location of the light source being similar. Although the physical extent of lighting would be increased, particularly around Ford Road roundabout, this would generally be in the context of lighting from the existing A27 and street lighting associated with Arundel.

5.8.2.13 Option 1V9 is therefore not anticipated to substantially increase light levels or impact on the integrity of the designated Dark Sky reserve or its two-kilometre buffer zone.

**Option 3V1**

5.8.2.14 No lighting is anticipated to be included within Option 3V1 with the exception of the junction at Crossbush (on the A284 and the tops of the slip roads at the proposed Crossbush junction). This location would be on the boundary of the Transitional Zone, but there would be an increased extent of lighting associated with a larger junction arrangement and slip roads. Lighting should therefore have regard to the applicable lighting restrictions.

5.8.2.15 The impact of car headlights within the corridor would give rise to localised increases in low level light pollution, particularly from traffic approaching the western tie-in junction. This however could be mitigated through planting along the northern edge of the junction to reduce the sweeping effect of the headlights. To the south of the junction the corridor would be largely within a cutting, limiting the impact of headlights on the adjacent landscape. To the east of Tortington Lane and as the alignment crosses the Arun floodplain the impact of additional car headlights would introduce a new source of light into the landscape. The headlights would generally be moving in an east/west direction so that the impact of headlights on the Transitional Zone and Dark Sky Core to the north would be limited. Option 3V1 would extend the physical extent of lighting into the Arun floodplain which currently has very low levels of lighting associated with it.

5.8.2.16 Option 3V1 is not anticipated to substantially increase light levels and impact on the integrity of the two-kilometre Dark Sky Buffer zone but would introduce a new source of light within the relatively dark landscape of the Arun floodplain.

**Option 4/5AV1**

5.8.2.17 The western tie-in junction for Option 4/5AV1 would be on the boundary of the SDNP dark skies Transitional Zone and potentially within or next to the designated Dark Sky Reserve’s two-kilometre Buffer Zone. The proposed A27 mainline is currently proposed to be unlit along its length (subject to the
results of a detailed lighting impact risk assessment). No new lighting is therefore anticipated in this location such that impacts on the transitional zone and two-kilometre Buffer Zone would be limited.

5.8.2.18 Light, however, would be introduced as a result of car headlights at the western tie-in and around Binsted and Binsted Park. The impact of car headlights would give rise to localised increases in low level light pollution and introduce a new source of light, particularly from traffic approaching the western tie-in junction. This increase in car headlights would be partially offset by the de-trunking of the existing A27 corridor, moving the headlights further south to the boundary of the SDNP. Mitigation planting could further constrain the sweeping effect of headlights spilling into the wider landscape, although where Option 4/5AV1 is on viaduct across Hedger’s Hill, elevated traffic headlights would introduce an additional source of lighting along its length.

5.8.2.19 To the east of Tortington Lane and as the alignment crosses the Arun floodplain the impact of additional car headlights would introduce a new source of light. Traffic would move in a generally east/west direction, so the impact of their headlights on the Transitional Zone and Dark Sky Core to the north would be limited. Option 4/5AV1 would extend the physical extent of lighting into the Arun floodplain which currently has very low levels of lighting associated with it.

5.8.2.20 Option 4/5AV1 would require new lighting added to the existing lit junction at Crossbush and its slip road approaches. This location would be on the boundary of the Transitional Zone of the SDNP, but there would be an increased physical extent of lighting associated with a larger junction arrangement at Crossbush. All new lighting should have regard to the applicable lighting restrictions (as outlined in Policy SD8 of the SDNP Local Plan).

5.8.2.21 Option 4/5AV1 is not anticipated to substantially increase light levels or impact on the integrity of the Dark Sky Reserve Core area or two-kilometre Buffer Zone, but car headlights would introduce a new source of light within the dark landscape of the Arun floodplain, around Hedgers’ Hill, and in Binsted Park.

Option 4/5AV2

5.8.2.22 The western tie-in junction for Option 4/5AV2 would be within the SDNPs Dark Skies Transitional Zone and potentially within or next to the designated Dark Skies reserve two-kilometre Buffer Zone. There is no new lighting anticipated with Option 4/5AV2 (the mainline being unlit along the majority of its length, subject to the findings of a detailed lighting impact risk assessment)
and therefore impacts on the transitional zone and two-kilometre Buffer Zone would be limited.

5.8.2.23 Light, however, would be introduced as a result of car headlights at the western tie-in and around Binsted and Binsted Park. The impact of car headlights would give rise to localised increases in low level light pollution and introduce a new source of light, particularly from traffic approaching the western tie-in junction. This increase in car headlights would be partially offset by reduced traffic on the existing A27 corridor, moving the headlights slightly further south towards the boundary of the SDNP. Mitigation planting could also help constrain the sweeping effect of headlights spilling into the wider landscape.

5.8.2.24 To the east of Tortington Lane the alignment follows the same route alignment as Option 4/5AV1 and therefore the impacts in relation to car headlights, particularly across the Arun floodplain, and new lighting associated with the proposed junction at Crossbush, would be similar.

5.8.2.25 Option 4/5AV2 is therefore not anticipated to substantially increase light levels or impact on the integrity of the Dark Sky Reserve Core area or two-kilometre Buffer Zone, but car headlights would introduce a new source of light within the dark landscape of the Arun floodplain and in Binsted and Binsted Park.

Option 5BV1

5.8.2.26 The western tie-in junction for Option 5BV1 would be outside the SDNPs Dark boundary and therefore outside its Dark Skies Transitional Zone and two-kilometre Buffer Zone. No new lighting is anticipated with Option 5BV1 (the mainline being unlit along the majority of its length, subject to the findings of a detailed lighting impact risk assessment) and therefore impacts on the Transitional Zone would be limited.

5.8.2.27 Light, however, would be introduced as a result of car headlights at both the western tie-in junction and around Binsted and south of Binsted Park. The impact of car headlights would give rise to localised increases in low level light pollution and introduce a new source of light, particularly from traffic approaching the western tie-in junction. This increase in car headlights would be partially offset by reduced traffic along the existing A27 corridor, moving the headlights further south and outside the boundary of the National Park. Mitigation planting either side of Option 5BV1 could help further constrain the sweeping effect of headlights spilling into the wider landscape but where Option 5BV1 runs on viaduct west of St Mary’s Church in Binsted, planting would have limited effect.
5.8.2.28 To the east of Tortington Lane the alignment follows the same route alignment as Option 4/5AV1 and therefore the impacts in relation to car headlights, particularly across the Arun floodplain, and new lighting associated with the proposed junction at Crossbush, would be similar.

5.8.2.29 Option 5BV1 is therefore not anticipated to substantially increase light levels or impact on the integrity of the Dark Sky Reserve Core area or two-kilometre Buffer Zone, but car headlights would introduce a new source of light within the dark landscape of the Arun floodplain and in Binsted around St Mary’s Church in particular.

**Dark skies summary**

5.8.2.30 It is acknowledged that lighting associated with all Scheme options has the potential to impact the International Dark Sky Reserve and in particular the Transitional Zone due principally to the effect of car headlights as traffic moves along each Scheme option. Headlights would introduce a new light source across the dark landscape of the Arun floodplain, and within woodlands and parkland associated with Binsted. This could be partially ameliorated through careful mitigation planting.

5.8.2.31 Option 1V5 would not create a new component within the SDNP and lighting would be largely located along the existing A27 route corridor. Increased levels of highway infrastructure, traffic and car headlights (particularly across elevated sections) would increase extent and overall levels of lighting along the route corridor but would be seen in the context of the existing route corridor and lit settlement of Arundel. Option 1V5 is therefore not anticipated to substantially increase light levels or impact on the integrity of the designated Dark Sky reserve or its two-kilometre buffer zone.

5.8.2.32 Option 1V9 would not create a new component within the SDNP with lighting being located largely along the existing route corridor. Increased levels of highway infrastructure, traffic, car headlights and loss of woodland (some of it ancient woodland) would increase level and extent of lighting along the route corridor but within the context of existing highway lighting and lighting in Arundel. Option 1V9 is therefore not anticipated to substantially increase light levels or impact on the integrity of the designated Dark Sky reserve or its two-kilometre buffer zone.

5.8.2.33 Option 3V1 would create a major new component within the SDNP, introducing traffic headlights into areas currently experiencing low lighting levels and very few/no vehicle headlights. The presence of woodland screening may help prevent some light spill and glare into the wider landscape, but it would not prevent skyward light spill. Whilst it will be distant from, and therefore will not impact on, the designated Dark Skies Core, it
could impinge on the two-kilometre Dark Sky Buffer zone and would significantly impact the experience of dark skies in the immediate vicinity of Option 3V1.

5.8.2.34 Option 4/5AV1 would create a significant new component within the SDNP at Binsted. Whilst not impacting upon part the designated Dark Skies Core zone, it may start to impinge upon the two-kilometre Dark Sky Buffer zone and would introduce traffic headlights into areas currently experiencing very low lighting levels and few/no vehicle headlights. This would significantly impact the experience of dark skies in this area of the SDNP.

5.8.2.35 Option 4/5AV2 would create a new, elevated component in a small section of the SDNP at Hedger’s Hill. Whilst not impacting upon the designated Dark Skies Core zone, it may start to impinge upon the two-kilometre Dark Sky Buffer zone. Option 4/5AV1 would introduce traffic headlights into areas currently experiencing low lighting levels and few/no vehicle headlights, significantly impacting on the experience of dark skies in this small section of the SDNP.

5.8.2.36 Option 5BV1 would create a new component on the edge, but outside the boundary of the SDNP. The introduction of traffic headlights in proximity to Binsted Park would impact on the experiential qualities of the SDNP at this location, and further degrade the quality of the landscape surrounding it, but it would not directly impact the designated Dark Skies Core zone or two-kilometre Dark Sky Buffer zone. It would have limited impact on the experience of dark skies on the boundary of the SDNP except where in closest proximity at Binsted.

5.8.2.37 Further detail and assessment will be required in PCF Stage 3 to understand the potential lighting impacts of a preferred Scheme option. Any lighting design should have regard to the requirements and standards as set out in Policy SD8 (or as those contained in the adopted Local Plan).

5.9 Summary

5.9.1.1 The increased influence of the A27 in Option 1V5 and Option 1V9 would have an adverse impact on the landscape quality and tranquillity levels currently experienced along these routes, albeit the existing A27 is already a detractor to tranquility and quality for users of the SDNP and those living alongside it. The increased footprint of both these Scheme options would further separate areas within Binsted Wood Complex LWS from the rest of the SDNP and exert a greater influence on the landscape immediately surrounding both Scheme options. Option 1V5 and Option 1V9 both follow the existing alignment of the A27 where it is located within and immediately adjacent to
the SDNP. The presence of traffic, highway and car headlights will therefore already be present in this landscape, but Option 1V5 and Option 1V9 would increase disturbance – including vehicular noise, headlights and artificial lighting – along the existing alignment. It is therefore likely that, in relation to the SDNP itself and its tranquillity and quality, that Option 1V5 and Option 1V9 would both have adverse effects, but they are unlikely to be significant.

5.9.1.2 Options 3V1, 4/5AV1 and 4/5AV2 would introduce new and extensive detracting elements into the SDNP and its immediate setting. They would increase the influence of the A27 on the experiential qualities of the SDNP and introduce highly incongruent new features. The presence of moving traffic, headlights, and hard engineering components would influence the actual and perceived tranquillity and unspoilt landscape around Binsted and Binsted Park in particular. All three Scheme options would introduce a new source of light into the SDNP and its setting. The likely reduction in traffic along the existing A27 route corridor is unlikely to influence the adverse change in relative tranquillity or perception of landscape quality in relation to Option 3V1 or Option 4/5AV2.

5.9.1.3 Option 4/5AV1 is almost entirely outside the SDNP, but intrudes into the boundary at Hedger’s Hill and Binsted Park. It would therefore exert greatest adverse influence on user perception of tranquillity, dark skies and relative wildness in these two locations. In contrast, the likely reduction in traffic along the existing A27 route corridor would increase levels of relative tranquillity along it, potentially enhancing the perceived quality of the existing A27 route with potential enhancement measures such as planting or reducing the number of lanes. Even with this potential enhancement of the tranquillity and quality along the existing A27 route corridor, it is likely that, overall, Option 4/5AV1 would result in significant adverse effects on the relative tranquillity and landscape quality of this part of the SDNP boundary.

5.9.1.4 Option 5BV1 would introduce an extensive new element into the setting of the SDNP, and to that extent would not directly impact on the tranquillity, dark skies and experiential quality of the SDNP itself. However, the introduction of a highly incongruent new feature into the immediate setting of the SDNP would exert an influence on its boundary due to proximity. This would be particularly true around Binsted. The presence of moving traffic, headlights, and hard engineering components would be at variance with the existing relative tranquillity, dark skies and unspoilt nature of the landscape at this location. It would impact on perception of tranquillity, dark skies and relative wildness of users within the SDNP where in close proximity to Option 5BV1. In contrast, likely reduction in traffic along the existing A27 route corridor, especially with mitigation such as planting, would increase levels of relative
tranquillity in this location, potentially enhancing its perceived quality. Overall, it is therefore likely that Option 5BV1 may not have a significant adverse effect in terms of change to the existing tranquillity, dark skies and landscape quality within the SDNP itself, although some impacts may be felt along the boundary of the SDNP at Binsted.

5.9.1.5 None of the Scheme options are likely to form obvious components in long distance views from within the National Park and are therefore unlikely to influence the perception of tranquillity and unspoilt landscapes within the wider SDNP. All Scheme options, however, will have an adverse effect on the experiential quality of the landscape and levels of tranquillity in locations close to each of the Scheme options.

5.9.1.6 Overall, Option 1V5 and Option 1V9 would both have adverse effects on the relative tranquillity and unspoilt nature of the SDNP west of Arundel but would be seen in the context of the existing A27 detracting elements. Impacts on tranquillity and dark night skies as a result of Option 1V5 and Option 1V9 are therefore unlikely to be significant. Option 3V1 would significantly alter the relative tranquillity and unspoilt nature of the area around Binsted Woods and Tortington Common, adding a significant new visual and tranquillity detractor into the SDNP. Option 4/5AV1 and 4/5AV2 would also significantly alter the relative tranquillity and unspoilt nature of the area around Hedger’s Hill and Binsted Park within the SDNP. Option 5BV1 would impact on user perception of relative tranquillity and relative wildness where it is in closest proximity to the SDNP at Binsted but overall is unlikely to significantly impact on tranquillity and dark night skies.

5.9.1.7 A summary of potential impacts on SQ3 is provided in Table 5-17. The potential impacts to the SDNP would be assessed in more detail at PCF Stage 3. At this time, efforts to maintain or enhance levels of relative tranquillity in relation to the preferred Scheme option should also be considered further.
### Table 5-17 - Summary of Noise and Dark Night Skies Impacts and effects on SQ3

<table>
<thead>
<tr>
<th>Option</th>
<th>Summary of SQ3 impacts and effects (noise and dark night skies)</th>
<th>Potential effect</th>
</tr>
</thead>
</table>
| 1V5    | Overall experience of the landscape, including levels of tranquillity and dark night skies within the SDNP:  
- Increased traffic, highway infrastructure and car headlights will reduce tranquillity levels and increase artificial light sources  
- Elevated structure increases elevation of traffic headlights and potential extent of influence  
- Existing A27 and built form of Arundel already a detractor to tranquillity and dark night skies  
- Short term negligible or minor adverse noise impacts; long term negligible noise impact  
- Specific biodiversity receptors – ancient woodland and Wood pasture and parkland HPI with potential for increase in noise levels.  
Influences on the SDNP from sources outside its boundary but within its setting:  
- Increased traffic, highway infrastructure and car headlights will increase disturbance and artificial light sources on the boundary and immediate setting  
- Specific residential receptors significantly affected - east and south of Crossbush, north of Ford Road roundabout, Fitzalan Road, Ford Road, and south of A27/ west of Ford Road roundabout  
- Specific biodiversity receptors – Coastal and Floodplain Grazing Marsh HPI and Wood pasture and parkland HPI with potential for increase in noise levels. | Slight Adverse (Not Significant) |
| 1V9    | Overall experience of the landscape, including levels of tranquillity and dark night skies within the SDNP:  
- Increased traffic, highway infrastructure and car headlights will reduce tranquillity levels and increase artificial light sources  
- Existing A27 already a detractor to tranquillity and quality | Slight Adverse (Not Significant) |
<table>
<thead>
<tr>
<th>Option</th>
<th>Summary of SQ3 impacts and effects (noise and dark night skies)</th>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ Short term negligible or a minor adverse noise impacts; long term negligible noise impact</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Specific biodiversity receptors – ancient woodland; and Wood pasture and parkland HPI with potential for increase in noise levels.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Influences on the SDNP from sources outside its boundary but within its setting:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Increased traffic, highway infrastructure (including raised flyover structure) and car headlights will increase disturbance and artificial light sources on the boundary and immediate setting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Specific residential receptors significantly affected - east and south of Crossbush, north of Ford Road roundabout, Fitzalan Road, Ford Road, and south of A27/ west of Ford Road roundabout</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Specific biodiversity receptors– Coastal and Floodplain Grazing Marsh HPI and Wood pasture and parkland HPI with potential for increase in noise levels.</td>
<td></td>
</tr>
<tr>
<td>3V1</td>
<td><strong>Overall experience of the landscape, including levels of tranquillity and dark night skies within the SDNP:</strong></td>
<td>Large Adverse (Significant)</td>
</tr>
<tr>
<td></td>
<td>▪ New and extensive detracting element within the SDNP at complete variance with the quality of the landscape</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Increased traffic, highway infrastructure and car headlights on new alignment will significantly reduce tranquillity and dark night skies around Binsted woods and Tortington common</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Slight potential reduction in traffic along a short stretch of the existing A27 route corridor highly unlikely to offset adverse change in relative tranquillity or dark night skies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Screening by existing woodland may limit light and noise spill into the wider landscape</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Specific biodiversity receptors– ancient woodland and Wood pasture and parkland HPI with potential for increase in noise levels.</td>
<td></td>
</tr>
</tbody>
</table>
### Option Summary of SQ3 impacts and effects (noise and dark night skies)

<table>
<thead>
<tr>
<th>Option</th>
<th>Influences on the SDNP from sources outside its boundary but within its setting:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>▪ Increased traffic, highway infrastructure and car headlights will increase disturbance and artificial light sources on the boundary and immediate setting, such as at Tortington</td>
</tr>
<tr>
<td></td>
<td>▪ Specific residential receptors significantly affected - east and south of Crossbush, north of Ford Road roundabout, Fitzalan Road, Ford Road, and south of A27/ west of Ford Road roundabout</td>
</tr>
<tr>
<td></td>
<td>▪ Specific biodiversity receptors significantly affected – Coastal and Floodplain Grazing Marsh HPI and Wood pasture and parkland HPI with potential for increase in noise levels.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/5AV1</td>
<td>Moderate to Large Adverse (Significant)</td>
</tr>
</tbody>
</table>

**Overall experience of the landscape, including levels of tranquillity and dark night skies within the SDNP:**

- Exerts greatest adverse influence on user perception of tranquillity and dark night skies where it intrudes into the SDNP boundary at Hedger’s Hill and Binsted Park
- Likely reduction in traffic along existing A27 route corridor would increase levels of relative tranquillity along it, but unlikely to offset new highway impacts
- Presence of moving traffic, headlights, and hard engineering components would degrade levels of tranquillity and dark night skies around Hedger’s Hill and Binsted
- New, elevated source of light from traffic headlights around Binsted
- Specific biodiversity receptors – ancient woodland and Wood pasture and parkland HPI with potential for increase in noise levels.

Influences on the SDNP from sources outside its boundary but within its setting:

- Increased traffic, highway infrastructure and car headlights will increase disturbance and artificial light sources on the boundary and immediate setting
- Specific residential receptors significantly affected - east and south of Crossbush, Fitzalan Road, south of A27/ west of Ford Road roundabout, Tortington and Binsted
### Option 4/5AV2

**Summary of SQ3 impacts and effects (noise and dark night skies)**

- Specific biodiversity receptors significantly affected – Coastal and Floodplain Grazing Marsh HPI and Wood pasture and parkland HPI with potential for increase in noise levels.
- Overall experience of the landscape, including levels of tranquillity and dark night skies within the SDNP:
  - New and extensive detracting elements in the SDNP at complete variance with existing landscape quality
  - Presence of moving traffic, headlights, and hard engineering components would degrade levels of tranquillity and dark night skies around Binsted
  - Likely reduction in traffic along existing A27 route corridor would increase levels of relative tranquillity along it, but unlikely to offset new highway impacts
  - New source of light from traffic headlights
  - Specific biodiversity receptors – ancient woodland and Wood pasture and parkland HPI with potential for increase in noise levels.

Influences on the SDNP from sources outside its boundary but within its setting:

- Increased traffic, highway infrastructure and car headlights will increase disturbance and artificial light sources on the boundary and immediate setting
- Specific residential receptors significantly affected - east and south of Crossbush, Fitzalan Road, south of A27/ west of Ford Road roundabout, Tortington and Binsted
- Specific biodiversity receptors – Coastal and Floodplain Grazing Marsh HPI and Wood pasture and parkland HPI with potential for increase in noise levels.

<table>
<thead>
<tr>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Adverse (Significant)</td>
</tr>
</tbody>
</table>

### Option 5BV1

**Summary of SQ3 impacts and effects (noise and dark night skies)**

- Overall experience of the landscape, including levels of tranquillity and dark night skies within the SDNP:
  - Slight changes to levels of tranquillity and dark night skies at Binsted due to noise and light spill within the setting of the SDNP.

<table>
<thead>
<tr>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slight to Moderate Adverse</td>
</tr>
</tbody>
</table>
### Option

<table>
<thead>
<tr>
<th>Summary of SQ3 impacts and effects (noise and dark night skies)</th>
<th>Potential effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influences on the SDNP from sources outside its boundary but within its setting:</td>
<td>(Not Significant)</td>
</tr>
<tr>
<td>- Extensive new element into the setting of the SDNP exerting an influence on its boundary</td>
<td></td>
</tr>
<tr>
<td>- No direct impact on tranquillity and dark night skies of the National Park itself but would adversely affect perceptual qualities of the SDNP along part of its boundary</td>
<td></td>
</tr>
<tr>
<td>- Presence of moving traffic, headlights, and hard engineering components would impact on user perception of tranquillity and relative wildness where in close proximity</td>
<td></td>
</tr>
<tr>
<td>- Likely reduction in traffic along the existing A27 route corridor would increase levels of relative tranquillity and quality along it</td>
<td></td>
</tr>
<tr>
<td>- Specific residential receptors significantly affected - east and south of Crossbush, Fitzalan Road, south of A27 and west of Ford Road roundabout, Tortington, Binsted and Walberton</td>
<td></td>
</tr>
<tr>
<td>- Specific biodiversity receptors – ancient woodland; Coastal and Floodplain Grazing Marsh HPI and Wood pasture and parkland HPI with potential for increase in noise levels.</td>
<td></td>
</tr>
</tbody>
</table>
6 Special Quality 4: An environment shaped by centuries of farming and embracing new enterprise

6.1 Introduction

6.1.1.1 The special quality assessed in this chapter is ‘An environment shaped by centuries of farming and embracing new enterprise’. Hereafter referred to as Special Quality 4 (SQ4). SQ4 has been described as:

‘The rural economy has strongly influenced the landscape and over 80 per cent of the South Downs is farmed. Past agricultural practices have produced some nationally valuable habitats…

Farming has always responded to the economy of the day and continues to do so. Some farmers are diversifying their businesses, for example by providing tourist accommodation and meeting the growing market for locally produced food and drink…

However, the economy of the National Park is by no means restricted to farming…’

6.2 Assessment methodology

6.2.1 Potential impacts

6.2.1.1 According to the A27 Position Statement (attached as Appendix A) distributed by the SDNPA, several potential impacts are anticipated to affect SQ4. These include:

- Effects on the farming economy
- Effects on diversification of farm businesses (including effects on privately owned woodland)
- Ability of new enterprises to set up and develop sustainable businesses.

---

6.2.1.2 Some of the Scheme options may require land take from existing farm holdings and other private properties or businesses which may adversely affect the business viability and farming economy within the SDNP. In turn, this may affect the landscape of the SDNP which is shaped and strongly influenced by the traditional farming landscape and rural economy (over 80% of the National Park is farmed\(^2\)).

6.2.1.3 Furthermore, there is potential land take from Billycan camping and Hilton Avisford Park hotel complex - Avisford Park Golf Club (which fall within the land parcels of Manor Farm and Church Farm respectively) for Options 4/5AV1, 4/5AV2 and 5BV1. These are examples of diversification into the recreational and tourism sector, which are likely to support use of the SDNP, and which may be impacted by the Scheme.

6.2.1.4 Potential land take by some Scheme options, from land holdings within the SDNP, may deter new businesses or diversification of agricultural land to be set up in the area.

6.2.1.5 The Economic Profile of the SDNP report\(^3\) stated that one of the SDNP's duties is to seek to foster the social and economic wellbeing of the local communities within the National Park. Since the farming sector is one of the key businesses within the SDNP, the potential acquisition of farmland may affect the farming businesses in the area.

"Agriculture, forestry & fishing is the third largest sector in the National Park… accounting for nearly 9% of businesses, much higher than the comparator areas and reflecting its intensely rural nature."

"…Crop and Animal Production is by far the largest sub sector accounting for 94% of businesses in the sector…"

6.2.2 Baseline information sources

6.2.2.1 The assessment has been based on desk-based information only. No site surveys or interviews with landowners have been completed to date. The following sources of information have been used to provide baseline information for this assessment:

- OS Mapping MAGIC Map\(^4\)

---

\(^2\) South Downs National Park Authority, South Downs National Park Special Qualities.

\(^3\) South Downs National Park Authority, Economic Profiles of the South Downs National Park (March 2018)

6.2.2.2 The following EAR chapters have also been used to inform the assessment:

- EAR Chapter 12: Population and Health
- EAR Appendix 9-2: Agriculture and Soils.

6.2.3 Guidance

6.2.3.1 The guidance followed for assessment of effects on SQ4 comprised the following:

- Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 6 Land Use\textsuperscript{10} which provides guidance on assessing a scheme’s effects of demolition of property, loss of agricultural land and development land.

6.2.3.2 Significance criteria including sensitivity criteria, magnitude of impact and level of significance is assigned according to the criteria stated in EAR Chapter 12: Population and Health (Section 12.3.3), and EAR Appendix 9-2: Agricultural and Soils (Section 3).

6.2.3.3 The relevant topics and sources of guidance for methodologies relevant to each potential impact on SQ4 are outlined in Table 6-1.

6.2.3.4 A qualitative assessment based on professional judgement using knowledge and experience of similar schemes has been made on the ability of new enterprises to set up and develop sustainable businesses.

---

\textsuperscript{5} South Downs National Park Authority, Economic Profiles of the South Downs National Park (March 2018)
\textsuperscript{7} South Downs National Park Authority, South Downs Local Plan 2014-33 (July 2019)
\textsuperscript{8} Arun District Council, Adopted Arun Local Plan 2011-2031 (July 2018)
\textsuperscript{9} Billycan Camping, Events. Available at: https://www.billycancamping.co.uk/events (Accessed: 14/08/2019)
\textsuperscript{10} Highways Agency, Land Use, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 6. (August 2001)
<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Relevant topic</th>
<th>WSP document</th>
<th>Relevant Topic Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on the farming economy</td>
<td>▪ Demolition of private property and associated land take</td>
<td>EAR Chapter 12: Population and Health (Section 12.3)</td>
<td>Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 6 (Land use)&lt;sup&gt;11&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>▪ Agricultural land</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Farm holdings</td>
<td>EAR Appendix 9-2: Agriculture and Soils (Section 3)</td>
<td>DMRB Volume 11, Section 3, Part 6 (Land use)&lt;sup&gt;12&lt;/sup&gt;</td>
</tr>
<tr>
<td>Effects on diversification of farming businesses (including effects on privately owned woodland)</td>
<td>▪ Demolition of private property and associated land take (including privately owned woodland)</td>
<td>EAR Chapter 12: Population and Health (Section 12.3)</td>
<td>DMRB Volume 11, Section 3, Part 6 (Land use)&lt;sup&gt;13&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>▪ Agricultural land</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Farm holdings</td>
<td>EAR Appendix 9-2: Agriculture and Soils (Section 3)</td>
<td>DMRB Volume 11, Section 3, Part 6 (Land use)&lt;sup&gt;14&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>▪ Future diversification opportunities</td>
<td>N/a</td>
<td>DMRB guidance does not cover the ability of agricultural enterprises to set up new businesses. Hence, professional judgement would be applied.</td>
</tr>
</tbody>
</table>

<sup>11</sup> Highways Agency, Land Use, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 6 (August 2001)
<sup>12</sup> Ibid
<sup>13</sup> Ibid
<sup>14</sup> Ibid
6.3 Assessment assumptions and limitations

6.3.1.1 The assumptions and limitations which apply to this assessment are outlined in **EAR Chapter 12: Population and Health**. However, the additional assumptions and limitations of specific relevance to this assessment are outlined in **Table 6-2**. For each assumption or limitation an explanation of the possible effect of the assumption has been provided as well as a description of any corrective actions that have been taken to adjust for any limitations.

**Table 6-2 - Assessment assumptions and limitations for SQ4**

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed information regarding the uses of privately owned woodland are not publicly available.</td>
<td>Assessment of effects on woodland under private ownership which are considered as a diversified farm business could not be made at PCF Stage 2.</td>
<td>Detailed information on woodland under private ownership will be gathered and relevant assessment will be undertaken at PCF Stage 3. This is deemed appropriate and proportionate to</td>
</tr>
</tbody>
</table>

15 Highways Agency, Land Use, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 6 (August 2001)
<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary land take required for construction is not yet known at this stage.</td>
<td>Impacts from permanent land take only will be assessed at PCF Stage 2. Temporary land take for construction will be assessed at PCF Stage 3.</td>
<td>This is noted as a limitation of the assessment. Full construction phase assessment will be completed at PCF Stage 3. In general, temporary land take will be returned to its previous condition at the completion of the construction phase.</td>
</tr>
<tr>
<td>DMRB guidance does not cover the ability of agricultural enterprises to set up new businesses. Therefore a qualitative assessment is proposed.</td>
<td>The adopted South Downs Local Plan and the adopted Arun Local Plan have been reviewed. Potential development land and employment land has been identified. No significant limitations in these datasets have been identified that would affect the robustness of the assessment.</td>
<td>These assessments will be based on professional judgement using experience of similar schemes. This approach is considered to be appropriate for PCF Stage 2 assessment.</td>
</tr>
<tr>
<td>No assessment has been done on indirect impact on farm or its diversified businesses.</td>
<td>Direct impact including land take will be assessed at this PCF Stage 2. Indirect impacts will be assessed at PCF Stage 3.</td>
<td>Corrective actions not required. The proposed approach is considered to be appropriate and proportionate for PCF Stage 2 assessment.</td>
</tr>
<tr>
<td>No detailed assessment of the potential impact to future farm viability has been carried out at PCF Stage 2.</td>
<td>Direct impact including land take will be assessed at this PCF Stage 2. Potential impacts to future viability will be assessed at PCF Stage 3.</td>
<td>Not required. The proposed approach is considered to be appropriate and proportionate for PCF Stage 2 assessment.</td>
</tr>
</tbody>
</table>
6.4 Study Area

6.4.1.1 The Study Areas used for this assessment are in accordance with the guidance outlined in the DMRB Volume 11, Section 3, Part 6 (Land Use). Study Areas for each potential impact on the SQ4 are outlined in Table 6-3.

Table 6-3 - Study Area for potential impact on SQ4

<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Proposed Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on the farming economy</td>
<td>Land holdings within and adjacent to the SDNP that intersect with the option footprints.</td>
</tr>
<tr>
<td>Effects on diversification of farming businesses (including effects on privately owned woodland)</td>
<td>Land holdings and accesses to land holdings within the SDNP that intersect with the option footprints.</td>
</tr>
<tr>
<td>Ability of new enterprises to set up and develop sustainable businesses</td>
<td>Land holdings and accesses to land holdings within the SDNP that intersect with the option footprints.</td>
</tr>
</tbody>
</table>

6.5 Baseline conditions

6.5.1 Effects on the farming economy

6.5.1.1 Full details of the agricultural baseline within the Study Area are outlined within EAR Appendix 9-2: Agricultural and Soils, Section 4.

6.5.1.2 There are eight agricultural holdings within the Study Area, four of which are located within the SDNP boundary, including Park Farm, Arundel Arboretum, Church Farm and land parcels off Binsted Lane. Another four farms are located adjacent or in proximity to the SDNP boundary towards the south, including Broomhurst Farm, Manor Farm, Littleton Farm and Hooe Farm. These farm holdings are illustrated on Figure 6-1.

6.5.1.3 The quantity of land from farm holdings within each Scheme option footprint is provided in Table 6-4.

6.5.1.4 There is also woodland under private ownership within the Study Area, the majority of which lies within the Church Farm land holding. Specific amounts of woodland which fall into each Scheme option are provided in Table 6-5.

---

### Table 6-4 - Potential land take from farm holdings for each Scheme option footprints (in hectares)

<table>
<thead>
<tr>
<th>Key environmental value</th>
<th>Potential land take from each Scheme option (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1V5</td>
</tr>
<tr>
<td>Broomhurst Farm (Sheep, cattle and arable)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.83</td>
</tr>
<tr>
<td>Manor Farm (Arable land with beef cattle herd. Several diversifications, e.g. Billycan Camping and letting out farm buildings)</td>
<td>N/a</td>
</tr>
<tr>
<td>Park Farm (Arable, suckler cows, sheep, equestrian liveries)</td>
<td></td>
</tr>
<tr>
<td>Arundel Arboretum (Horticultural nursery)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Eight land parcels off Binsted Lane (Individual grassland fields)</td>
<td>N/a</td>
</tr>
<tr>
<td>Church Farm (Arable land and woodland; Avisford Park Golf Club)</td>
<td></td>
</tr>
<tr>
<td>Littleton Farm (Arable land)</td>
<td>N/a</td>
</tr>
<tr>
<td>Hooe Farm (Arable land)</td>
<td>N/a</td>
</tr>
<tr>
<td>Privately owned woodland(^\text{17}) (all values are approximate)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^{17}\) This land is not calculated by agricultural land holding. It is largely comprised of land identified under the agricultural holdings identified within Table 6-4. Woodland land take has been calculated using the total land take of ancient semi natural woodland, planted ancient woodland site, deciduous woodland and other woodland habitat types.
6.5.2 Effects on diversification of farming businesses

6.5.2.1 It is recognised that in response to challenges in operating in the agricultural industry, some agricultural enterprises are choosing to diversify. Government guidance\(^\text{18}\) and a report from the NFU Mutual\(^\text{19}\) list the following as potential areas of diversification for agricultural enterprises:

- Alternative livestock markets
- Non-food crops
- Tourist accommodation
- Retail outlets and catering
- Rural tourism and outdoor leisure and recreational activities
- Converting redundant buildings to other uses and property letting
- Making and selling non-agricultural products
- Training and promotion of rural crafts and arts
- Adding value to existing agricultural products, for example smoked-food products, cheese and ice-cream
- Energy markets
- Livery stables.

6.5.2.2 Some farms located within and in proximity to the SDNP have diversified business opportunities within their holdings, including (with relevance to the Scheme) Broomhurst Farm, Manor Farm, Park Farm, farm parcels off Binsted Lane and Church Farm. The known diversified businesses comprise letting out farm land or farm properties and offering tourist accommodation.

6.5.2.3 Broomhurst Farm is a mixture of owner-occupied and tenanted land. A planning application submitted to Arun District Council (LY/7/10) states that the farm extends to 202 hectares of owner-occupied land at Lyminster with a further 1,214 hectares rented in the surrounding area. Further consultation would be required during PCF Stage 3 to understand the potential land take and activities on tenanted land from Broomhurst Farm.

---

\(^{18}\)Department for Environment, Food and Rural Affairs, Diversifying farming business (now withdrawn), Available at: https://www.gov.uk/guidance/diversifying-farming-businesses (Accessed 20/08/19).

6.5.2.4 Manor Farm has several diversifications including:

▪ Billycan Camping, a luxury self-catering camp site to the east of the farmstead on the banks of the River Arun. Billycan camping has a total of 12 tents accommodating up to 58 people.\(^{20}\)

▪ Letting out a number of the farm buildings to a timber kitchen-making firm. The specific location of these farm buildings has not been confirmed through desk study and will be determined at PCF Stage 3.

6.5.2.5 Park Farm has an equestrian livery yard in addition to their farming enterprise. The specific location of the livery yard and associated land has not been confirmed through desk study and will be determined at PCF Stage 3.

6.5.2.6 Forest Knights, a forest and bushcraft school operates in Binsted Woods providing regular courses on wilderness skills and, understanding and appreciation of the natural environment to people of all abilities\(^{21,\ 22}\). It is unconfirmed from publicly available information the exact location in which this business operates, which will be confirmed at PCF Stage.

6.5.2.7 The Church Farm land parcel includes the following other uses and businesses:

▪ Avisford Park Golf Club

▪ Ratpack Field Archers, which is an archery club which uses woodland north of Hedgers Hill. It is possible that this land could be tenanted.

6.5.2.8 The quantity of land occupied by Billycan Camping, Avisford Park Golf Club and Ratpack Field Archers and within the Scheme option footprints is provided in Table 6-5.

\(^{20}\) Billycan Camping, Events. Available at: https://www.billycancamping.co.uk/events (Accessed: 14/08/2019)

\(^{21}\) Arundel Bypass Neighbourhood Committee, A27 Arundel Bypass consultation 2017: ABNC’s response (October 2017)

Table 6-5 - Potential land from diversified businesses within each option footprint (in hectares)

<table>
<thead>
<tr>
<th>Farm holdings</th>
<th>Potential land take from each Scheme option (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1V5</td>
</tr>
<tr>
<td>Billycan Camping (Manor Farm)</td>
<td>N/a</td>
</tr>
<tr>
<td>Avisford Park Golf Club (Church Farm)</td>
<td>N/a</td>
</tr>
<tr>
<td>Ratpack Field Archers (located within land own by Church Farm)</td>
<td>N/a</td>
</tr>
</tbody>
</table>

Note: Diversified businesses in unknown locations are not shown in this table.

6.5.2.9 It is currently unknown from the desk study whether privately owned woodland, as outlined within Table 6-4 (including the larger area referred to as the Binstead Woods Complex local wildlife site (LWS)), serves a commercial purpose additional to those already outlined above in Section 6.5.2. Anecdotal evidence observed during site visits suggests there are parcels of woodland within the Study Area that are coppiced. This will be determined at PCF Stage 3.

6.5.2.10 The Arundel Farm Riding Centre is an equestrian centre located north of Ford Road roundabout and the Scheme option footprints, and adjacent to the SDNP boundary. Although the riding centre itself does not lie directly within the Scheme option footprints, and is not within the Study Area, it may use the surrounding public right of way network, including bridleways within the SDNP, as part of the operation of the business.

---

23 Further information is required in consultation with landowners to identify the extent of Ratpack Field Archers. This will be determined at PCF Stage 3.
6.5.2.11 An outline planning permission has been approved for construction of up to 175 dwellings on land in Walberton, on the Littleton Farm land holding. Further information on this can be found in EAR Appendix 17-1 and Figure 17-1. There were no further planning applications identified within the Study Area at the time of writing that would suggest diversification is planned for the relevant agricultural holdings.

6.5.2.12 Consultation with landowners is required to understand whether any future diversification opportunities are planned within the Study Area. Ability of new enterprises to set up and develop sustainable businesses

6.5.2.13 The six largest sectors of total enterprises located within the SDNP identified in The Economic Profile of the SDNP\(^{24}\) are provided in Table 6-6.

Table 6-6 - Six largest sectors by percentage of total enterprises in the SDNP in 2017

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional, Scientific &amp; Technical</td>
<td>20.9</td>
</tr>
<tr>
<td>Construction</td>
<td>10.7</td>
</tr>
<tr>
<td>Agriculture, Forestry &amp; Fishing</td>
<td>8.9</td>
</tr>
<tr>
<td>Information &amp; Communication</td>
<td>8.0</td>
</tr>
<tr>
<td>Business services</td>
<td>8.0</td>
</tr>
<tr>
<td>Arts, Entertainment and Recreation</td>
<td>7.9</td>
</tr>
</tbody>
</table>

6.5.2.14 Within these six largest sectors of total enterprises in the SDNP, construction; professional, scientific and technical; and business services sectors shows a 0.30%, 0.41% and 1.61% growth between 2013 and 2017. Along with other smaller sectors within the SDNP, such as property (0.32%), education (0.09%) and health (0.62%). These indicate that businesses within the SDNP are moving to be more service-based.\(^{25}\) Hence, service-based businesses are more likely to be setup within the SDNP.

\(^{24}\) South Downs National Park Authority, Economic Profiles of the South Downs National Park (March 2018)

\(^{25}\) South Downs National Park Authority, Economic Profiles of the South Downs National Park (March 2018)
6.5.2.15 No proposed employment or development areas are included within the South Downs Local Plan 2014-33\(^{26}\) (Strategic Policy SD34 and SD35) or the Arun Local Plan 2011-2031\(^{27}\) which are located in proximity to, or will be directly affected by, the Scheme.

6.5.2.16 Additionally, no planning applications are located within the Study Area which suggest that new enterprises are planned. This will be reviewed at PCF Stage 3.

6.6 Scoping

6.6.1.1 The potential impacts outlined in Section 6.2.1 have been considered with regard to the Scheme. Justification of whether the potential impacts are scoped in or out are provided in Table 6-7.

Table 6-7 - Scoping

<table>
<thead>
<tr>
<th>Potential impact stated in the SDNP position statement</th>
<th>Potential Impact</th>
<th>Scoped in/out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on the farming economy</td>
<td>Permanent requirement of land from private assets (or accesses to) for construction purposes.</td>
<td>Scoped in.</td>
<td>Land take could result in loss of residential or commercial property, affecting habitability or farm holding viability</td>
</tr>
<tr>
<td></td>
<td>Permanent requirement of agricultural land or land used to access agricultural land.</td>
<td>Scoped in.</td>
<td>Land take could impact farm viability.</td>
</tr>
<tr>
<td>Effects on diversification of farming businesses</td>
<td>Permanent requirement of land from private assets or facilities (or accesses to) for construction purposes. This could result in loss</td>
<td>Scoped in.</td>
<td>The amount of temporary land take for construction purposes is not yet known and therefore this has not been assessed at this stage. This will be</td>
</tr>
</tbody>
</table>

\(^{26}\) South Downs National Park Authority, South Downs Local Plan 2014-33 (July 2019)

\(^{27}\) Arun District Council, Adopted Arun Local Plan 2011-2031 (July 2018)
## 6.7 Design, mitigation and enhancement

### 6.7.1 Design phase mitigation measures

The design stage mitigation measures identified for the Scheme considering best practice procedures are as follows:

- Effects on the farming economy:
  - Further consultation with farm and woodland owners would be undertaken in PCF Stage 3 to identify the viability of existing farm and woodland land and the associated impact on the SDNP with the selected route.

<table>
<thead>
<tr>
<th>Potential impact stated in the SDNP position statement</th>
<th>Potential Impact</th>
<th>Scoped in/out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>of commercial property, affecting habitability or farm holding viability.</td>
<td>assessed at PCF Stage 3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent requirement of woodland under private ownership.</td>
<td>Scoped in</td>
<td>Land take from woodland owned by farms could impact farm viability. Not enough detail at this stage is known on the nature of use of woodland (whether used commercially or not) and the nature of the impact on the woodland. This will be obtained through consultation and assessed fully at PCF Stage 3.</td>
<td></td>
</tr>
<tr>
<td>Ability of new enterprises to set up develop sustainable businesses</td>
<td>Permanent requirement of development land.</td>
<td>Scoped in</td>
<td>Land take could result in loss of development and employment land, affecting the possibility of new enterprises to be set up.</td>
</tr>
</tbody>
</table>
- Where possible, design of the Scheme should avoid creating barriers between farm fields during operation.

- Effects on the diversification of farm businesses:
  - Consultation with farm and woodland owners would be conducted during future PCF Stages to identify the potential impact on viability of the diversified businesses with an aim to mitigate impacts where possible.
  - Where possible, design of the Scheme should avoid obstructing access of diversified farm businesses during operation.

- Ability of new enterprises to set up and develop sustainable businesses:
  - Discussion with the SDNP Authority and local authorities should be undertaken to confirm the location of allocated land for development and employment purposes, with an aim to minimise land take from the identified areas.

6.7.2 Construction phase mitigation measures

6.7.2.1 The construction stage mitigation measures identified for the Scheme considering best practice procedures are as follows:

- Effects on the farming economy:
  - Where possible, land will be returned to former use once construction works have been completed.
  - Severance during construction will be reduced through careful siting of construction compounds and lay down areas, and careful planning of construction activities through consultation with landowners.
  - Where a farm holding is temporarily severed, efforts will be made to ensure continued access between severed land parcels during construction. Specific access requirements will be dependent on the nature of the farm holding and the scale of the impact/severance. Examples for how severance can be limited in severed farm holdings include the incorporation of temporary land accesses and land swaps between farm holdings for optimum use of temporary access and adjacent land parcels.
  - Where practicable, crop loss will be reduced by timing construction work around harvest and giving advanced warning to enable farmers to plan ahead.
  - Controls and measures within the Construction and Environmental Management Plan (CEMP) will be implemented to mitigate impacts from noise and dust following Defra’s Construction Code of Practice for the
Sustainable Use of Soils on Construction Sites, which includes good practice for soil handling, storage and restoration.

- **Effects on the diversification of farm businesses:**
  - Access to diversified farm businesses will remain open, where practicable, or an alternative provided if inhibited. Regard to access to properties and businesses will be given when phasing construction works.
  - Measures within a CEMP and traffic management plan will be implemented to minimise disruption on farm businesses.
  - Severance during construction will be reduced through careful siting of construction compounds and lay down areas, and careful planning of construction activities through consultation with landowners.

- **Ability of new enterprises to set up and develop sustainable businesses:**
  - Discussion with the SDNP and local authorities will be undertaken to ensure disruption to new enterprises will be minimised where possible.

### 6.7.3 Operational phase mitigation measures

#### 6.7.3.1

The operation stage mitigation measures identified for the Scheme considering best practice procedures are as follows:

- **Effects on the farming economy:**
  - Where a farm holding is permanently severed, efforts will be made to ensure continued access between severed land parcels during operation. Specific access requirements will be dependent on the nature of the farm holding and the scale of the impact/severance. Compensation and land swaps would be applied in the event that the impact on farm operation could not be mitigated.
  - Current designs for Options 1V5 and 1V9 include the provision of farm access underpasses (east of Fitzalan Road at Broom Hurst Farm). Overbridges, underbridges and rights of way diversions are provided for all Scheme options to maintain vehicle or non-motorised users access to and from the SDNP and between farms.

- **Effects on the diversification of farm businesses:**
  - Direct impacts on Billycan Camping (Options 3V1, 4/5AV1, 4/5AV2 and 5BV1), Ratpack Field Archers (Options 4/5AV1 and 4/5AV2) and Avisford Park Golf Club (Option 5BV1) will be managed through land swap or compensation to stakeholders including the land and business
owners to mitigate impacts. Further measures will be outlined at PCF Stage 3 where relevant.

- Ability of new enterprises to set up and develop sustainable businesses:
  - Noise reduction screening (as detailed within Chapter 11 Noise and Vibration of the EAR).
  - Noise reduction surfacing. (It has been assumed that the entirety of the Scheme will benefit from a low noise surface to reduce noise arising from tyre-surface interaction. At the appropriate time, an assessment of the effect of noise with and without this surface treatment should be undertaken to ascertain the potential cost-benefit of this measure).

6.7.4 Opportunities for enhancement

6.7.4.1 No opportunities within the Scheme design development have been identified to date specifically on enhancing farm businesses. However, potential access improvement along the A27 could potentially improve access to the SDNP and may have a subsequent benefit to the diversified farm businesses. Opportunities for enhancement will be further considered in PCF Stage 3.

6.8 Assessment of potential impacts

6.8.1 Effect on the farming economy

6.8.1.1 Individual impacts on farm holdings are provided within EAR Appendix 9-2: Agriculture and Soils. A summary is provided below.

Option 1V5

6.8.1.2 Direct land take from Broomhurst Farm (Significant Moderate Adverse), Park Farm (Not Significant Slight Adverse) and Arundel Arboretum (Significant Moderate or Large Adverse) may be permanently required to accommodate Option 1V5, resulting in an overall Moderate or Large Adverse effect on the farm holdings during construction and operation. Potential impacts are detailed in EAR Appendix 9.1 Agricultural Land, Table 4-4.

6.8.1.3 It is therefore considered that Option 1V5 is likely to have a Permanent Significant Moderate or Large Adverse effect during both construction and operation on the existing farm environment within and adjacent to the SDNP along the route of Option 1V5 (see EAR Appendix 9.1 Agricultural Land, Table 4-4 for detailed potential impacts).
**Option 1V9**

6.8.1.4 Direct land take from Broomhurst Farm (Significant Moderate Adverse), Park Farm (Not Significant Slight Adverse) and Arundel Arboretum (Significant Moderate or Large Adverse) may be required to accommodate Option 1V9, resulting in an overall Permanent Moderate or Large Adverse effect during construction and operation. Potential impacts are detailed in **EAR Appendix 9.1 Agricultural Land, Table 4-4**.

6.8.1.5 It is therefore considered that Option 1V9 is likely to have a Permanent Significant Moderate or Large Adverse effect during both construction and operation on the existing farm environment within and adjacent to the SDNP along the route of Option 1V9 (see **EAR Appendix 9.1 Agricultural Land, Table 4-4** for detailed potential impacts).

**Option 3V1**

6.8.1.6 Direct land take from Broomhurst Farm (Significant Moderate Adverse), Manor Farm (Significant Moderate Adverse) and Arundel Arboretum (Significant Moderate or Large Adverse) may be required to accommodate Option 3V1, resulting in an overall Moderate or Large Adverse effect during construction and operation. Potential impacts are detailed in **EAR Appendix 9.1 Agricultural Land, Table 4-4**.

6.8.1.7 It is therefore considered that Option 3V1 is likely to have a Permanent Significant Moderate or Large Adverse effect during construction and operation on the existing farm environment within and adjacent to the SDNP along the route of Option 3V1 (see **EAR Appendix 9.1 Agricultural Land, Table 4-4** for detailed potential impacts).

**Option 4/5AV1**

6.8.1.8 Direct land take from Broomhurst Farm (Significant Moderate Adverse), Manor Farm (Significant Moderate Adverse), seven land parcels off Binsted Lane (Not Significant Neutral) and Church Farm (Significant Moderate Adverse) may be required to accommodate Option 4/5AV1. This is likely to result in an overall Moderate Adverse effect during construction and operation. Potential impacts are detailed in **EAR Appendix 9.1 Agricultural Land, Table 4-4**.

6.8.1.9 It is therefore considered that Option 4/5AV1 is likely to have a Permanent Significant Moderate Adverse effect during construction and operation on the existing farm environment within and adjacent to the SDNP along the route of Option 4/5AV1 (see **EAR Appendix 9.1 Agricultural Land, Table 4-4** for detailed potential impacts).
Option 4/5AV2

6.8.1.10 Direct land take from Broomhurst Farm (Significant Moderate Adverse), Manor Farm (Significant Moderate Adverse), one small land parcel off Binsted Lane (Not Significant Neutral or Slight Adverse) and Church Farm (Significant Moderate Adverse) may be required to accommodate Option 4/5AV2. This is likely to result in an overall Moderate Adverse Effect during construction and operation. Potential impacts are detailed in EAR Appendix 9.1 Agricultural Land, Table 4-4.

6.8.1.11 It is therefore considered that Option 4/5AV2 is likely to have a Permanent Significant Moderate Adverse effect during construction and operation on the existing farm environment within and adjacent to the SDNP along the route of Option 4/5AV2 (see EAR Appendix 9.1 Agricultural Land, Table 4-4 for detailed potential impacts).

Option 5BV1

6.8.1.12 Direct land take from Broomhurst Farm (Significant Moderate Adverse), Manor Farm (Significant Moderate Adverse), five land parcels off Binsted Lane (Not Significant Neutral or Slight Adverse), Church Farm (Significant Moderate Adverse), Littleton Farm (Not Significant Slight Adverse) and Hooe Farm (Not Significant Slight Adverse) may be required to accommodate Option 5BV1. This is likely to result in an overall Moderate Adverse effect during construction and operation. Potential impacts are detailed in EAR Appendix 9.1 Agricultural Land, Table 4-4.

6.8.1.13 It is therefore considered that Option 5BV1 is likely to have a Permanent Significant Moderate Adverse effect during construction and operation on the existing farm environment adjacent to the SDNP along the route of Option 5BV1 (see EAR Appendix 9.1 Agricultural Land, Table 4-4 for detailed potential impacts).

6.8.2 Effects on diversification of farming businesses

Option 1V5

6.8.2.1 No known diversified businesses have been identified within the footprint of Option 1V5, and consideration of publicly available information does not indicate that agricultural holdings within the Study Area are planning on diversifying their agricultural practices. This will need to be confirmed through consultation at PCF Stage 3.
6.8.2.2 The majority of the development of Option 1V5 comprises online improvements. However, land take would be required from agricultural land (Broomhurst Farm, which falls adjacent to the SDNP boundary and Park Farm and Arundel Arboretum which fall within the SDNP). Future diversification of the agricultural enterprises may be adversely affected.

6.8.2.3 Where land take is required from agricultural holdings, this may result in current farming practices becoming non-viable. If this is the case, diversification may be necessary. A detailed assessment of the impact on agricultural land and holdings will be undertaken at PCF Stage 3.

6.8.2.4 Direct land take of woodland has been determined. However, the publicly available information does not provide sufficient certainty at this stage to conclude whether privately owned woodland within the footprint of Option 1V5 has an additional commercial function. Further information will be gathered in PCF Stage 3 to allow more detailed assessment of this impact.

**Option 1V9**

6.8.2.5 No known diversified businesses have been identified within the footprint of Option 1V9, and consideration of publicly available information does not indicate that agricultural holdings within the Study Area are planning on diversifying their agricultural practices. This will need to be confirmed through consultation at PCF Stage 3.

6.8.2.6 The majority of the development of Option 1V9 comprises online improvements. However, land take would be required from agricultural land (Broomhurst Farm, which falls adjacent to the SDNP boundary and Park Farm and Arundel Arboretum which fall within the SDNP). Future diversification of the agricultural enterprises may be adversely affected.

6.8.2.7 Where land take is required from agricultural holdings, this may result in current farming practices becoming non-viable. If this is the case, diversification may be necessary. A detailed assessment of the impact on agricultural land and holdings will be undertaken at PCF Stage 3.

6.8.2.8 Direct land take of woodland has been determined. However, the publicly available information does not provide sufficient certainty at this stage to conclude whether privately owned woodland within the footprint of Option 1V9 has an additional commercial function. Further information will be gathered in PCF Stage 3 to allow more detailed assessment of this impact.
Option 3V1

6.8.2.9 The majority of land take from agricultural holdings for Option 3V1 is from Broomhurst Farm, Manor Farm and Arundel Arboretum. Privately owned woodland within the Binsted Woods Complex LWS will also be affected. Future opportunities of diversification for agricultural businesses at these locations may be adversely affected, which will be confirmed at PCF Stage 3.

6.8.2.10 Option 3V1 will have a Permanent Adverse effect on Billycan Camping as the option runs through its location. As reported within the EAR Chapter 12: Population and Health, if the business is not able to continue to operate in its current location, this will result with a large adverse effect. Where compensation is provided to affected parties (Manor Farm), according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Significant Moderate Adverse effect.

6.8.2.11 Option 3V1 is likely to have a Permanent Significant Moderate Adverse effect on the existing diversified farm business of Manor Farm which is located adjacent to the SDNP along the route Option 3V1.

6.8.2.12 A forest school, Forest Knights, is known to be operating in Binsted Woods, and may be affected by Option 3V1 should land take be required from areas in which they utilise. The exact location where Forest Knights operates is not currently known and will be determined at PCF Stage 3, but a worst case of total loss of this resource, without finding a suitable alternative location in the vicinity would be of major magnitude and an effect of Moderate Adverse significance. A loss or reduction in availability of this resource is likely to have an Adverse effect on the land owners.

6.8.2.13 Consideration of publicly available information does not indicate that any other agricultural holdings within the Study Area are planning on diversifying their agricultural practices. This will need to be confirmed through consultation at PCF Stage 3.

6.8.2.14 Where land take is required from agricultural holdings, this may result in current farming practices becoming non-viable. If this is the case, diversification may be necessary. A detailed assessment of the impact on agricultural land and holdings will be undertaken at PCF Stage 3.

6.8.2.15 Direct land take of woodland has been determined. However, the publicly available information does not provide sufficient certainty at this stage to conclude whether privately owned woodland within the footprint of Option 3V1 has an additional commercial function. Further information will be gathered in PCF Stage 3 to allow more detailed assessment of this impact.
Option 4/5AV1

6.8.2.16 The majority of land take from agricultural holdings for Option 4/5AV1 is from Broomhurst Farm, Manor Farm, land parcels off Binsted Lane and Church Farm. Privately owned woodland within the Binsted Woods Complex LWS will also be affected. Future opportunities of diversification of agricultural businesses at these locations may be adversely affected, which will be confirmed at PCF Stage 3.

6.8.2.17 Option 4/5AV1 will have a Permanent Adverse effect on Billycan Camping and Hilton Avisford Park hotel (which includes Avisford Park Golf Club) as the option runs through its location. If the businesses are not able to continue to operate in their current location, this will result in a Large Adverse effect. Where compensation is provided to affected parties (Manor Farm and Church Farm), according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Significant Moderate Adverse effect.

6.8.2.18 Option 4/5AV1 is likely to have a Permanent Significant Moderate Adverse effect on the existing diversified farm businesses of Manor Farm and Church Farm, which are located adjacent to the SDNP along the route of Option 4/5AV1.

6.8.2.19 A forest school, Forest Knights, is known to be operating in Binsted Woods, and may be affected by Option 4/5AV1 should land take be required from areas in which they utilise. The exact location where Forest Knights operates is not currently known and will be determined at PCF Stage 3, but a worst case of total loss of this resource, without finding a suitable alternative location in the vicinity would be of major magnitude and an effect of Moderate Adverse significance. A loss or reduction in availability of this resource is likely to have an Adverse effect on the land owners.

6.8.2.20 Direct land take of woodland has been determined. However, the publicly available information does not provide sufficient certainty at this stage to conclude whether privately owned woodland within the footprint of Option 4/5AV1 has an additional commercial function. Further information will be gathered in PCF Stage 3 to allow more detailed assessment of this impact.

6.8.2.21 Consideration of publicly available information does not indicate that any other agricultural holdings within the Study Area are planning on diversifying their agricultural practices. This will need to be confirmed through consultation at PCF Stage 3.
6.8.2.22 Option 4/5AV1 is likely to have a Permanent Significant Moderate Adverse effect on the existing diversified farm business of Manor Farm and Church Farm, which are located adjacent to the SDNP along the route of Option 4/5AV1.

6.8.2.23 Where land take is required from agricultural holdings, this may result in current farming practices becoming non-viable. If this is the case, diversification may be necessary. A detailed assessment of the impact on agricultural land and holdings will be undertaken at PCF Stage 3.

Option 4/5AV2

6.8.2.24 Option 4/5AV2 will have a Permanent Adverse effect on Billycan Camping as the Scheme option runs through its location. If the business is not able to continue to operate in its current location, this will result in a Large Adverse effect. Where compensation is provided to affected parties (Manor Farm), according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Significant Moderate Adverse effect.

6.8.2.25 Option 4/5AV2 is likely to affect the operation of Ratpack Field Archers, an area from which permanent land take is required from construction. It is anticipated that a worst case scenario (where the area of Ratpack Field Archers will be reduced) would result in a Permanent Moderate Adverse effect. Where compensation is provided to affected parties (within land owned by Church Farm), according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Not Significant Slight Adverse effect.

6.8.2.26 It is therefore considered that Option 4/5AV2 is likely to have a Permanent Significant Moderate Adverse effect on the existing diversified farm businesses located within and adjacent to the SDNP along the route of the Option 4/5AV2.

6.8.2.27 The majority of land take from farm land for Option 4/5AV2 is from Broomhurst Farm, Manor Farm, land parcels off Binsted Lane and Church Farm. Future diversification of farm businesses at these locations may be adversely affected, which will be confirmed at PCF Stage 3.
6.8.2.28 A forest school, Forest Knights, is known to be operating in Binsted Woods, and may be affected by Option 4/5AV2 should land take be required from areas in which they utilise. The exact location where Forest Knights operates is not currently known and will be determined at PCF Stage 3, but a worst case of total loss of this resource, without finding a suitable alternative location in the vicinity would be of major magnitude and an effect of Moderate Adverse significance. A loss or reduction in availability of this resource is likely to have an Adverse effect on the land owners.

6.8.2.29 Direct land take of woodland has been determined. However, the publicly available information does not provide sufficient certainty at this stage to conclude whether privately owned woodland within the footprint of Option 4/5AV2 has an additional commercial function. Further information will be gathered in PCF Stage 3 to allow more detailed assessment of this impact.

6.8.2.30 Consideration of publicly available information does not indicate that any other agricultural holdings within the Study Area are planning on diversifying their agricultural practices. This will need to be confirmed through consultation at PCF Stage 3.

6.8.2.31 Where land take is required from agricultural holdings, this may result in current farming practices becoming non-viable. If this is the case, diversification may be necessary. A detailed assessment of the impact on agricultural land and holdings will be undertaken at PCF Stage 3.

Option 5BV1

6.8.2.32 The majority of land take from farm land for Option 5BV1 is from Broomhurst Farm, Manor Farm, land parcels off Binsted Lane, Church Farm, Littleton Farm and Hooe Farm. Future and existing diversification of farm businesses at these locations may be adversely affected.

6.8.2.33 Option 5BV1 will have a Permanent Adverse effect on Billycan Camping and Hilton Avisford Park hotel (which include Avisford Park Golf Club) as the Scheme option runs through its location. If the business is not able to continue to operate in its current location, these will result with a Large Adverse effect. Where compensation is provided to affected parties (Manor Farm and Church Farm), according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Significant Moderate Adverse effect.

6.8.2.34 Option 5BV1 is likely to have a Permanent Significant Moderate Adverse effect on the existing diversified farm business of Manor Farm and Church Farm which are located adjacent to the SDNP along the route of Option 5BV1.
6.8.2.35 Option 5BV1 would permanently require land within the Littleton Fam land holding, for which has been included in an outline planning application for residential development. An Adverse effect is anticipated as it is likely that Option 5BV1 would result in changes to the residential scheme design and may result in a reduction in the amount of dwellings that are able to be developed.

6.8.2.36 Consideration of publicly available information does not indicate that any other agricultural holdings within the Study Area are planning on diversifying their agricultural practices. This will need to be confirmed through consultation at PCF Stage 3.

6.8.2.37 Direct land take of woodland has been determined. However, the publicly available information does not provide sufficient certainty at this stage to conclude whether privately owned woodland within the footprint of Option 5BV1 has an additional commercial function. Further information will be gathered in PCF Stage 3 to allow more detailed assessment of this impact.

6.8.2.38 Where land take is required from agricultural holdings, this may result in current farming practices becoming non-viable. If this is the case, diversification may be necessary. A detailed assessment of the impact on agricultural land and holdings will be undertaken at PCF Stage 3.

6.8.3 Ability of new enterprises to set up and develop sustainable businesses

All Scheme options

6.8.3.1 Review of the South Downs Local Plan 2014-33\textsuperscript{28} and Arun Local Plan 2011 - 2031\textsuperscript{29} has been undertaken, no known development or employment land has been allocated within the Study Area. Consultation with the SDNP Authority and local authorities will be undertaken at PCF Stage 3 to gain information on the potential land to be allocated for development or employment purposes. Should no development land be identified, or no planning applications be submitted within the Study Area, it is anticipated that the Scheme will have a Neutral effect on the ability of new enterprises to set up and develop sustainable business.

\textsuperscript{28} South Downs National Park Authority, South Downs Local Plan 2014-33 (July 2019)
\textsuperscript{29} Arun District Council, Adopted Arun Local Plan 2011-2031 (July 2018)
6.9 Summary

6.9.1.1 Table 6-8 and Table 6-9 summarise the likely significant effect on SQ4 during construction and operation.
Table 6-8 - Likely significant effects on SQ4 during construction

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent effect on farming economy</td>
<td>Moderate or Large Adverse (Significant)</td>
<td>Moderate or Large Adverse (Significant)</td>
<td>Moderate or Large Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
</tr>
<tr>
<td>Permanent effect on diversified farm businesses</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Moderate Adverse (significant)</td>
<td>Moderate Adverse (significant)</td>
<td>Moderate Adverse (significant)</td>
<td>Moderate Adverse (significant)</td>
</tr>
<tr>
<td>Temporary effect on new enterprises</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
</tr>
</tbody>
</table>
Table 6-9 - Likely significant effects on SQ4 during operation

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent effect on farming economy</td>
<td>Moderate or Large Adverse (Significant)</td>
<td>Moderate or Large Adverse (Significant)</td>
<td>Moderate or Large Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
</tr>
<tr>
<td>Permanent effect on diversified farm businesses</td>
<td>Adverse(^i)</td>
<td>Adverse(^i)</td>
<td>Moderate Adverse (significant)</td>
<td>Moderate Adverse (significant)</td>
<td>Moderate Adverse (significant)</td>
<td>Moderate Adverse (significant)</td>
</tr>
<tr>
<td>Permanent effect on new enterprises</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
</tr>
</tbody>
</table>

\(^i\) No known existing or planned diversified farm businesses within agricultural holding, however, development of the Proposed Scheme provides the potential for adverse effects on future diversification of farm businesses. Impacts and level of effect to be confirmed during PCF Stage 3.
7 Special Quality 5: Great opportunities for recreational activities and learning experiences

7.1 Introduction

7.1.1.1 The special quality assessed in this chapter is ‘Great opportunities for recreational activities and learning experiences’. Hereafter referred to as Special Quality 5 (SQ5). SQ5 has been described as:

‘The South Downs offers a wide range of recreational and learning opportunities to the large and diverse populations living both within and on the doorstep of the National Park, and to visitors from further afield.

With 3,200 kilometres (2,000 miles) of public rights of way and the entire South Downs Way National Trail within the National Park there is exceptional scope for walking, cycling and horse riding…’

7.2 Assessment Methodology

7.2.1 Potential Impacts

7.2.1.1 According to the “A27 Position Statement” distributed by the SDNPA, several potential impacts are anticipated to affect SQ5. These are:

- “Effects on rights of way and other access routes”
- “Effects on sustainable transport schemes”
- “Severance of the National Park from coastal communities”

7.2.1.2 An additional impact anticipated to affect SQ5 was identified during a meeting with the SDNPA:

- Effects on recreational and educational facilities (including forest schools).

---


2 Meeting with the SDNPA undertaken in South Downs Centre, Midhurst on 29 April 2019.
7.2.1.3 There is potential disruption of public rights of way and other access routes during construction and operation by temporary or permanent closure or diversion which may affect the connectivity within the SDNP and between the coastal communities and the SDNP.

7.2.1.4 Potential impact on sustainable transport schemes is anticipated due to the potential disruption on public rights of ways and bus services during construction and operation. Introduction of the Scheme may cause severance between the SDNP and the coastal communities by creating a new access barrier to travel to the SDNP.

7.2.1.5 These potential impacts may deter people from visiting the SDNP for recreational activities (for example walking, cycling, paragliding, orienteering, canoeing) and learning opportunities (for example museums, churches, historic houses, outdoor education centres, wildlife reserves) in the countryside.

7.2.1.6 However, the proposed shared pedestrians and cycle paths may provide a safer option for non-motorised users travelling to and from the SDNP. This may have the potential to encourage increased numbers of people to visit the SDNP.

7.2.2 Baseline information sources

7.2.2.1 The following sources of information have been used to provide baseline information for this assessment:

- PCF Stage 2 – HD42/17 Walking Cycling and Horse Riding Opportunities Draft
- PCF Stage 2 Equality Impact Assessment (HE551523-WSP-EGN-SWI-RP-LE-0053)
- Desk Study Sources:
  - OS Mapping
  - MAGIC Map\(^3\)
  - West Sussex County Council interactive map\(^4\)
  - Walking, Cycling and Horse Riding Assessment (WCHAR)

---


7.2.2.2 The following EAR chapters have also been used to inform the assessment:

- **EAR Chapter 7: Landscape and Visual**
- **EAR Chapter 11: Noise and Vibration**
- **EAR Chapter 12: Population and Health.**

---

5 West Sussex #county Council, West Sussex Walking and Cycling Strategy 2016-2026 (April 2017)
8 South Downs National Park Authority and partners, South Downs Green Infrastructure Framework – A Roadmap for Green Infrastructure V1.0 (March 2016)
9 South Downs National Park, Access Network and Accessible Natural Greenspace Study (July 2014)
10 Steer Davies Gleave, Economic Impacts of A27 Investment on the South Downs National Park. (March 2017)
12 Meeting with the SDNP Authority undertaken in South Downs Centre, Midhurst on 29 April 2019.
7.2.3 **Guidance**

7.2.3.1 The guidance followed for the assessment of effects on SQ5 comprise the following:

- Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 8 (Pedestrians, Cyclists, Equestrians and Community Effects)\(^{16}\) which provides guidance on assessing a scheme’s impact on journey amenity, journey length and local travel patterns, and community severance.
- DMRB Volume 5, Section 2, Part 5 HD 42/17 (WCHAR)\(^{17}\) which provide guidance on the assessment of WCH facilities.
- Highways England Guide to Equality Impact Assessment\(^{18}\) which stated the need in identifying existing and available evidence of likely effect on different equality groups.
- DMRB Volume 11, Section 3, Part 7(2011) (HD 213/11)\(^{19}\) and Interim Advice Note 185/15\(^{20}\) which provides guidance on the noise calculation and assessment.

7.2.3.2 Relevant DMRB topics which are assessed within the EAR and which are drawn upon for this assessment are as follows:

- Noise and vibration (for impacts on recreational facilities and users of public rights of way)
- Journey length and local travel patterns
- Journey amenity
- Community severance
- Development land
- Demolition of private property and associated land use.

---

\(^{16}\) Highways Agency, Pedestrians, Cyclists, Equestrians and Community Effects, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 8 (June 1993)

\(^{17}\) Highways Agency, Walking, Cycling & Horse-Riding Assessment and Review, Design Manual for Roads and Bridges, Volume 5, Section 2, Part 5 (May 2017)


\(^{19}\) Highways Agency, Noise and Vibration, Design Manual for Roads and Bridges, Volume 11 Section 3, Part 7 (November 2011)

7.2.3.3 Significance criteria including sensitivity criteria, magnitude of impact and level of significance is assigned according to the criteria stated in EAR Chapter 12: Population and Health (Section 12.3.3) and EAR Chapter 11: Noise and Vibration (Section 11.3.3).

7.2.3.4 The relevant topics and sources of guidance for methodologies relevant to each potential impact on SQ5 are outlined in Table 7-1.

7.2.3.5 A qualitative assessment based on professional judgement using knowledge and experience of similar schemes will be made on the severance of coastal communities and sustainable transport schemes, as the DMRB is not applicable to these impacts, and no other industry guidance is available.

7.2.3.6 At this stage, no data has been gathered as part of the assessment on special qualities to understand whether a correlation could be made between impacts on recreational and educational facilities and use of the SDNP by tourists and visitors. Therefore, for the purposes of this assessment, a qualitative assessment based on professional judgment (using knowledge and experience of similar schemes) will be made and effects will be identified as neutral, adverse or beneficial.

<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Relevant Topic</th>
<th>Source document</th>
<th>Relevant guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on rights of way and other access routes</td>
<td>Journey Amenity</td>
<td>EAR Chapter 12: Population and Health</td>
<td>DMRB Volume 11, Section 3, Part 8 (Pedestrians, Cyclists, Equestrians and Community Effects)²¹</td>
</tr>
<tr>
<td></td>
<td>Journey Length and local travel patterns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community severance</td>
<td>PCF Stage 2 – HD42/17 Walking Cycling and Horse Riding Opportunities²²</td>
<td>DMRB Volume 5, Section 2, Part 5 HD42/17²³</td>
</tr>
</tbody>
</table>

---

²¹ Highways Agency, Pedestrians, Cyclists, Equestrians and Community Effects, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 8 (June 1993)
²² A27 Arundel Bypass, WCHAR Opportunities Appraisal Version P01 (July 2019)
<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Relevant Topic</th>
<th>Source document</th>
<th>Relevant guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on sustainable transport schemes</td>
<td>Public transport provision</td>
<td>PCF Stage 2 Equality Impact Assessment&lt;sup&gt;24&lt;/sup&gt;</td>
<td>Highways England Guide to Equality Impact Assessment&lt;sup&gt;25&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Noise and Vibration</td>
<td>EAR Chapter 11: Noise and Vibration</td>
<td>DMRB Volume 11, Section 3, Part 7 Noise and Vibration&lt;sup&gt;26&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Development land</td>
<td>EAR Chapter 12: Population and Health</td>
<td>DMRB Volume 11, Section 3, Part 8 (Pedestrians, Cyclists, Equestrians and Community Effects)&lt;sup&gt;27&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Journey Length and local travel patterns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public transport provision</td>
<td>PCF Stage 2 Equality Impact Assessment&lt;sup&gt;28&lt;/sup&gt;</td>
<td>N/A</td>
</tr>
<tr>
<td>Severance of the National Park from coastal communities</td>
<td>Severance from coastal communities</td>
<td>Assessment of severance from coastal communities will build on the information contained within EAR Chapter 12: Population and Health</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<sup>24</sup> A27 Arundel Bypass – Stage 2 Further Consultation, Equality Impact Assessment (July 2019)
<sup>26</sup> Highways Angency, Noise and Vibration, Design Manual for Roads and Bridges, Volume 11 Section 3, Part 7 (November 2011)
<sup>27</sup> Highways Agency, Pedestrians, Cyclists, Equestrians and Community Effects, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 8 (June 1993)
<sup>28</sup> A27 Arundel Bypass – Stage 2 Further Consultation, Equality Impact Assessment (July 2019)
Potential impact | Relevant Topic | Source document | Relevant guidance |
--- | --- | --- | --- |
Effects on recreational and educational facilities | Demolition of private property and associated land take | EAR Chapter 12: Population and Health | DMRB Volume 11, Section 3, Part 6 (Land Use) \(^{29}\) |
 | Noise and vibration | EAR Chapter 11: Noise and Vibration | DMRB Volume 11, Section 3, Part 7 Noise and Vibration \(^{30}\) |

### 7.3 Assessment assumptions and limitations

#### 7.3.1.1

The assumptions and limitations which apply to this assessment are outlined in **EAR Chapter 12: Population and Health** (Section 12.4). However, the additional assumptions and limitations of specific relevance to this assessment are outlined in **Table 7-2**. For each assumption or limitation an explanation of the possible effect of the assumption has been provided as well as a description of any corrective actions that have been taken to adjust for any limitations.

**Table 7-2 - Assessment assumptions and limitations for SQ5**

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Desk Study</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is assumed that all proposed permanent WCH diversions (not dependent on the construction of new parts of the Scheme) will be implemented at the start of the construction period.</td>
<td>Effects from permanent diversions on journey length and community severance will be applied during the construction phase.</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Limited desk based landownership</strong></td>
<td>The potential land take calculation from the</td>
<td>Land take calculations will be updated</td>
</tr>
</tbody>
</table>

\(^{29}\) Highways Agency, Land Use, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 6 (August 2001)

\(^{30}\) Highways Agency, Noise and Vibration, Design Manual for Roads and Bridges, Volume 11 Section 3, Part 7 (November 2011)
<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>information at PCF Stage 2.</td>
<td>identified recreational and tourism facilities and businesses located in proximity to Arundel may not be exhaustive.</td>
<td>following consultation in PCF Stage 3.</td>
</tr>
<tr>
<td>Detail on temporary public rights of way and road diversions during construction are not known at this stage.</td>
<td>Effect on journey length, amenity and community severance for temporary diversions cannot be adequately assessed at this stage.</td>
<td>The temporary effect on journey length, amenity and community severance will be assessed in PCF Stage 3. This is not considered to be a differentiator between options.</td>
</tr>
<tr>
<td>Detail on temporary bus stop provision during construction is not known at this stage.</td>
<td>Effect on journey length cannot be adequately assessed at this stage.</td>
<td>The temporary effect on journey length will be assessed in PCF Stage 3. This is not considered to be a differentiator between options.</td>
</tr>
<tr>
<td>Detail on land required temporarily for construction purposes is not yet defined</td>
<td>Temporary land take requirements on recreational and educational facilities is not able to be assessed at PCF Stage 2.</td>
<td>Assessment of temporary effects will be assessed at PCF Stage 3.</td>
</tr>
<tr>
<td>Limited information available publicly regarding the location of preferred rights of way improvements identified by the Local Highways Authorities which are within the 1 kilometre study area.</td>
<td>Effects from the Scheme on rights of way which are subject to improvements are unable to be assessed at this stage.</td>
<td>The effect on rights of way which are subjected to improvements will be assessed in PCF Stage 3. This is not considered to be a differentiator between options.</td>
</tr>
<tr>
<td>Detailed design of the Arun Blue-Green</td>
<td>Effects on the level of severance between</td>
<td>The effect on the severance between</td>
</tr>
</tbody>
</table>
### Assumption or Limitation

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corridor GIIA is not available at this stage.</td>
<td>Littlehampton and the SDNP are unable to be assessed at this stage.</td>
<td>Littlehampton and the SDNP will be assessed in PCF Stage 3, if the detailed design of the infrastructure is available. This is not considered to be a differentiator between options.</td>
</tr>
<tr>
<td>DMRB / WebTAG assessment of severance is limited to impacts on WCHs. Assessment of severance of coastal communities and sustainable transport schemes involving other transport modes is therefore based on professional judgement and qualitative assessment and using publicly available data.</td>
<td>Potential access routes from communities along the south coast will be identified. Result will be negligible as no significant limitation in these datasets have been identified that would affect the robustness of the assessment for Environmental Impact Assessment (EIA) purposes.</td>
<td>Not required. This approach is considered to be appropriate for this stage of assessment and it is not anticipated that this will be a differentiating factor between options.</td>
</tr>
<tr>
<td>No evidence of correlation of effects on recreational and educational facilities and use of the SDNP by tourists and visitors</td>
<td>Levels of significance have not been assigned and effects are to be identified as neutral, adverse or beneficial only.</td>
<td>This approach is considered to be appropriate for this stage of assessment</td>
</tr>
</tbody>
</table>

### 7.4 Study Area

#### 7.4.1.1

Study Areas for each potential impact on SQ5 are outline in Table 7-3. The extent of the study area is provided in PCF Stage 2 EAR (August 2019) Figure 12-2: Population and Health Sensitive Receptors.
### Table 7-3 - Study Area for potential impact on the SQ5

<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Proposed Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on rights of way and other access routes</td>
<td>Pathways and linkages within and into the SDNP which fall within the Population and Health EAR Study Area (1 kilometre from option footprints).</td>
</tr>
<tr>
<td>Effects on sustainable transport schemes</td>
<td>Pathways within and into the SDNP which fall within the Population and Health EAR Study Area (1 kilometre from option footprints).</td>
</tr>
</tbody>
</table>
| Severance of the National Park from coastal communities | Likely WCH and vehicular routes from communities on the south coast into the SDNP that fall within the Population and Health EAR Study Area (1 kilometre from option footprints). This will focus on the following areas, as the nearest coastal community hubs:  
  ▪ Littlehampton  
  ▪ Bognor Regis  
  ▪ Worthing.  
  Communities or modes of transport other than private vehicle have been considered where accessed from further afield. Assessment of vehicular travel is focussed on journeys from these three communities as the closest to the Scheme. It is assumed that vehicular travel from any other coastal communities moving through the Study Area to access the SDNP would be via the same routes as from these closest three communities. Therefore, effects on those communities within the Study Area are also representative of those communities further east or west along the coast. |
| Effects on recreational and educational facilities    | Likely recreational and educational facilities that fall within the Population and Health EAR Study Area (1 kilometre from option footprints, although catchments for such facilities e.g. schools may fall outside of the 1km Study Area). |
7.5 Baseline conditions

7.5.1 Rights of way and other access routes

Rights of way

7.5.1.1 The public rights of way and other key routes likely to be used by WCHs crossed by the Scheme options and likely local travel patterns associated with the SDNP are outlined below.

7.5.1.2 There are no National Cycle Network routes or national trails which will be affected by any of the Scheme option footprints.

7.5.1.3 There are several long-distance and promoted routes located within the Study Area. The routes include:

- The Monarch’s Way, which lies within the SDNP within the Study Area. It falls in proximity to Option 1V5 and 1V9 footprints on Footpaths 3066 and 3069 and is not directly affected.
- The Arun Way, which lies partly within the SDNP within the Study Area. It intersects with all option footprints on Footpaths 342 and 206 and is directly affected. It also crosses Footpath 3066, 3069 and 2222 which are not directly affected.
- Sussex Hospices Trail, which lies within the SDNP within the Study Area. It intersects with all option footprints on Footpaths 342 and 206 and is directly affected. It also crosses Footpath 3066 and 3069 which are not directly affected.
- Midhurst Way, which lies within the SDNP within the Study Area. It intersects with Option 1V5 and 1V9 on Footpath 206, Bridleway 415 and Restricted Byway 3061 and is directly affected.
- London’s Lost Route to the Sea, which lies within the SDNP within the Study Area. It intersects with all option footprints on Footpath 206 and is directly affected. It also crosses Footpath 3064 which is not directly affected.
- Goring to Goring, which lies within in SDNP within the Study Area. It is in close proximity to all option footprints near Crossbush junction. It intersects with Footpath 2189 and 3062_1, and Restricted byway 3062 which are not directly affected.
- The South Downs Way, which lies within the SDNP but outside of the Study Area. It is distant from the option footprints and follows the inland connecting Eastbourne to Winchester within the SDNP.
7.5.1.4 All other public rights of way within the Study Area are locally designated. The majority of public rights of way outside of the built-up areas of Arundel are located within agricultural land. Based on observations made on a walkover survey in 2017, public right of way surface types, distances and consideration of the linkage of the public rights of way to the wider public right of way network, it is assumed that the majority of public right of way in the Study Area are likely to be used primarily for recreational purposes (that is not used for accessing employment or community facilities). Further information on public rights of way is provided in EAR Chapter 12 Population and Health (Table 12-9).

7.5.1.5 Public rights of way and other key routes within the Study Area are outlined in Table 7-4. Details on their baseline conditions for consideration under journey length and amenity are outlined within the EAR Chapter 12: Population and Health (Section 12.7.3 and Table 12-10). Locations of the public rights of way could be found in EAR Appendix 12-1 and are illustrated on EAR Figure 12-1.

Table 7-4 - Amenity values of public rights of way and key routes within the Study Area and the SDNP

<table>
<thead>
<tr>
<th>Public right of way / Route</th>
<th>Likely user type</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public footpath 2207</td>
<td>Pedestrian</td>
<td>Located south of the SDNP boundary</td>
</tr>
<tr>
<td>Public footpath 206</td>
<td>Pedestrian</td>
<td>Located south of the SDNP boundary</td>
</tr>
<tr>
<td>Public footpath 348</td>
<td>Pedestrian</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public footpath 346</td>
<td>Pedestrian</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public footpath 346</td>
<td>Pedestrian, Suitable for equestrian and off-road cyclists</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public footpath 3067</td>
<td>Pedestrian, Suitable for equestrian/off road cyclists</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public footpath 342</td>
<td>Pedestrian, Suitable for off road cyclists through woodland</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public footpath 347</td>
<td>Pedestrian, Suitable for off road cyclists through woodland</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public footpath 341</td>
<td>Pedestrian</td>
<td>Partly within the SDNP</td>
</tr>
<tr>
<td>Public right of way / Route</td>
<td>Likely user type</td>
<td>Location</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------</td>
<td>----------</td>
</tr>
<tr>
<td>Public footpath 335</td>
<td>Pedestrian</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public bridleway 415</td>
<td>Pedestrian, equestrian and off-road cyclists</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public bridleway 338 (Old Scotland Lane)</td>
<td>Pedestrian, equestrian and off-road cyclists</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public bridleway 336</td>
<td>Pedestrian, equestrian (but likely to be deterred due to A27 crossing)</td>
<td>Located within the SDNP</td>
</tr>
<tr>
<td>Public bridleway 392</td>
<td>Pedestrian, equestrian (but likely to be deterred due to A27 crossing)</td>
<td>Partly within the SDNP</td>
</tr>
<tr>
<td>Existing A27</td>
<td>Pedestrian Cyclists at eastern end of Scheme</td>
<td>Partly within the SDNP</td>
</tr>
<tr>
<td>Ford Road</td>
<td>Cyclists</td>
<td>Located adjacent to the SDNP southern boundary</td>
</tr>
<tr>
<td>Tortington Lane</td>
<td>Pedestrians, equestrians and cyclists</td>
<td>Partly within the SDNP</td>
</tr>
<tr>
<td>Binsted Lane</td>
<td>Pedestrians, equestrians and cyclists</td>
<td>Partly within the SDNP</td>
</tr>
</tbody>
</table>
7.5.1.6 It is noted that Rights of Way Improvement Plans (or similar) have been produced by the local highway authorities (LHAs – Brighton and Hove City Council31, East Sussex County Council32, Hampshire County Council33 and West Sussex County Council34) to identify potential improvements to the rights of way and access network35. It is currently uncertain if the location of the preferred rights of way improvements will be affected by the Scheme as proposed improvements are not detailed within the Rights of Way Improvement plans.

7.5.1.7 The West Sussex Walking and Cycling Strategy 2016-202636 states that in 2013/14 86.7% of West Sussex residents walk at least once a month, and 19.8% cycle, like the England averages of 86.3% and 15.0% respectively. 45.2% of West Sussex residents walked for at least 10 minutes at least five times per week, down from 46.9% in 2012/13.

7.5.1.8 Most journeys between the communities located in proximity to the Scheme (and outside of Arundel) and local facilities are likely to be made by vehicle, mainly due to the distance and type of facility accessed.

**Public Transport**

7.5.1.9 Public transport provision in Arundel consists of bus (local), coach (regional) and train (regional and national) services.

7.5.1.10 There are regular bus and coach services to Arundel, with Stagecoach’s route 700 providing links to Brighton (in the east) and Chichester (in the west). The eastbound service stops at the Norfolk Arms bus stop and the westbound service stops at the Riverbank bus stop, both of which are located on High Street.

36 West Sussex County Council, West Sussex Walking and Cycling Strategy 2016-2026 (April 2017)
7.5.1.11 The following bus services also operate locally:

- 9 - Shoreham by Sea – Lancing – Worthing – Littlehampton – Arundel
- 69 – Alfold – Pulborough - Arundel – Worthing
- 85 – Arundel – Fontwell – Chichester
- 85A – Arundel – Barnham – Chichester
- 668 – Ormiston Six Villages Academy – Yapton – Arundel – Tangmere (local school bus)
- 912 – Arundel – Goodwood Racecourse.

Arundel Community Bus – Arundel Town Service Bus routes

7.5.1.12 The following bus services, bus stops and the roads in which they run along are directly crossed by the option footprints:

- Lyminster Road (bus stop name: Crossbush Lane) (located adjacent to the SDNP southern boundary and crossed by all Scheme options)
  - Bus service 9 (runs along the south coast from Shoreham-by-Sea, Lancing, Worthing, Littlehampton to Arundel)
  - Bus service 615 (runs from Littlehampton, Ford, Arundel, Crossbush to Poling)
- A27 Chichester Road (bus stop name: Park Bottom and Jarvis Road) (located adjacent to the SDNP southern boundary and crossed by Options 1V5 and 1V9)
  - Bus services 9 and 615
- A27 Chichester Road (bus stop name: Havenwood Park) (located within SDNP and crossed by Option 3V1)
  - Bus service 85 (runs from Arundel, Walberton, Fontwell to Chichester)
  - Bus service 85A (runs from Arundel, Walberton, Fontwell, Barnham, Nyton, Oving to Chichester)
- Ford Road (bus stop name: Priory Lane) (Not within the SDNP boundary but could be a possible route to get to the SDNP. It is crossed by Option 3V1)
  - Bus service 615

---

- Yapton Lane (bus stop name: Oak Cottage) (located adjacent to the SDNP boundary and crossed by Options 4/5AV1 and 4/5AV2)
  - Bus services 85 and 85A
- Yapton Lane (bus stop name: Manser road) (located adjacent to the SDNP boundary and cross by Option 5BV1)
  - Bus services 85 and 85A.

**Train route**

7.5.1.13 Arundel railway station is located directly adjacent to the SDNP boundary and could be a possible key route for WCHs vesting the SDNP.

7.5.1.14 Ford railway station is located within the Study Area and situated south of the SDNP boundary. It could be a possible route for WCHs to visit the SDNP through designated and undesignated pathways.

7.5.1.15 There are no immediately obvious or well-established connections between the Arundel Station and the SDNP. This represents an opportunity for future improvement in WCH access to the SDNP from the station.

**7.5.2 Sustainable transport schemes**

7.5.2.1 The SDNP Sustainable Tourism Strategy 2015-20\(^3\) stated one of the delivery tools of sustainable tourism strategy is to enable sustainable travel.

“*Working with partners in Local Government and Transport Operators to promote modal shift from use of private car to public transport and more sustainable forms of personal transport*”

7.5.2.2 Arundel is one of the priority areas to be focused on the improvement of sustainable tourism where a SDNP gateway or hub and visitor’s information requires further development.

7.5.2.3 Existing public transport facilities located in proximity to the SDNP are listed below in paragraphs 7.5.3.15 to 7.5.3.26. Further detail on specific train routes from communities outside of the Study Area is outlined in Section 7.5.3.

---

\(^3\) South Downs National Park, Sustainable Tourism Strategy 2015-20.
7.5.2.4 Littlehampton to Arundel Green Link cycle route has been proposed within the Arun District Local Plan 2011-2031\(^{39}\) to promote the linkage between Littlehampton and Arundel. This could potentially improve connection between Littlehampton and the SDNP if it is to be constructed, as Arundel is considered as one of the gateways to get to the SDNP\(^{40}\).

7.5.3 Severance of the National Park from coastal communities

7.5.3.1 The South Downs Green Infrastructure Framework\(^{41}\) stated the need for connectivity between the SDNP and the south coast:

‘…Connecting the tourism offer by connecting the South Downs physically and contextually with the South coast’

‘The need for better connections crosses many areas - biodiversity networks and sustainability transport, as well as planning and delivering green infrastructure across boundaries and across sectors...’

“…Improve access connections around towns and from towns to countryside…Break down access barriers - main roads, rivers and railway lines without lateral access all disconnect the network”

7.5.3.2 The Scheme is located within the Arun Blue-Green Corridor Strategic Green Infrastructure Investment Areas (GIIAs). Two of the opportunities identified for the GIIAs is to improve connections from Littlehampton to the river valley and beyond; and link routes to Ford Station for local access and tourism potential.

Existing severance

7.5.3.3 The Access Network and Accessible Natural Greenspace Study\(^{42}\) produced by SDNP stated that ‘there is existing severance to the south of the National Park with little permeability with Arun which is partly exacerbated by the barrier effect of the A27’.


\(^{41}\) South Downs National Park Authority and partners, South Downs Green Infrastructure Framework – A Roadmap for Green Infrastructure V1.0 (March 2016)

\(^{42}\) South Downs National Park, Access Network and Accessible Natural Greenspace Study (July 2014)
7.5.3.4 The existing A27 is considered to be a cause of severance to pedestrians living in Arundel, where it acts as an access barrier to travel to and from the south coast and the SDNP. There are two non-controlled pedestrian crossings along the A27 Chichester Road and no pedestrian crossings are located along the A27 Arundel Road within the Study Area towards to west of Arundel.

7.5.3.5 There is a diverse public rights of way network to the north and south of the A27 which members of the public may use to access the SDNP on foot, by bike or on horseback. However, the limited crossing points along the A27 Arundel Road may discourage this travel option as it may be considered unsafe or unsuitable for WCHs.43

7.5.3.6 Furthermore, there are limited existing parking opportunities along the A27 Arundel Road and Chichester Road, and in the surrounding area. This may deter visitors from driving to the area from further afield via the A27 and surrounding road network, then accessing the SDNP on foot.

7.5.3.7 The issue of existing fragmented travel patterns has been raised in the previous PCF Stage 2 Public Consultation44 and during a meeting with the SDNP45. It is considered likely (based on anecdotal comments made during consultation exercises with SDNPA and evidence of cycle use on the public right of way network observed during site visits for the Population and Health and WCAH assessments) that cycling is currently taking place but with a suppressed demand due to the existing fragmented cycling routes.

7.5.3.8 Furthermore, opportunities to improve poor existing connections between railway stations (Ford and Arundel) and access from town, and the issue of severance caused by the loss of bus stops provision along A-roads due to the speed of traffic have been suggested by the SDNPA.

43 A27 Arundel Bypass PCF Stage 2 – Report on Public Consultation (Spring 2018) published by Highways England which stated “…Difficulty crossing the A27 on foot or by bicycle also presented concern (43% are very concerned and 29% have slight concerns). However, it is noted that 21% are not concerned about this issue – the largest proportion of ‘not concerned’ for all of the issues listed in the questionnaire.”

44 Public consultation undertaken between August and October 2017.

45 Meeting with the SDNP Authority undertaken in South Downs Centre, Midhurst on 29 April 2019. Attendees included representatives from the SDNPA and specialists from WSP.
Coastal Communities

7.5.3.9 According to the Highways England Equality Hotspots map for Area 4\(^4\), Worthing and Littlehampton are highlighted as areas located in proximity to the scheme along the south coast with trip generators (common destinations for travellers, which could be recreational, vocational or performing a community function).

7.5.3.10 In addition to the trip generators in Worthing and Littlehampton, the population in Bognor Regis along the south coast are also likely to travel to the SDNP via Arundel and Chichester.

7.5.3.11 The Access Network and Accessible Natural Green Space Study\(^4\) identified the number of households and the proportion of the population with and without Accessible Natural Greenspace (ANG) within the SDNP in proximity to their home.

7.5.3.12 **Table 7-5** and **Table 7-6** indicate that the majority of the households from Worthing, Littlehampton and Bognor Regis have no areas of “at least 2 hectares ANG” within 300 metres, and no household has any areas of “over 500 hectares” ANG within 10 kilometres. Arun and Adur-Worthing have “no to very little” access to regional ANG and virtually all ANG in the local area is within the SDNP and not within the urban area. Hence, the ANGs within the SDNP are important areas of ANG provision for the identified coastal communities.

---

\(^4\) Highways Agency, Equality Hotspot Maps Area 4 – Kent, Surrey, East Sussex & West Sussex (November 2016)
Table 7-5 - Access to ANG within the SDNP within 300 metres

<table>
<thead>
<tr>
<th>District</th>
<th>Households with no ANG within 300 metres *</th>
<th>Households with ANG within 300 metres *</th>
<th>Number of population with no ANG within 300 metres of their household *</th>
<th>Number of population with ANG within 300 metres of their household*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adur – Worthing</td>
<td>68</td>
<td>24</td>
<td>185 (73.9%)</td>
<td>65 (26.1%)</td>
</tr>
<tr>
<td>Arun (including Littlehampton and Bognor Regis)</td>
<td>803</td>
<td>280</td>
<td>2,183 (74.1%)</td>
<td>761 (25.9%)</td>
</tr>
</tbody>
</table>

*: Provision of at least 2 hectares ANG within 300 metres (a 5 minute walk) from home.

Table 7-6 - Access to regional scale ANG within the SDNP within 10 kilometres

<table>
<thead>
<tr>
<th>District</th>
<th>Households with no ANG within 10 kilometres *</th>
<th>Households with ANG within 10 kilometres *</th>
<th>Number of population with no ANG within 10 kilometres of their household *</th>
<th>Number of population with ANG within 10 kilometres of their household*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adur – Worthing</td>
<td>92</td>
<td>0</td>
<td>251 (100%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Arun (including Littlehampton and Bognor Regis)</td>
<td>1,083</td>
<td>0</td>
<td>2,945 (100%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

*: Provision of at least 500 hectares (regional scale) ANG within 10 kilometres.

48 South Downs National Park, Access Network and Accessible Natural Green Space Study [Table 3] (July 2014)
49 South Downs National Park, Access Network and Accessible Natural Green Space Study [Table 6] (July 2014)
7.5.3.13 The report stated that health levels are generally better within the SDNP, with areas with the poorest health score found mostly in the coastal region outside the SDNP with low to no ANG, including Worthing; Littlehampton; and Bognor Regis. This may indicate the link between good health and high provision of ANG.50

‘Within the Study Area the households with the poorest levels of health can be found mostly in the coastal conurbations outside the National Park…

Within the National Park the levels of health are generally better than in other parts of the Study Area… None of the lowest scoring areas occur within the National Park.

There is a strong coincidence between areas with the poorest levels of health, low levels of car ownership and lack of local accessible greenspace.’

7.5.3.14 The Economic Impacts of A27 Investment on the SDNP51 suggested that the removal of through traffic adjacent to Arundel train station would make it easier to improve pedestrian and cycle connectivity between the station and the town centre, which would potentially enhance Arundel station as a gateway to the SDNP.

Potential routes accessing the SDNP via Arundel

Worthing

7.5.3.15 Worthing is situated south east of Arundel along the coast and in proximity to the southern boundary of the SDNP where people can travel north to get into the SDNP. It is also possible to travel via Arundel by WCHs and vehicular routes to get into the SDNP.52

7.5.3.16 Two direct bus routes and one change of services bus route are available from Worthing to Arundel.

- Bus service 69 (from Worthing opposite the Lido to Arundel riverbank westbound) would take approximately 30 minutes.
- Bus service 9 (from Richmond Road to Arundel riverbank westbound) would take approximately 1 hour and 30 minutes.
- Bus services 700 Coastliner and 9 (from Marine Parade Stop C to Anchor Springs Stop C to Arundel Queen Street) would take approximately 1 hour and 15 minutes.

7.5.3.17 No direct railway services are provided from Worthing to Arundel. However, two other routes could be taken to travel to the SDNP via Arundel:
- Service from Worthing to Ford (through West Worthing, Durrington-on-Sea, Goring-by-Sea and Angmering) and with change of service from Ford to Arundel. This route would take approximately 50 minutes with services provided approximately every hour.
- Service from Worthing to Littlehampton (through West Worthing, Durrington-on-Sea, Goring-by-Sea and Angmering) with change of service from Littlehampton to Ford, then from Ford to Arundel. This route would take approximately one hour with services provided approximately every hour.

7.5.3.18 There are likely vehicular routes to travel from Worthing via Arundel into the SDNP. These include:
- Drive north west towards Arundel via the A24, A27 and A284. This route would take approximately 26 minutes.
- Drive north west towards Arundel via the A2032, A259, A284 and A27. This route would take approximately 34 minutes.

**Littlehampton**

7.5.3.19 Littlehampton is situated south of Arundel along the coast. Travelling via Arundel could potentially be the shortest route to get to the SDNP. Potential WCHs and vehicular routes to get into the SDNP are listed below.

7.5.3.20 Bus service 9 provides a direct route from Littlehampton (Anchor Springs) to Arundel (Arundel riverbank westbound). This service would take approximately 16 minutes with services provided approximately every hour.

7.5.3.21 No direct train services are provided from Littlehampton to Arundel. However, services are provided from Littlehampton to Ford with change of service from Ford to Arundel. This route would take between 18 to 36 minutes.

7.5.3.22 There are likely vehicular routes to travel from Littlehampton into the SDNP via Arundel. These include:
- Drive north towards Arundel via the A284 and A27. This route would take approximately 13 minutes.
- Drive north towards Arundel via the B2187, A259, Ford Road, the A27 and A284. This route would take approximately 18 minutes.
Bognor Regis

7.5.3.23 Bognor Regis is situated south west of Arundel along the coast. It is possible to get to the SDNP via Arundel or Chichester. Potential WCH and vehicular routes via Arundel are listed below.

7.5.3.24 No direct bus services are available from Bognor Regis to Arundel. However, two bus routes (two buses each route) could be taken to get to Arundel.

- Bus services 66A and 85 (travel from Bognor Regis station Stop J to Walberton Holly Tree, then from Holly Tree to Arundel riverbank westbound) would take approximately 1 hour and 15 minutes.
- Bus services 700 Coastline and 9 (travel from Bognor Regis High Street Stop C to Littlehampton Anchor Spring Stop B, then from Littlehampton Anchor Springs Stop C to Arundel Queen Street) would take approximately 1 hour and 10 minutes.

7.5.3.25 Direct train services are provided from Bognor Regis to Arundel (through Barnham and Ford). This route would take approximately 17 minutes with services provided approximately every 30 minutes.

7.5.3.26 There are several likely vehicular routes to travel from Bognor Regis. These include:

- Drive north west towards Arundel via the B2259, A259, Ford Road and the A27 would take approximately 23 minutes.
- Drive north towards Fontwell and Arundel via the A29 and A27 would take approximately 26 minutes.
- Drive north west towards Walberton and Arundel via the B2259, A259, Yapton Lane and A27 would take approximately 29 minutes.

7.5.4 Effects on recreational and educational facilities

7.5.4.1 Recreational and educational facilities located in proximity to the SDNP and the Scheme offer leisure and learning experiences to visitors of the SDNP.

---

7.5.4.2 The following recreational and educational facilities are located within the Study Area, and the location of these is shown in EAR Figure 12-2. These facilities attract visitors and tourists and therefore may support the SDNP and communities within its boundary. Some of these facilities may be directly affected by the Scheme as a result of land take. **Table 7-7** provides the potential area of land take from the identified recreational and tourism facilities and businesses located in proximity to Arundel:

- Billycan Camping, a luxury self-catering camp site located south of the SDNP boundary.
- Arundel Cricket Club, cricket club located within the SDNP.
- Forest Knights, a forest and bushcraft school operates in Binsted Woods providing regular courses on wilderness skills and, understanding and appreciation of the natural environment to people of all abilities.\(^{54},^{55}\)
- Ratpack Field Archers, an archery club uses the woodland north of Hedgers Hill. It is located within the SDNP.
- Avisford Park Golf Club, a golf club located adjacent to the SDNP boundary.

\(^{54}\) Arundel Bypass Neighbourhood Committee, A27 Arundel Bypass consultation 2017: ABNC’s response (October 2017)

### Table 7-7 - Recreational facilities and businesses crossed by the option footprints and potential land take required

<table>
<thead>
<tr>
<th>Facility</th>
<th>1V5</th>
<th>1V9</th>
<th>3V1</th>
<th>4/5AV1</th>
<th>4/5AV2</th>
<th>5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arundel Cricket Club</strong></td>
<td>0.9ha</td>
<td>0.49ha</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
</tr>
<tr>
<td><strong>Billycan Camping</strong></td>
<td>N/a</td>
<td>N/a</td>
<td>3.42ha</td>
<td>3.52ha</td>
<td>3.75ha</td>
<td>3.57ha</td>
</tr>
<tr>
<td><strong>Forest Knights</strong></td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
<td>Land potentially within option footprint (school is known to operate in Binsted Wood near Foxes Cottages but the location and extent of the site cannot be confirmed from publicly available data)</td>
<td>N/a</td>
</tr>
<tr>
<td><strong>Avisford Park Golf Club</strong></td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
<td>5.59ha</td>
<td>0.01ha</td>
<td>6.67ha</td>
</tr>
<tr>
<td><strong>Ratpack Field Archers</strong></td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
<td>Land within option footprint (operates in Binsted Wood, but the extent of the site cannot be confirmed from publicly available data)</td>
<td>Land within option footprint (the archery operates in Binsted Wood, but the extent of the site cannot be confirmed from publicly available data)</td>
<td>N/a</td>
</tr>
</tbody>
</table>

7.5.4.3 The following facilities are located within the Study Area and are accessed directly from roads potentially affected by the Scheme options:

- Arundel Cricket Club
- The White Swan Pub
- The Arundel Park Hotel
- Premier Inn Arundel and Crossbush Beefeater on the Causeway
- Facilities at the Arundel Service Station on the A284.

7.5.4.4 The following facilities are located within the Study Area but are not within the Scheme option footprints or accessed directly by roads affected by the Scheme:

- Arundel Castle
- Arundel Museum
- Arundel Cathedral
- Arundel Wetland Centre
- Arundel Lido
- Arundel Farm Riding Centre
- Arundel Ghost Experience
- Hanger Down House Bed and Breakfast

7.5.4.5 There are a number of accommodation facilities located in proximity to the Scheme which may be utilised by visitors to the SDNP. Below is a list of accommodations located within one kilometre from the option footprints (EAR Chapter 11: Noise and Vibration Study Area).

- Maynards Caravan Park
- Premier Inn Arundel
- Comfort Inn Arundel
- The Arundel Park Hotel
- Arden House Bed and Breakfast and Guest House in Arundel
- The Swan Hotel
- Arundel House Bed and Breakfast
- The Norfolk Arms Hotel
- Swan Cottage Holiday Home Arundel
- Loquat Cottage
- Billycan Camping
- Brooklands Country Guest House
- The White Swan Pub
- Hilton Avisford Park
- Field End House
7.6 Scoping

7.6.1.1 The potential impacts outlined in Section 7.2.1 have been considered with regard to the Scheme. Justification of whether the potential impacts are scoped in or out are provided in Table 7-8.

Table 7-8 - Scoping

<table>
<thead>
<tr>
<th>Potential impact stated in the SDNP position statement</th>
<th>Potential Impact</th>
<th>Scoped in/out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on users of rights of way and other access routes</td>
<td>Permanent effects on users of rights of way and other access routes</td>
<td>Scoped in</td>
<td>Public rights of way and other access road disruption could impact access to the SDNP and user amenity.</td>
</tr>
<tr>
<td></td>
<td>Permanent changes in journey amenity for WCH due to construction works</td>
<td>Scoped in</td>
<td>Public rights of way and other access road disruption could impact journey amenity within and in proximity to the SDNP.</td>
</tr>
<tr>
<td></td>
<td>Permanent disruption to footpath and cycle path access, and impact on public transport journey length.</td>
<td>Scoped in</td>
<td>Public rights of way and road disruption could impact WCHs travelling to the SDNP.</td>
</tr>
<tr>
<td>Effects on sustainable transport schemes</td>
<td>Permanent and temporary changes to bus stop locations and bus service routes</td>
<td>Scoped in</td>
<td>Public rights of way and road disruption could impact opportunities for walking, cycling, riding and using public transport to travel to the SDNP.</td>
</tr>
<tr>
<td></td>
<td>Permanent changes in journey amenity for WCHs</td>
<td>Scoped in</td>
<td>Public rights of way and other access road disruption could impact</td>
</tr>
</tbody>
</table>
### Potential Impact Stated in the SDNP Position Statement

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Scoped in/out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Severance of the National Park from coastal communities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Due to construction works</td>
<td></td>
<td>Journey amenity within and in proximity to the SDNP.</td>
</tr>
<tr>
<td>Permanent disruption to footpath and cycle path access, and impact on public transport journey length.</td>
<td>Scoped in</td>
<td>Public rights of way and road disruption could impact WCHs travelling to the SDNP.</td>
</tr>
<tr>
<td>Improved access to active travel opportunities (foot paths and cycle paths)</td>
<td>Scoped in</td>
<td>Improved WCHs’ access could benefit access to the SDNP.</td>
</tr>
<tr>
<td>Permanent and temporary changes to bus stop locations and bus service routes</td>
<td>Scoped in</td>
<td>Public transport service disruption could impact WCHs travelling from coastal communities into the SDNP.</td>
</tr>
<tr>
<td>Permanent and temporary disruption to public transport journey length.</td>
<td>Scoped in</td>
<td>Road disruption could impact locals travelling from coastal communities into the SDNP.</td>
</tr>
<tr>
<td>Permanent and temporary land take from recreational and educational facilities.</td>
<td>Scoped in</td>
<td>Land take from recreational and educational facilities could affect their operation.</td>
</tr>
<tr>
<td>Permanent and temporary noise effect on recreational and educational facilities.</td>
<td>Scoped in</td>
<td>Changes in noise level during construction and operation of the Scheme could potentially affect noise level and operation of the nearby recreational and educational facilities.</td>
</tr>
</tbody>
</table>

**Effects on recreational and educational facilities**
7.7 Design, mitigation and enhancement

7.7.1 Design phase mitigation measures

7.7.1.1 The design stage mitigation measures identified for the Scheme, which are applicable to all of the Scheme options, considering best practice procedures are as follows:

- Rights of way and other access routes:
  - Iterative design and assessment processes to ensure rights of way and other road enhancements consider and address impacts identified within the Scheme Equalities Impact Assessment\(^{57}\) (EqIA) or EAR.
  - The preferred design solution will accommodate pedestrians, cyclists and equestrians as far as practicable and either retain or improve the existing access arrangements. For example, the existing public footpaths should be retained and where crossed by the route, provided with proper means of access to prevent severance.
  - Use of best practice design with regards to the safety of pedestrians, cyclists and equestrians, including lighting if required, would improve the amenity of users of the public footpaths in the surrounding areas. Additionally, landscaping that can provide screening of the road where possible and reduce noise levels for the wider network of public rights of way would also improve amenity for users.
  - Existing types of access to public rights of way will be retained, for example, by not introducing new barriers such as stiles, which may restrict certain users.
  - The preferred route will minimise the degree and duration of exposure to traffic for WCH by careful consideration of permanent public right of way diversions. Potential opportunities include separating footways, bridleways and cycle paths from the carriageway and landscape screening. Clear signages will be implemented into the new design to reduce confusion.

- Sustainable transport schemes:
  - Incorporate design to accommodate bus stop provision to facilitate the use of public transport as a means of travel to SDNP. Existing bus

\(^{57}\) A27 Arundel Equality Impact Assessment: PCF Stage 2 Further Consultation, WSP (2019)
and train services will be maintained where possible, for example, by keeping the existing bus stops or relocating the bus stop in a suitable location within close proximity. This will need to be agreed with the local authority and operators.

- The proposed cycle route along the River Arun will be considered within the design of the Scheme in accordance with IAN 195/16.

### Severance of the National Park from coastal communities:

- The preferred route should include provision to increase integration, access, and connection to the wider SDNP network where possible.
- Existing footpaths and roads will be retained where practicable and, where crossed by the option, provided with proper means of access to prevent severance. Existing roads which are crossed by the Scheme should be incorporated, allowing for crossing points within the design.

### Effects on recreational and educational facilities:

- Consultation with recreational groups and educational services providers as well as land owners will offer an opportunity to identify the potential impact on recreational and educational facilities.

#### 7.7.2 Construction phase mitigation measures

#### 7.7.2.1 The construction stage mitigation measures identified for the Scheme considering best practice procedures are as follows:

### Rights of way and other access routes:

- Public rights of way and footways will remain open throughout the construction period where practicable.
- Any public right of way or footway diversions or closures undertaken during construction will be clearly advertised, and any diversionary routes have appropriate signage so as not to lead to route uncertainty.
- Diversions and closures of public rights of way and roads will be agreed in consultation with the relevant local authority, and implemented in accordance with an agreed traffic management plan.
- Temporarily diverted public rights of way and footways will be clearly signed and minimise the degree and duration of people’s exposure to traffic.
- Sustainable transport schemes:
  - Temporary diversion of bus routes will be agreed in advance with relevant service provider and local authority, and implemented in accordance with an agreed traffic management plan.
  - Temporary bus stops will be provided to maintain services travelling to and from the SDNP.
- Severance of the SDNP from coastal communities:
  - Public rights of way, footways and roads will remain open throughout the construction period where practicable, with diversions put in place where required for public safety reasons.
- Effects on recreational and educational facilities:
  - Where possible, construction activities should look to accommodate the continued operation of forest schools and other educational and recreational facilities within the footprint of the Proposed Scheme.

### 7.7.3 Operational phase mitigation measures

#### 7.7.3.1 The operation stage mitigation measures identified for the Scheme considering best practice procedures are as follows:

- Rights of way and other access routes:
  - Any permanent diversionary works or closure of pedestrian, cyclist’s and equestrian routes should be undertaken following proper consultation with affected groups or individuals, and the required consent likely to be incorporated into the Development Consent Order (DCO) application.

- Effects on recreational and educational facilities:
  - It will be necessary to consult with operators of forest schools and other educational and recreational facilities within the footprint of the Proposed Scheme, to identify options to allow them to continue to operate either in their current locations or at a suitable alternative.

### 7.7.4 Opportunities for enhancement

#### 7.7.4.1 Identified opportunities to address the needs of network connection enhancement between local communities and the SDNP by the SDNPA are stated within The South Downs Green Infrastructure Framework V1.0 (March 2016). Key actions relevant to the Scheme include:
Break down access barriers between the north and south of the A27 Chichester Road and A27 Arundel Road
- Improve connectivity between Ford Station and the SDNP
- Improve connectivity between Littlehampton and the SDNP.

7.7.4.2 A draft Walking, Cycling and Horse-riding Assessment Report Opportunities Appraisal has been produced by WSP for the Scheme, which has identified the following opportunities to be considered by the wider design team in PCF Stage 3:

- Provision of safe or improved WCH facilities along the existing and new alignment at several locations, including:
  - Across the A27
  - On the A284/A27 Lyminster Road
  - On the A27 at Walberton
  - On Fitzalan Road
  - On Old Scotland Lane
  - On the A27 roundabout to the north-east of Fontwell
  - At Ford Road Junction
  - At Crossbush
  - At Havenwood retirement caravan park, The White Swan pub, Arundel Cricket Club and Arundel and District Community Hospital
  - Between Ford Road Roundabout and the Crossbush junction
  - Between Arundel and Walberton
  - Between Arundel and Littlehampton
  - Between Copse Lane and Arundel Road
  - Between Walberton Lane and the south-west side of the A27 roundabout
  - Along the proposed overbridge for Tortington lane
  - Along the westbound carriageway between Yapton Lane and Scotland barn
  - From Tye Lane to Yapton Lane junction

7.7.4.3 Additional opportunities for enhancement include:

- Improve “advance warning” signage of existing WCH crossings on existing A27.
- Improve signage along existing bridleways, footways, and to and from links to South Downs Way.
- Opportunities to link existing paths to long distance paths, for example Monarchs Way and Canal Walk.
- Improve cycle facilities to Queen Street/High Street to improve links between Arundel Town Centre and Station.

7.7.4.4 Discussions with local authorities and West Sussex County Council are to be undertaken to identify potential future improvements identified for the Rights of Way Improvement Plans.

7.7.4.5 There is potential for improvements to educational facilities within the SDNP, including opportunities to introduce new views of historical features which can be augmented by interpretive signage.

7.7.4.6 There may be opportunities to improve access to SDNP through enhanced pedestrian, equestrian and cycling access, plus the potential for parking, new access points and amenities for enhanced use of the SDNP.

7.8 Assessment of potential impacts

7.8.1 Effects on public rights of way and other access routes

All Scheme options

7.8.1.1 Amenity of pedestrian, cyclist and equestrian routes may be temporarily adversely affected by improvement works where public right of way routes and footways interact with the road during construction. It is assumed that all public rights of way will be reduced to an amenity level of low in the vicinity of construction works (the amenity value criteria for public rights of way and other key routes and justification for this is detailed in EAR Chapter 12: Population and Health, Table 12-4 and Section 12.10). Effects on amenity for users of public rights of way will be fully assessed at PCF Stage 3 when the location of temporary diversions are known. Potential effects for each Scheme option on known permanent diversions are provided below.

7.8.1.2 The full assessment of the below are provided in the EAR, summaries are provided below:

- Permanent amenity effects on pedestrians, cyclists and equestrian routes: see EAR Chapter 12: Population and Health (Section 12.10)
- Effects on journey length and community severance: see EAR Chapter 12: Population and Health (Section 12.10)
- Assessment of the potential noise impact on users of footpaths and bridleways is provided in EAR Chapter 11: Noise and Vibration, (Section 11.10, Appendix 11-3 Noise and Vibration Results Tables).
Option 1V5
Journey amenity

7.8.1.3 Temporary effects on amenity for users of public rights of way will be fully assessed at PCF Stage 3 when the location of temporary diversions are known.

7.8.1.4 An overall Significant Moderate Adverse effect on amenity for users of public rights of way is anticipated for Option 1V5. An outline of effects on specific routes can be found in EAR Chapter 12: Population and Health (Table 12-24).

Journey length and community severance

7.8.1.5 Permanent public right of way diversions have been incorporated into the design for Option 1V5. However, the journey length for pedestrians, cyclists and equestrians will be increased. An overall Significant Moderate Adverse effect on journey length and community severance is anticipated during construction and operation of Option 1V5. An outline of effects by specific routes can be found in EAR Chapter 12: Population and Health (Table 12-25).

7.8.1.6 Within the Noise and Vibration 2 kilometre Study Area, 4 percent of the public footpaths for Option 1V5 are anticipated to experience a Permanent Moderate Adverse impact (see Chapter 11: Noise and Vibration, Appendix Table 11-3-6).

7.8.1.7 Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.1.8 It is therefore considered that Option 1V5 is likely to have a Permanent Significant Moderate Adverse effect on the effect on public rights of way and access routes along the route of the Option 1V5.

Option 1V9
Journey amenity

7.8.1.9 Temporary effects on amenity for users of public rights of way will be fully assessed at PCF Stage 3 when the location of temporary diversions are known.

7.8.1.10 An overall Significant Moderate Adverse effect on amenity for users of public rights of way is anticipated for Option 1V9 for both construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health (Table 12-27).
Journey length and community severance

7.8.1.11 Permanent public right of way diversions have been incorporated into the design for Option 1V9. However, the journey length for pedestrians, cyclists and equestrians will be increased. An overall Significant Moderate Adverse effect on journey length and community severance is anticipated for Option 1V9 during construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health, (Table 12-28).

7.8.1.12 Within the Noise and Vibration 2 kilometre Study Area, 4 percent of the footpaths for Option 1V9 are anticipated to experience a permanent moderate adverse impact (see Chapter 11: Noise and Vibration, Appendix Table 11-3-12).

7.8.1.13 Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.1.14 It is therefore considered that Option 1V9 is likely to have a Permanent Significant Moderate Adverse effect on public rights of way and access routes along the route of the Option 1V9.

Option 3V1
Journey amenity

7.8.1.15 Temporary effects on amenity for users of public rights of way will be fully assessed at PCF Stage 3 when the location of temporary diversions are known.

7.8.1.16 An overall Significant Moderate Adverse effect on amenity for users of public rights of way is anticipated for Option 3V1 for both construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health (Table 12-30).

Journey length and community severance

7.8.1.17 Public rights of way diversions and provision of several shared pedestrian and cycle paths have been incorporated into the design for Option 3V1, with an overall significant moderate adverse effect on journey length. An overall Moderate Adverse effect on journey length and community severance is anticipated for Option 3V1 during construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health (Table 12-31).
7.8.1.18 Within the Noise and Vibration 2 kilometre Study Area, 8 percent of the footpaths and 3 percent of the bridleways for Option 3V1 are anticipated to experience a Permanent Moderate Adverse Impact (see Chapter 11: Noise and Vibration, Appendix Table 11-3-18).

7.8.1.19 Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.1.20 It is therefore considered that Option 3V1 is likely to have a Permanent Significant Moderate Adverse effect on public rights of way and access routes along the route of the Option 3V1.

**Option 4/5AV1**

**Journey amenity**

7.8.1.21 Temporary effects on amenity for users of public rights of way will be fully assessed at PCF Stage 3 when the location of temporary diversions are known.

7.8.1.22 An overall Moderate Adverse effect on amenity for users of public rights of way is anticipated for Option 4/5AV1 for both construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health (Table 12-33).

**Journey length and community severance**

7.8.1.23 Public rights of way diversions and provision of several shared pedestrian and cycle paths have been incorporated into the design for Option 4/5AV1 with an overall Moderate adverse effect on journey length and community severance is anticipated for Option 4/5AV1 during construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health (Table 12-34).

7.8.1.24 Within the Noise and Vibration 2 kilometre Study Area, 12 percent of the footpaths and 29 percent of the bridleways are anticipated to experience a Moderate Adverse impact for Option 4/5AV1 (see Chapter 11: Noise and Vibration, Appendix Table 11-3-18).

7.8.1.25 A temporary road diversion and two temporary bus stops (Crossbush Lane and Oak Cottage) would be provided during construction to maintain partial access of road and bus services respectively.

7.8.1.26 Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.
7.8.1.27 It is therefore considered that Option 4/5AV1 is likely to have a Permanent Significant Moderate Adverse effect on public rights of way and access routes along the route of the Option /5AV1.

**Option 4/5AV2**

*Journey amenity*

7.8.1.28 Temporary effects on amenity for users of public rights of way will be fully assessed at PCF Stage 3 when the location of temporary diversions are known.

7.8.1.29 An overall Moderate Adverse effect on amenity for users of public rights of way is anticipated for Option 4/5AV2 for both construction and operation. An outline of effects by specific access routes can be found in **EAR Chapter 12: Population and Health** (Table 12-36).

*Journey length and community severance*

7.8.1.30 Public rights of way diversions and provision of several shared pedestrian and cycle paths have been incorporated into the design for Option 4/5AV2 with an overall beneficial effect on journey length. An overall Moderate Adverse effect on community severance is anticipated for Option 4/5AV2. An outline of effects by specific access routes can be found in **EAR Chapter 12: Population and Health** (Table 12-37).

7.8.1.31 Within the noise 2 kilometre Study Area, 12 percent of the footpaths and 26 percent of the bridleways with an overall Moderate Adverse impact for Option 4/5AV2 anticipated (see **Chapter 11: Noise and Vibration**, Appendix Table 11-3-30).

7.8.1.32 A temporary road diversion and two temporary bus stops (Crossbush Lane and Oak Cottage) would be provided during construction to maintain partial access of road and bus services respectively.

7.8.1.33 Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.1.34 It is therefore considered that Option 4/5AV2 is likely to have a Permanent Significant Moderate Adverse effect on public rights of way and access routes along the route of the Option 4/5AV2.

**Option 5BV1**

*Journey amenity*

7.8.1.35 Temporary effects on amenity for users of public rights of way will be fully assessed at PCF Stage 3 when the location of temporary diversions are known.
7.8.1.36 An overall Moderate Adverse effect on amenity for users of public rights of way is anticipated for Option 5BV1 for both construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health (Table 12-39).

Journey length and community severance

7.8.1.37 Public rights of way diversions and provision of several shared pedestrian and cycle paths have been incorporated into the design for Option 5BV1 with an overall Moderate Adverse effect on journey length and community severance is anticipated for Option 5BV1 during construction and operation. An outline of effects by specific access routes can be found in EAR Chapter 12: Population and Health (Table 12-40).

7.8.1.38 Within the Noise and Vibration 2 kilometre Study Area, 11 percent of the footpaths and 39 percent of the bridleways are anticipated to experience a Moderate Adverse impact for Option 5BV1 (see Chapter 11: Noise and Vibration, Appendix Table 11-3-36).

7.8.1.39 A temporary road diversion and two temporary bus stops (Crossbush Lane and Manser road) would be provided during construction to maintain partial access of road and bus services respectively.

7.8.1.40 Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.1.41 It is therefore considered that Option 5BV1 is likely to have a Permanent Significant Moderate Adverse effect on public rights of way and access routes along the route of the Option 5BV1.

7.8.2 Effects on sustainable transport schemes

Option 1V5

7.8.2.1 A temporary road diversion and three temporary bus stops (Crossbush Lane, Park Bottom and Jarvis Road) should be provided during the construction of the Proposed Scheme to maintain partial access of road and local bus services respectively. Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.2.2 Train services would not be affected by the Scheme.
7.8.2.3 There may be some temporary disruption during construction to users of the Green Link cycle path near its connection with the existing A27, if it has been completed. The disruption during construction is likely to be negligible, resulting in a Not Significant Neutral effect. No operational effect is anticipated, resulting in a Not Significant Neutral operational effect.

7.8.2.4 It is therefore considered that Option 1V5 is likely to have a Permanent Not Significant Neutral effect on the access to the SDNP by sustainable transport along the route of Option 1V5.

**Option 1V9**

7.8.2.5 A temporary road diversion and three temporary bus stops (Crossbush Lane, Park Bottom and Jarvis Road) should be provided during construction to maintain partial access of road and bus services respectively. Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.2.6 Train services would not be affected by the Scheme.

7.8.2.7 There may be some temporary disruption during construction to users of the Green Link cycle path near its connection with the existing A27, if it has been completed. The disruption during construction is likely to be negligible, resulting in a Not Significant Neutral effect. No operational effect is anticipated, resulting in a Not Significant Neutral operational effect.

7.8.2.8 It is therefore considered that Option 1V9 is likely to have a Permanent Not Significant Neutral effect on the access to the SDNP by sustainable transport along the route of Option 1V9.

**Option 3V1**

7.8.2.9 A temporary road diversion and three temporary bus stops (Crossbush Lane, Havenwood Park and Priory Lane) should be provided during construction to maintain partial access of road and bus services respectively. Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.2.10 Train services would not be affected by the Scheme.

7.8.2.11 There may be some temporary disruption during construction to users of the Green Link cycle path near its connection with the existing A27, if it has been completed. The disruption during construction is likely to be negligible, resulting in a Not Significant Neutral effect. No operational effect is anticipated, resulting in a Not Significant Neutral operational effect.
7.8.2.12 It is therefore considered that Option 3V1 is likely to have a Permanent Not Significant Neutral effect on the access to the SDNP by sustainable transport along the route of the Option 3V1.

**Option 4/5AV1**

7.8.2.13 A temporary road diversion and two temporary bus stops (Crossbush Lane and Oak Cottage) should be provided during construction to maintain partial access of road and bus services respectively. Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.2.14 Train services would not be affected by the Scheme.

7.8.2.15 There may be some temporary disruption during construction to users of the Green Link cycle path near its connection with the existing A27, if it has been completed. The disruption during construction is likely to be negligible, resulting in a Not Significant Neutral effect. No operational effect is anticipated, resulting in a Not Significant Neutral operational effect.

7.8.2.16 It is therefore considered that Option 4/5AV1 is likely to have a Permanent Not Significant Neutral effect on the access to the SDNP by sustainable transport along the route of Option 4/5AV1.

**Option 4/5AV2**

7.8.2.17 A temporary road diversion and two temporary bus stops (Crossbush Lane and Oak Cottage) should be provided during construction to maintain partial access of road and bus services respectively. Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.2.18 Train services would not be affected by the Scheme.

7.8.2.19 There may be some temporary disruption during construction to users of the Green Link cycle path near its connection with the existing A27, if it has been completed. The disruption during construction is likely to be negligible, resulting in a Not Significant Neutral effect. No operational effect is anticipated, resulting in a Not Significant Neutral operational effect.

7.8.2.20 It is therefore considered that Option 4/5AV2 is likely to have a Permanent Not Significant Neutral effect on the access to the SDNP by sustainable transport along the route of Option 4/5AV2.
Option 5BV1

7.8.2.21 A temporary road diversion and two temporary bus stops (Crossbush Lane and Manser road) should be provided during construction to maintain partial access of road and bus services respectively. Details of temporary road diversions and bus stop provision are not defined at this stage. The effects on the journey length of bus users will therefore be assessed at PCF Stage 3.

7.8.2.22 Train services would not be affected by the Scheme.

7.8.2.23 There may be some temporary disruption during construction to users of the Green Link cycle path near its connection with the existing A27, if it has been completed. The disruption during construction is likely to be negligible, resulting in a Not Significant Neutral effect. No operational effect is anticipated, resulting in a Not Significant Neutral operational effect.

7.8.2.24 It is therefore considered that Option 5BV1 is likely to have a Permanent Not Significant Neutral effect on the access to the SDNP by sustainable transport along the route of Option 5BV1.

7.8.3 Severance of the SDNP from coastal communities

Option 1V5

7.8.3.1 Temporary road diversions would be in place during construction to maintain road access and bus services in the area.

7.8.3.2 Disruption to local roads within Arundel during construction may result in temporary delays to Stagecoach bus services, but these are anticipated to be no worse than minor in scale. It is assumed that access will remain open to High Street and a change in pick-up and drop-off locations for these services will not be required. It is therefore anticipated that there will be a neutral effect on regional bus services, and connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.

7.8.3.3 Train services would not be affected by the Scheme. Therefore, connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.
7.8.3.4 Option 1V5 may cause some temporary disruption to the users of the Arun Blue-Green Corridor GIIA, if it is completed prior to construction of the Scheme. The detailed design of the infrastructure is not available at this stage. The effect on severance of the Arun Blue-Green Corridor GIIA and between Littlehampton and the SDNP will be assessed in PCF Stage 3.

7.8.3.5 It is therefore considered that Option 1V5 is likely to have a Permanent Not Significant Neutral effect on the severance of the SDNP from coastal communities.

Option 1V9

7.8.3.6 Temporary road diversions would be in place during construction to maintain road access and bus services in the area. No overall impact (Not Significant Neutral effect) is anticipated during construction and operation for Option 1V9.

7.8.3.7 Disruption to local roads within Arundel during construction may result in temporary delays to Stagecoach bus services, but these are anticipated to be no worse than minor in scale. It is assumed that access will remain open to High Street and a change in pick-up and drop-off locations for these services will not be required. It is therefore anticipated that there will be a neutral effect on regional bus services, and connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.

7.8.3.8 Train services would not be affected by the Scheme. Therefore, connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.

7.8.3.9 Option 1V9 may cause some temporary disruption to the users of the Arun Blue-Green Corridor GIIA, if it is completed prior to construction of the Scheme. The detailed design of the infrastructure is not available at this stage. The effect on severance of the Arun Blue-Green Corridor GIIA and between Littlehampton and the SDNP will be assessed in PCF Stage 3.

7.8.3.10 It is therefore considered that Option 1V9 is likely to have a Permanent Not Significant Neutral effect on the severance of the SDNP from coastal communities.
Option 3V1

7.8.3.11 Temporary road diversion would be in place during construction to maintain road access and bus services in the area. No overall impact (Not Significant Neutral effect) is anticipated during construction and operation for Option 3V1.

7.8.3.12 Train services would not be affected by the Scheme. Therefore, connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.

7.8.3.13 Option 3V1 may cause some temporary disruption to the users of the Arun Blue-Green Corridor GIIA if it is completed prior to construction of the Scheme. The detailed design of the infrastructure is not available at this stage. The effect on severance of the Arun Blue-Green Corridor GIIA and between Littlehampton and the SDNP will be assessed in PCF Stage 3.

7.8.3.14 It is therefore considered that Option 3V1 is likely to have a Permanent Not Significant Neutral effect on the access to the SDNP by coastal communities.

Option 4/5AV1

7.8.3.15 Temporary road diversion would be in place during construction to maintain road access and bus services in the area. No overall impact (Not Significant Neutral effect) is anticipated during construction and operation for Option 4/5AV1.

7.8.3.16 Train services would not be affected by the Scheme. Therefore, connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.

7.8.3.17 Option 4/5AV1 may cause some temporary disruption to the users of the Arun Blue-Green Corridor GIIA if it is completed prior to construction of the Scheme. The detailed design of the infrastructure is not available at this stage. The effect on severance of the Arun Blue-Green Corridor GIIA and between Littlehampton and the SDNP will be assessed in PCF Stage 3.

7.8.3.18 It is therefore considered that Option 4/5AV1 is likely to have a Permanent Not Significant Neutral effect on the severance of the SDNP from coastal communities.
**Option 4/5AV2**

7.8.3.19 Temporary road diversion would be in place during construction to maintain road access and bus services in the area. No overall impact (Not Significant Neutral effect) is anticipated during construction and operation for Option 4/5AV2.

7.8.3.20 Train services would not be affected by the Scheme. Therefore, connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.

7.8.3.21 Option 4/5AV2 may cause some temporary disruption to the users of the Arun Blue-Green Corridor GIIA if it is completed prior to construction of the Scheme. The detailed design of the infrastructure is not available at this stage. The effect on severance of the Arun Blue-Green Corridor GIIA and between Littlehampton and the SDNP will be assessed in PCF Stage 3.

7.8.3.22 It is therefore considered that Option 4/5AV2 is likely to have a Permanent Not Significant Neutral effect on the severance of the SDNP from coastal communities.

**Option 5BV1**

7.8.3.23 Temporary road diversion would be in place during construction to maintain road access and bus services in the area. No overall impact (Not Significant Neutral effect) is anticipated during construction and operation for Option 5BV1.

7.8.3.24 Train services would not be affected by the Scheme. Therefore, connectivity will remain unchanged for those travelling to Arundel from the wider regional area via this mode of transport, and there is no anticipated impact on coastal communities travelling to the SDNP.

7.8.3.25 Option 5BV1 may cause some temporary disruption to the users of the Arun Blue-Green Corridor GIIA if it is completed prior to construction of the Scheme. The detailed design of the infrastructure is not available at this stage. The effect on severance of the Arun Blue-Green Corridor GIIA and between Littlehampton and the SDNP will be assessed in PCF Stage 3.

7.8.3.26 It is therefore considered that Option 5BV1 is likely to have a Permanent Not Significant Neutral effect on the severance of the SDNP from coastal communities.
7.8.4  Effects on recreational and educational facilities

**Option 1V5**

7.8.4.1 Option 1V5 has the potential to affect Arundel Farm Riding Centre during construction, as the riding centre is likely to use the surrounding public right of way network. The magnitude and severity of this potential impact is not currently known as consultation is required with the Riding School to understand which routes they use. This will be assessed in further detail at PCF Stage 3. It is anticipated that a worst-case scenario would result in a Temporary Moderate Adverse effect. This temporary disruption is not likely to adversely affect the SDNP’s appeal to visitors from further afield or deter customers of the riding centre, as alternative routes will be available throughout construction. However, it is likely to have a Temporary Adverse effect on the enjoyment of the SDNP for riders using this facility as the usual variety of routes will not be available for use. No permanent effect is anticipated.

7.8.4.2 There is potential for temporary disruption during construction and permanent loss of land, resulting in an impact of minor to moderate magnitude (depending on whether the cricket ground still has the capacity for matches on the remaining land) from Arundel Cricket Club during construction onwards. A worst-case assessment would result in a Permanent Significant Moderate Adverse effect. However, it is not anticipated that this effect would deter visitors to the SDNP or adversely impact on visitors’ enjoyment of the SDNP, as they are dissimilar facilities that do not rely on the presence of the other. Therefore, a Neutral effect on the recreational facilities of the SDNP is anticipated.
7.8.4.3 A forest school, Forest Knights, is known to be operating in Binsted Woods. Forest schools operating in Binsted Woods may be utilised by pupils and accessed via the public rights of way network from Arundel Church of England Primary School. It is not likely that Option 1V5 would cause disruption if this is the case (although journeys may require the use of permanently diverted footpaths, which are assumed to be in place throughout construction), as the Scheme lies north of the school and woodland (see EAR Chapter 12: Population and Health, Table 12-24). WCH journeys from Walberton and Binsted Church of England Primary School are not likely to be affected. It is anticipated that any other school participation would require vehicular access due to journey length. The proposed shared footpath and cycle path may improve the connection between the primary school and forest school in Binsted Wood. It is not anticipated that the ability of the forest school to continue operating will be compromised or that users of the facility will be hindered in travelling to it. Therefore, a Neutral effect on Forest Knights is anticipated, as an educational facility located within and directly relying on the surroundings of the SDNP.

7.8.4.4 There is potential for temporary disruption on the White Swan Pub, Arundel Park Hotel, Premier Inn Arundel, Crossbush Beefeater and facilities at the Arundel Service Station on the A284 during construction. This is due to the potential traffic management impacts associated with the construction of Option 1V5, as these facilities are accessed directly from the existing A27. These facilities are of high sensitivity. It is assumed that access will remain open or diversions would be provided to maintain access to the facilities so that users would not be hindered. Impacts are likely to be minor adverse, resulting with a Temporary Not Significant Slight Adverse effect. As it is assumed that access will not be prevented to these facilities, and they will be able to continue to operate, it is anticipated that this will be a Neutral effect on the recreational facilities of the SDNP.

7.8.4.5 Potential noise effect on properties (including accommodation identified in Section 7.5.4) is provided in EAR Chapter 12: Noise and Vibration (Section 11.10). An overall Significant Adverse effect is anticipated. Effects on accommodation facilities from increased noise levels are not likely to compromise their ability to operate in this fashion, but may have a Permanent Adverse effect on guests’ enjoyment of the SDNP and its surroundings during their stay.

7.8.4.6 It is therefore considered that Option 1V5 is likely to have a Temporary Adverse and Neutral effect during construction and a Permanent Adverse effect during operation on the recreational and educational facilities within and adjacent to the SDNP.
Option 1V9

7.8.4.7 Option 1V9 has the potential to temporarily affect Arundel Farm Riding Centre during construction, as the riding centre is likely to use the surrounding public right of way network. The magnitude and severity of this potential impact is not currently known as consultation is required with the Riding School to understand which routes they use. This will be assessed in further detail at PCF Stage 3. It is anticipated that a worst case scenario would result in a minor magnitude of impact and a Temporary Significant Moderate Adverse effect. This temporary disruption is not likely to adversely affect the SDNP’s appeal to visitors from further afield or deter customers of the riding centre, as alternative routes will be available. However, it is likely to have a Temporary Adverse effect on the enjoyment of the SDNP for riders using this facility as the usual variety of routes will not be available for use. No permanent effect is anticipated.

7.8.4.8 There is potential for temporary disruption from traffic management and access into the club (Slight Adverse) and permanent loss of land from Arundel Cricket Club. A worst case assessment would result in a Permanent Significant Moderate Adverse effect. However, it is not anticipated that this effect would deter visitors to the SDNP or adversely impact on visitors’ enjoyment of the SDNP, as they are dissimilar facilities that do not rely on the presence of the other. Therefore, a Neutral effect on the recreational facilities of the SDNP is anticipated.

7.8.4.9 A forest school, Forest Knights, is known to be operating in Binsted Woods. Forest schools operating in Binsted Woods may be used by pupils and accessed via the public rights of way network from Arundel Church of England Primary School. It is not likely that Option 1V9 would cause disruption if this is the case (although journeys may require the use of permanently diverted footpaths, which are assumed to be in place throughout construction), as the Scheme lies north of the school and woodland (see EAR Chapter 12: Population and Health, Table 12-27). Non-motorised user journeys from Walberton and Binsted Church of England Primary School are not likely to be affected. It is anticipated that any other school participation would require vehicular access due to journey length. The proposed shared footpath and cycle path may improve the connection between the primary school and forest school in Binsted Wood. It is not anticipated that the ability of the forest school to continue operating will be compromised or that users of the facility will be hindered in travelling to it. Therefore, a Neutral effect on Forest Knights is anticipated, as an educational facility located within and directly relying on the surroundings of the SDNP.
7.8.4.10 There is potential for temporary disruption on the White Swan Pub, Arundel Park Hotel, Premier Inn Arundel, Crossbush Beefeater and facilities at the Arundel Service Station on the A284 during construction. This is due to the potential traffic management impacts associated with the construction of Option 1V9, as these facilities are accessed directly from the affected road network. These facilities are of high sensitivity. It is assumed that access will remain open or diversions would be provided to maintain access to the facilities so that users would not be hindered. Impacts are likely to be minor adverse, resulting with a Temporary Not Significant Slight Adverse effect. As it is assumed that access will not be prevented to these facilities, and they will be able to continue to operate, it is anticipated that this will be a Neutral effect on the recreational facilities of the SDNP.

7.8.4.11 Detail on potential noise effects on properties (including accommodation identified in Section 7.5.4) is provided in EAR Chapter 12: Noise and Vibration (Section 11.10). An overall Significant Adverse effect is anticipated. Effects on accommodation facilities from increased noise levels are not likely to compromise their ability to operate in this fashion, but may have a Permanent Adverse effect on guests’ enjoyment of the SDNP and its surroundings during their stay.

7.8.4.12 It is therefore considered that Option 1V9 is likely to have a Temporary Adverse and Neutral effect during construction and a Permanent Adverse effect during operation on the recreational and educational facilities within and adjacent to the SDNP.

Option 3V1

7.8.4.13 Option 3V1 will have a permanent adverse effect on Billycan Camping as the route runs through its location. If the business is not able to continue to operate in its current location, Option 3V1 is likely to result in a Large Adverse effect. Where compensation is provided to affected parties, according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Moderate Adverse significance and would not be critical in the decision-making process at this scale of loss. This is likely to have a Permanent Adverse effect on visitors to the SDNP and the available recreational facilities as it will reduce the variety and number of accommodation facilities in this area.
7.8.4.14 Option 3V1 has the potential to affect Arundel Farm Riding Centre during construction, as the riding centre is likely to use the surrounding public right of way network. The magnitude and severity of this potential impact is not currently known as consultation is required with the Riding School to understand which routes they use. This will be assessed in further detail at Stage 3. It is anticipated that a worst-case scenario would result in a Temporary Moderate Adverse effect. This temporary disruption is not likely to adversely affect the SDNP’s appeal to visitors from further afield or deter customers of the riding centre, as alternative routes will be available. However, it is likely to have a Temporary Adverse effect on the enjoyment of the SDNP for riders using this facility as the usual variety of routes will not be available for use. No permanent effect is anticipated.

7.8.4.15 A forest school, Forest Knights, is known to be operating in Binsted Woods, and may be affected by Option 3V1 should land take be required from areas in which they utilise. The exact location where Forest Knights operates is not currently known and will be determined at PCF Stage 3, but a worst case of total loss of this resource, without finding a suitable alternative location in the vicinity would be of major magnitude and of Moderate Adverse significance. A loss or reduction in availability of this resource as a facility located within and directly relying on the surroundings of the SDNP, would be a Permanent Adverse effect.

7.8.4.16 The forest school may be utilised by pupils and accessed via the public rights of way network from Arundel Church of England Primary School or Walberton and Binsted Church of England Primary School. Option 3V1 may cause disruption to journeys if this is the case as the use of permanently diverted footpaths, which are assumed to be in place throughout construction, will increase journey lengths for WCHs (see EAR Chapter 12: Population and Health, Table 12-30). It is anticipated that any other school participation would require vehicular access due to journey length. Any disruption to journeys to get to Forest Knights is anticipated to be a Temporary Adverse effect for users of educational facilities within the SDNP. Further information on the location of Forest Knights and likely journey lengths will be gathered at PCF Stage 3 to enable a full assessment.
7.8.4.17 There is potential for temporary disruption on the Arundel Cricket Club, White Swan Pub, Arundel Park Hotel, Premier Inn Arundel, Crossbush Beefeater and facilities at the Arundel Service Station on the A284 during construction. This is due to the potential traffic management impacts associated with the construction of Option 3V1, as these facilities are accessed directly from the affected road network. These facilities are of high sensitivity. It is assumed that access will remain open or diversions would be provided to maintain access to the facilities so that users would not be hindered. Impacts are likely to be minor adverse, resulting with a Temporary Not Significant Slight Adverse effect. As it is assumed that access will not be prevented to these facilities, and they will be able to continue to operate, it is anticipated that this will be a Neutral effect on the recreational facilities of the SDNP.

7.8.4.18 Detail on potential noise effects on properties (including accommodation identified in Section 7.5.4) is provided in EAR Chapter 12: Noise and Vibration (Section 11.10). An overall Significant Adverse effect is anticipated. Effects on accommodation facilities from increased noise levels are not likely to compromise their ability to operate in this fashion, but may have a Permanent Adverse effect on guests’ enjoyment of the SDNP and its surroundings during their stay.

7.8.4.19 It is therefore considered that Option 3V1 is likely to have a Temporary and Permanent Adverse effect during construction and a Permanent Adverse during operation on the recreational and educational facilities within and adjacent to the SDNP.
7.8.4.20 Option 4/5AV1 will have a permanent adverse effect on Billycan Camping and Avisford Park Golf Club as the option runs through its location. If the businesses are not able to continue to operate in their current location, resulting in a Large Adverse effect. Where compensation is provided to affected parties, according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Moderate Adverse significance and would not be critical in the decision-making process at this scale of loss. Loss of either of these accommodation facilities is likely to have a Permanent Adverse effect on visitors to the SDNP as it will reduce the variety and number of accommodation facilities in this area for recreational purposes. However, it is not anticipated that loss of the golf course alone would deter visitors to the SDNP or adversely impact on visitors’ enjoyment of the SDNP, as they are dissimilar facilities that do not rely on the presence of the other. Option 4/5AV1 has the potential to affect Arundel Farm Riding Centre during construction, as the riding centre is likely to use the surrounding public right of way network. The magnitude and severity of this potential impact is not currently known as consultation is required with the Riding School to understand which routes they use. This will be assessed in further detail at PCF Stage 3. It is anticipated that a worst-case scenario would result in a Temporary Slight Adverse effect. This temporary disruption is not likely to adversely affect the SDNP’s appeal to visitors from further afield or deter customers of the riding centre, as alternative routes will be available. However, it is likely to have a Temporary Adverse effect on the enjoyment of the SDNP for riders using this facility as the usual variety of routes will not be available for use. No permanent effect is anticipated.

7.8.4.21 Option 4/5AV1 is likely to affect the operation of Ratpack Field Archers, an area from which land take is permanently required for construction. The magnitude and severity of this potential impact is not currently known and this will be assessed in further detail at Stage 3. It is anticipated that a worst case scenario would result in a Permanent Large Adverse effect. Where compensation is provided to affected parties, according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Moderate Adverse significance. A loss or reduction in availability of this resource as a facility located within and directly relying on the surroundings of the SDNP, would be a Permanent Adverse effect on recreational facilities within the SDNP.
7.8.4.22 A forest school, Forest Knights, is known to be operating in Binsted Woods, and may be affected by Option 4/5AV1 should land take be required from areas in which they utilise. The exact location where Forest Knights operate is not currently known and will be determined at PCF Stage 3, but a worst case of total loss of this resource, without finding a suitable alternative location in the vicinity would be of major magnitude and of Moderate Adverse significance. A loss or reduction in availability of this resource as a facility located within and directly relying on the surroundings of the SDNP, would be a Permanent Adverse effect on educational facilities in the SDNP.

7.8.4.23 The forest school may be utilised by pupils and accessed via the public rights of way network from Arundel Church of England Primary School or Walberton and Binsted Church of England Primary School. Option 4/5AV1 may cause disruption to journeys if this is the case, as the use of permanently diverted footpaths, which are assumed to be in place throughout construction, will increase journey lengths for WCHs (see EAR Chapter 12: Population and Health, Table 12-33). It is anticipated that any other school participation would require vehicular access due to journey length. Any disruption to journeys to get to Forest Knights is anticipated to be a Temporary Adverse effect for users of educational facilities within the SDNP. Further information on the location of Forest Knights and likely journey lengths will be gathered at PCF Stage 3 to enable a full assessment.

7.8.4.24 There is potential for temporary disruption on the Arundel Park Hotel, Premier Inn Arundel, Crossbush Beefeater and facilities at the Arundel Service Station on the A284 during construction. This is due to the potential traffic management impacts associated with the construction of Option 4/5AV1, as these facilities are accessed directly from the affected road network. These facilities are of high sensitivity. It is assumed that access will remain open or diversions would be provided to maintain access to the facilities so that users would not be hindered. Impacts are likely to be minor adverse, resulting with a Temporary Not Significant Slight Adverse effect. As it is assumed that access will not be prevented to these facilities, and they will be able to continue to operate, it is anticipated that this will be a Neutral effect on the recreational facilities of the SDNP.

7.8.4.25 Detail on potential noise effects on properties (including accommodation identified in Section 7.5.4) is provided in EAR Chapter 12: Noise and Vibration (Section 11.10). An overall Significant Adverse effect is anticipated. Effects on accommodation facilities from increased noise levels are not likely to compromise their ability to operate in this fashion, but may have a Permanent Adverse effect on guests’ enjoyment of the SDNP and its surroundings during their stay.
7.8.4.26 It is therefore considered that Option 4/5AV1 is likely to have a Temporary and Permanent Adverse effect during construction and a Permanent Adverse effect during operation on the recreational and educational facilities within and adjacent to the SDNP.

7.8.4.27 Option 4/5AV2 will have a permanent adverse effect during construction on Billycan Camping as the option runs through its location. If the business is not able to continue to operate in its current location, a Permanent Large Adverse effect is anticipated. It is considered that where compensation is provided to affected parties, according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Moderate Adverse significance and would not be critical in the decision-making process at this scale of loss. This is likely to have a Permanent Adverse effect on visitors to the SDNP as it will reduce the variety and number of accommodation facilities in this area for recreational purposes.

7.8.4.28 Option 4/5AV2 has the potential to temporarily affect Arundel Farm Riding Centre during construction, as the riding centre is likely to use the surrounding public right of way network. The magnitude and severity of this potential impact is not currently known as consultation is required with the Riding School to understand which routes they use. This will be assessed in further detail at Stage 3. It is anticipated that a worst case scenario would result in a Temporary Slight Adverse effect. This temporary disruption is not likely to adversely affect the SDNP’s appeal to visitors from further afield or deter customers of the riding centre, as alternative routes will be available throughout construction. However, it is likely to have a Temporary Adverse effect on the enjoyment of the SDNP for riders using this facility as the usual variety of routes will not be available for use.

7.8.4.29 Option 4/5AV2 is likely to affect the operation of Ratpack Field Archers and Forest Knights, area from which permanent land take is required from construction. The magnitude and severity of this potential impact is not currently known and this will be assessed in further detail at Stage 3. It is anticipated that a worst case scenario would result in a moderate magnitude of impact and a Permanent Moderate Adverse effect. It is considered that where compensation is provided to affected parties, according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Slight Adverse significance. A loss or reduction in availability of this resource, as a facility located within and directly relying on the surroundings of the SDNP, would be a Permanent Adverse effect on the recreational facilities of the SDNP.
7.8.4.30 A forest school, Forest Knights, is known to be operating in Binsted Woods, and may be affected by Option 4/5AV2 should land take be required from areas in which they utilise. The exact location where Forest Knights operate is not currently known and will be determined at PCF Stage 3, but a worst case of total loss of this resource, without finding a suitable alternative location in the vicinity would be of major magnitude and of Moderate Adverse significance.

7.8.4.31 The forest school may be utilised by pupils and accessed via the public rights of way network from Arundel Church of England Primary School or Walberton and Binsted Church of England Primary School. Option 4/5AV2 may cause disruption to journeys if this is the case as the use of permanently diverted footpaths, which are assumed to be in place throughout construction, will increase journey lengths for WCHs (see EAR Chapter 12: Population and Health, Table 12-36). It is anticipated that any other school participation would require vehicular access due to journey length. Any disruption to journeys to get to Forest Knights is anticipated to be a Temporary Adverse effect for users of educational facilities within the SDNP. Further information on the location of Forest Knights and likely journey lengths will be gathered at PCF Stage 3 to enable a full assessment.

7.8.4.32 There is potential for temporary disruption on the Arundel Park Hotel, Premier Inn Arundel, Crossbush Beefeater and facilities at the Arundel Service Station on the A284 during construction. This is due to the potential traffic management impacts associated with the construction of Option 4/5AV2, as these facilities are accessed directly from the affected road network. These facilities are of high sensitivity. It is assumed that access will remain open or diversions would be provided to maintain access to the facilities so that users would not be hindered. Impacts are likely to be minor adverse, resulting with a Temporary Not Significant Slight Adverse effect. As it is assumed that access will not be prevented to these facilities, and they will be able to continue to operate, it is anticipated that this will be a Neutral effect on the recreational facilities of the SDNP.

7.8.4.33 Detail on potential noise effects on properties (including accommodation identified in Section 7.5.4) is provided in EAR Chapter 12: Noise and Vibration (Section 11.10). An overall Significant Adverse effect is anticipated. Effects on accommodation facilities from increased noise levels are not likely to compromise their ability to operate in this fashion, but may have a Permanent Adverse effect on guests’ enjoyment of the SDNP and its surroundings during their stay.
7.8.4.34 It is therefore considered that Option 4/5AV2 is likely to have a Temporary and Permanent Adverse during construction and a Permanent Adverse effect during operation on the recreational and educational facilities within and adjacent to the SDNP.

7.8.4.35 Option 5BV1 will have a Permanent Adverse effect on Billycan Camping and Avisford Park Golf Club during construction as the route runs through its location. If the business is not able to continue to operate in its current location, a Large Adverse effect is anticipated. Where compensation is provided to affected parties, according to the criteria within Table 2.3 of DMRB Volume 11, Section 2, Part 5, this permanent effect would be reduced to a grading of Moderate Adverse significance and would not be critical in the decision-making process at this scale of loss. Loss of either of these accommodation facilities is likely to have a Permanent Adverse effect on visitors to the SDNP as it will reduce the variety and number of accommodation facilities in this area for recreational purposes. However, it is not anticipated that loss of the golf course alone would deter visitors to the SDNP or adversely impact on visitors’ enjoyment of the SDNP, as they are dissimilar facilities that do not rely on the presence of the other.

7.8.4.36 Option 5BV1 has the potential to affect Arundel Farm Riding Centre during construction, as the riding centre is likely to use the surrounding public right of way network. The magnitude and severity of this potential impact is not currently known as consultation is required with the Riding School to understand which routes they use. This will be assessed in further detail at Stage 3. It is anticipated that a worst case scenario would result in a Temporary Slight Adverse effect. This temporary disruption is not likely to adversely affect the SDNP’s appeal to visitors from further afield or deter customers of the riding centre, as alternative routes will be available throughout construction. However, it is likely to have a Temporary Adverse effect on the enjoyment of the SDNP for riders using this facility as the usual variety of routes will not be available for use.
7.8.4.37 Forest schools operating in Binsted Woods may be utilised by pupils and accessed via the public rights of way network from Walberton and Binsted Church of England Primary School. There may be some temporary disruption from temporary public rights of way diversions during the construction of Option 5BV1 until permanently diverted routes (for example along Yapton Lane) are completed (see EAR Chapter 12: Population and Health, Table 12-39). The significance of this will be determined at PCF Stage 3 when the route of temporary diversions is known. Once permanent diversions are completed, it is not anticipated that non-motorised journeys will be significantly increased in length, with increases likely to be at a worst case of Slight Adverse. Non-motorised user journeys from Arundel Church of England Primary School are not likely to be affected. It is anticipated that any other school participation would require vehicular access due to journey length. Any disruption to journeys to get to Forest Knights is anticipated to be a Temporary Adverse effect for users of educational facilities within the SDNP.

7.8.4.38 There is potential for temporary disruption on the Arundel Park Hotel, Premier Inn Arundel, Crossbush Beefeater and facilities at the Arundel Service Station on the A284 during construction. This is due to the potential traffic management impacts associated with the construction of Option 5BV1, as these facilities are accessed directly from the affected road network. These facilities are of high sensitivity. It is assumed that access will remain open or diversions would be provided to maintain access to the facilities so that users would not be hindered. Impacts are likely to be minor adverse, resulting with a Temporary Not Significant Slight Adverse effect. As it is assumed that access will not be prevented to these facilities, and they will be able to continue to operate, it is anticipated that this will be a Neutral effect on the recreational facilities of the SDNP.

7.8.4.39 Detail on potential noise effects on properties (including accommodation identified in Section 7.5.4) is provided in EAR Chapter 12: Noise and Vibration (Section 11.10). An overall Significant Adverse effect is anticipated. Effects on accommodation facilities from increased noise levels are not likely to compromise their ability to operate in this fashion, but may have a Permanent Adverse effect on guests’ enjoyment of the SDNP and its surroundings during their stay.

7.8.4.40 It is therefore considered that Option 5BV1 is likely to have a Temporary and Permanent Adverse during construction and a Permanent Adverse effect during operation on the recreational and educational facilities within and adjacent to the SDNP.
7.9 **Summary**

7.9.1.1 The likely construction and operation effects for each of the Scheme options assessed are outlined in **Table 7-9** and **Table 7-10**.
### Table 7-9 - Likely significant effect on SQ5 during construction

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on public rights of way and other access route</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
</tr>
<tr>
<td>Effects on sustainable transport schemes</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
</tr>
<tr>
<td>Severance of the National Park from coastal communities</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
</tr>
<tr>
<td>Effects on recreational and educational facilities</td>
<td>Temporary Slight Adverse</td>
<td>Temporary Slight Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
</tr>
</tbody>
</table>
## Table 7-10 - Likely significant effect on SQ5 during operation

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on public rights of way and other access route</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
</tr>
<tr>
<td>Effects on sustainable transport schemes</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
</tr>
<tr>
<td>Severance of the National Park from coastal communities</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
</tr>
<tr>
<td>Effects on recreational and educational facilities</td>
<td>Permanent Adverse</td>
<td>Permanent Adverse</td>
<td>Permanent Adverse</td>
<td>Permanent Adverse</td>
<td>Permanent Adverse</td>
<td>Permanent Adverse</td>
</tr>
</tbody>
</table>
8 Special Quality 6: Well-conserved historical features and a rich cultural heritage

8.1 Introduction

8.1.1.1 The special quality assessed in this chapter is ‘Well-conserved historical features and a rich cultural heritage’. Hereafter, referred to as Special Quality 6 (SQ6). SQ6 has been described as:

‘The distinct character of many areas of the South Downs has been created by well-conserved historical features, some of which are rare and of national importance. Bronze Age barrows, Iron Age hill forts, Saxon and Norman churches, dew ponds, historic houses and landmarks of the two World Wars help to give the National Park strong links to its past human settlement. These links are reinforced by the variety of architectural building styles spanning the ages. Evidence of earlier farming traditions can still be seen today in the pattern of field boundaries, and relics of the industrial past remain in the form of old iron workings, brickworks, quarries and ancient coppiced woodlands.’

8.1.1.2 This chapter should be read in conjunction with EAR Chapter 6: Cultural Heritage and Chapter 9: Special Quality 7: Distinctive towns and villages, and communities with real pride in their area.

8.2 Assessment methodology

8.2.1 Potential impacts

8.2.1.1 The potential impacts associated with SQ6, as set out in the A27 Position Statement, include positive and negative effects on:

- Historic and protected monuments (these include assets such as scheduled monuments and listed buildings and non-designated assets such as below ground archaeological remains; Figures 8-1 and 8-2)

---

1 South Downs National Park Authority, 2011 Special Qualities of the South Downs National Park, SDNPA
Historic villages and communities (these have been interpreted as villages and communities located within Conservation Areas, such as Arundel and Slindon. Binsted has been included, although not designated as a conservation area, it shares many of the traits of a conservation area; Figure 8-1).

Arun District Council produced a list of Buildings or Structures of Character, the majority of which are located in Arundel, with smaller numbers in Tortington, Slindon and Binsted. It is not considered likely that these assets would alter the overall significance of effect.

8.2.1.2 The impacts set out in the A27 position statement are considered to be addressed through the assessment of the following potential impacts in both the construction and operational phases:

- The potential impact on settings of designated assets and historic villages and communities
- The potential impacts on below-ground (buried) archaeology
- The potential impacts on historic landscape.

8.2.1.3 There are potential impacts on the settings of historic and protected monuments, including Scheduled monuments, Listed Buildings, Conservations Areas and Registered Parks and Gardens during both the operational and construction phases. Potential adverse impacts upon the settings of designated assets are likely to include: harm to the relationship between the asset and its setting so that the relationship is no longer readily appreciable; the interpretability of the significance of the asset is significantly reduced; and a loss or reduction of rural tranquillity or where noise and air pollutants are likely to increase.

8.2.1.4 Adverse impacts upon the settings of designated assets will be caused by construction-related traffic noise; landscaping, earth mounding and spoil disposal; the installation of structures, bridges, signage, road alignment and planting; and the installation of lighting. During the operational phase these will be caused by visual and noise intrusion on setting through traffic movement and planting. These potential impacts will result in a loss of heritage significance of the assets and reduce public understanding and appreciation.

---

8.2.1.5 There are potential impacts on above and below-ground archaeological remains during the construction phase. Examples of such assets that have been identified within or bordering the National Park include an Iron Age - Romano British Field System, Park Farm, Arundel (MWS2312), a section of the Chichester to Brighton Roman Road running through Binsted Wood (MWS14385), a Brickyard on North side of Chichester Road (MWS4696), and Medieval Pottery and Tile Kilns - Binsted (MWS5937). Such assets range from the late prehistoric period, Roman and medieval to relics of the industrial past.

8.2.1.6 Above ground archaeological features may include earthworks such as those forming a linear boundary bank and ditch, located in Hundredhouse Copse and Barn’s Copse, (MWS14420), as well as potential curtilage features associated with Listed buildings such as The Royal Oak Inn (LB1274588). Such features, once their existence is confirmed, may require further investigation in the form of building recording and possible intrusive investigation if they are to be removed, to establish if there are earlier in-situ remains. This will be undertaken in PCF Stage 3.

8.2.1.7 These impacts will be caused by topsoil removal, landscaping, excavations for demolition, drainage, shallow foundations borrow pits and piling; installation of structures, bridges, signage and planting; siting of construction sites and compounds. These potential impacts will result in a loss of heritage significance of the assets and reduce public understanding and appreciation.³

8.2.1.8 For those historic villages and communities considered as part of the assessment and located within or bordering the SDNP boundary and which have Conservation Area status or are treated as such, (Arundel, Slindon and Binsted) the criteria for townscape, historic buildings and historic landscape assessing have been used to assess potential impacts. Therefore, impacts may be on setting, as well as below ground and upstanding archaeological remains.

8.2.2 Baseline information sources

8.2.2.1 The following desk-based and field sources of information have been used to provide baseline information for this assessment:

- The Historic Environment Record (HER) held by West Sussex County Council

▪ National Heritage List for England (NHLE) as maintained by Historic England⁴
▪ National Library of Scotland Map images⁵
▪ BGS Geological Mapping⁶
▪ Rapid Setting Assessment Survey undertaken between 9 and 10 January 2019 (See EAR Appendix 6-2).

8.2.2.2 Additionally, the following sources have also been used:

▪ SDNP Authority, 2018 Conservation Area Character Appraisal and Management Plan: Slindon, SDNP⁷
▪ Community website for villagers and friends of Binsted, near Arundel in West Sussex⁸
▪ SDNP Authority, 2012 State of the South Downs National Park 2012, SSDNP⁹
▪ South Downs Local Plan 2019 (2014-33)¹⁰
▪ Arun District Council, 2014 Arun District Council: Conservation Areas Management Plan
▪ Harris, R, 2009 Arundel Historic Character Assessment Report, Sussex Extensive Urban Survey (EUS), Arun District Council
▪ Historic England, Pre-application Advice: A27 improvements near Arundel, West Sussex
▪ Historic England, Living in a Conservation Area¹¹
▪ SDNP Authority, Secrets of the High Woods, SDNP¹²
▪ E Carpenter, F Small, K Truscoe and C Royall, 2016 South Downs National Park: The High Woods from above, NMP Research Report 14
▪ Tristram, E, 2017 A village on the edge: Binsted Woods, LiDAR and the Arundel bypass
▪ Binsted Village, Binsted - a rare, well-loved survival¹³.

⁴ National Heritage List for England available at: https://historicengland.org.uk/listing/
⁵ National Library of Scotland Map images available at: https://maps.nls.uk/os/
⁶ BGS Geological Mapping available at: https://www.bgs.ac.uk/data/mapViewers/home.html
⁸ https://www.binsted.org/
⁹ http://snpr.southdowns.gov.uk/files/default.htm
¹¹ https://historicengland.org.uk/advice/your-home/owning-historic-property/conservation-area/
¹² https://www.southdowns.gov.uk/discover/heritage/secrets-of-the-high-woods
¹³ https://www.binsted.org/
8.2.3 Guidance

8.2.3.1 The guidance followed for Special Quality 6 comprises the following:


8.2.3.2 Methodologies for the assessment are stated in EAR Chapter 6: Cultural Heritage. The associated documents for each potential impact are listed in Table 8-1.

Table 8-1 - Methodology for SDNP Special Quality 6

<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on the settings of historic villages and communities</td>
<td>For those villages and communities within designated Conservation Areas: EAR Chapter 6: Cultural Heritage (Section 6.3) following guidance from the Design Manual for Roads and Bridges (DMRB)</td>
</tr>
<tr>
<td>Effects on the settings of designated assets (Scheduled monuments and Historic Buildings)</td>
<td>EAR Chapter 6: Cultural Heritage (Section 6.3), following guidance from the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 2 Cultural Heritage, Annex 6</td>
</tr>
<tr>
<td>Effects on buried archaeology</td>
<td>EAR Chapter 6: Cultural Heritage (Section 6.3), which includes Archaeological Notification Areas non-designated assets; following guidance from the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 2 Cultural Heritage, Annex 5</td>
</tr>
<tr>
<td>Effects on historic landscapes</td>
<td>EAR Chapter 6: Cultural Heritage (Section 6.3), following guidance from the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 2 Cultural Heritage, Annex 7</td>
</tr>
</tbody>
</table>

---


Assessing the significance of effects

8.2.3.3 The significance criteria within the cultural heritage DMRB\textsuperscript{16} guidance has been used to assess the impacts to designated and non-designated assets that will be potentially affected by the Scheme options within the SDNP boundary.

8.2.3.4 Annex 5 – 7 of the cultural heritage volume of DMRB, covering archaeological remains, historic buildings and historic landscapes have been used to assess the cultural assets that lie within the SDNP boundary or are located close to it. Each Annex\textsuperscript{17} of DMRB outlines how the significance criteria is evaluated, the criteria used for establishing the value of assets and the magnitude of impacts. This has then been applied to those assets potentially impacted by the Scheme options. Conservation Areas are included in Annex 7.

8.2.3.5 \textbf{Table 8-2} illustrates how information on the value of the asset and the magnitude of impact are combined to arrive at an assessment of the significance of effect.\textsuperscript{18} This information is covered in greater detail in \textit{EAR Chapter 6: Cultural Heritage} (Section 6.3.3). At PCF Stage 2 (Option Selection), all levels from moderate to very large are considered to be a significant effect.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
\textbf{Sensitivity} & \textbf{No change} & \textbf{Negligible} & \textbf{Minor} & \textbf{Moderate} & \textbf{Major} \\
\hline
\textbf{Very High} & Neutral & Slight & Moderate or Large & Large or Very Large & Very Large \\
\hline
\textbf{High} & Neutral & Slight & Slight or Moderate & Moderate or Large & Large or Very Large \\
\hline
\textbf{Medium} & Neutral & Neutral or Slight & Slight & Moderate & Moderate or Large \\
\hline
\textbf{Low} & Neutral & Neutral or Slight & Neutral or Slight & Slight & Slight or Moderate \\
\hline
\textbf{Negligible} & Neutral & Neutral & Neutral or Slight & Neutral or Slight & Slight \\
\hline
\end{tabular}
\caption{Significance of effects matrix}
\end{table}


\textsuperscript{17} Highways Agency, Cultural Heritage, Design Manual for Roads and Bridges, (2007) - Volume 11, Section 3, Part 2 (HA 208/07), Annex 6-7

\textsuperscript{18} Highways Agency, Cultural Heritage, Design Manual for Roads and Bridges HA208/07, Volume 11, Section 3, Part 2 (August 2007)
8.3 Assumptions and Limitations

8.3.1.1 The assumptions and limitations which apply to this assessment are outlined in EAR Chapter 6: Cultural Heritage (Section 6.4). Where for each assumption or limitation an explanation of the possible effect of the assumption has been provided as well as a description of any corrective actions that have been taken to adjust for any limitations. Additional assumptions are outlined in Table 8-3.

Table 8-3 - Assessment assumptions and limitations for Cultural Heritage

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Effect of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The village of Binsted is a dispersed settlement that derives its significance from St Mary's Church, as well as its historic parish boundary and historic connections with Binsted Woods and the former Binsted Park.</td>
<td>Because there is no defined focus to the village the effects of Options 4/5AV1, 4/5AV2 and 5BV1 are only measurable on individual assets</td>
<td>Assessing Binsted as of Conservation Area status corrects this limitation. This will not be a differentiating factor between options.</td>
</tr>
<tr>
<td>Although the Study Areas used are those used to assess the impact of the Scheme Options in the EAR Chapter 6, for the purposes of this assessment only those assets within and bordering the SDNP boundary have been assessed.</td>
<td>Some designated assets that lie outside the SDNP boundary derive the significance of their setting from within the SDNP or vice versa</td>
<td>Where this occurs the significance of effect on these assets has been included in the assessment.</td>
</tr>
<tr>
<td>This sand and shingle deposit known as the Westbourne to Arundel Raised Beach Deposit sequence can be traced for a distance of over 25 kilometres along the South Downs (south of Slindon in the west, and towards Tortington and Arundel in the east)</td>
<td>The impact cannot be assessed until the footprint of the preferred Scheme option has been investigated further through non-intrusive and intrusive surveys, as well as archaeological monitoring of geotechnical works.</td>
<td>This archaeological asset will be further assessed in PCF Stage 3.</td>
</tr>
</tbody>
</table>
Assumption or Limitation | Effect of Assumption or Limitation | Correction for Assumption or Limitation
--- | --- | ---
The 78 Buildings and Structures of Special Character, the majority of which (61) are located within Arundel have not been fully assessed within this chapter. | Although these non-designated assets have not been fully assessed, they are mostly located within Arundel and in most cases are situated on the same streets as the listed buildings assessed as part of the EAR and this chapter. It is not anticipated that the non-designated assets would change the overall significance of effect. | These will be addressed in PCF Stage 3.

8.4 Study Area

8.4.1.1 The Study Area follows a modified version of that used in Section 6.5 of the EAR Chapter 6: Cultural Heritage (See Figures 8-1 and 8-2). Only those assets, both designated and non-designated, that lie within the SDNP boundary, or that derive some of their significance from their proximity to the SDNP boundary, such as those lying within Binsted (see Table 8-3), have been assessed.

8.4.1.2 The Study Areas for this assessment have been developed in accordance with the guidance discussed in EAR Chapter 6: Cultural Heritage (Section 6.2) and in particular the Cultural Heritage section of DMRB. For Cultural Heritage, each Scheme option has two Study Areas, which are appropriate to the Scheme, according to the sensitivity of the environment, and the potential impacts of the Scheme.

---

19 Highways Agency, Cultural Heritage, Design Manual for Roads and Bridges, (2007) - Volume 11, Section 3, Part 2 (HA 208/07), Para 5.4.1, 6.4.1
8.4.1.3 Generally, only those assets that lie within the SDNP boundary have been assessed, with the exception of those assets that may derive some of their significance either from within or outside the boundary. The historic village and community of Binsted village has been, for the purposes of this chapter, interpreted as a Conservation Area. The buildings which presently comprise the village are dispersed along Binsted Lane (East and West), and lack a recognisable core which makes it difficult to assess how the Scheme impacts on this settlement as a whole. The approach has been to assess the listed buildings and non-designated assets as though they were part of a Conservation Area using the historic Parish boundary that straddles the SDNP boundary as the basis for this interpretation. This parish boundary (See Figures 8-1 and 8-2) is based on that detailed on the Ordnance Survey 6": 1 mile map, Sussex sheet 62, surveyed 1875-76 and published 1880.

Table 8-4 - Study Areas for potential impacts on SDNP Special Quality 6

<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Proposed study area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential impacts on the settings of historic villages and communities</td>
<td>This combines both the Inner and Wider Study Areas. The Inner Study Area comprises portions of the footprint of the Scheme option plus an area extending 200m beyond this area that also falls within the SDNP boundary. The Inner Study Area considers all types of heritage assets, including standing structures, earthworks, below-ground heritage assets, Archaeological Notification Areas (areas which define presently known and recorded areas of heritage sensitivity) and historic landscapes (see Figure 8-2; and EAR Chapter 6: Cultural Heritage Figure 6-5 for Historic Landscape). A Wider Study Area comprises the footprint of the Scheme option, plus an area extending one kilometre beyond this area (see Figure 8-1).</td>
</tr>
<tr>
<td>Impacts on buried archaeology (this comprises Scheduled Monuments, Grade I, II* and II Listed Buildings, Grade II* Listed Park and Garden; non-designated assets comprise Archaeological Notification areas and)</td>
<td>The Inner Study Area has been used for this impact (see Figure 8-1 and 8-2).</td>
</tr>
</tbody>
</table>
### Potential impact

<table>
<thead>
<tr>
<th>Proposed study area</th>
</tr>
</thead>
<tbody>
<tr>
<td>other archaeological remains)</td>
</tr>
</tbody>
</table>
| Impacts on settings of designated heritage assets | The Wider Study Area has been used for this impact (see Figure 8-1).

### 8.5 Baseline conditions

#### 8.5.1.1

For the full baseline conditions refer to **EAR Chapter 6: Cultural Heritage**, (Section 6.6). Additional information was accessed on the Slindon Conservation Area\(^{21}\) and the Binsted Village website.\(^{22}\) In both cases the websites emphasises well-conserved historical features and rich cultural heritage of these historic villages and communities. Further additional information has been added concerning the Westbourne to Arundel Raised Beach Deposit sequence, which extends from Westbourne in the west to Arundel. This deposit, which runs along the approximate SDNP boundary, is the same sequence that is associated with the Boxgrove, which produced evidence of early hominids.\(^{23}\)

---

\(^{21}\) SDNP Authority, 2018 Conservation Area Character Appraisal and Management Plan: Slindon

\(^{22}\) [www.binsted.org/](http://www.binsted.org/)

\(^{23}\) Mark B. Roberts and Matthew I. Pope, 2009 The archaeological and sedimentary records from Boxgrove and Slindon in R M Briant, R T Hosfield and F Wenban-Smith (eds), The Quaternary of the Solent Basin and the Sussex Raised Beaches, Quaternary Research Association Field Guide, London, 96–122
8.5.1.2 A total of 93 heritage assets were identified as being present within the SDNP boundary that lie within the Inner and Wider Study Areas of the Scheme. Within the SDNP and within the Study Areas, there are five Scheduled Monuments; one registered Park and Garden, three Grade I Listed Buildings, one Grade II* Listed Building, 45 Grade II Listed Buildings, two Conservation Areas, 21 non-designated assets, four ANAs and two historic landscape Areas. Additionally, a further 78 Buildings and Structures of Special Character (local listing) as compiled by Arun District council\textsuperscript{24} were identified in Arundel (61), Binsted (3) Slindon (14). Although these have not been fully assessed, the majority lie within Arundel, with lesser numbers in Binsted, and they are not expected to alter the significance of effect (see Table 8-3).

8.5.1.3 The sand and shingle deposit known as the Westbourne to Arundel Raised Beach Deposit sequence can be traced for a distance of over 25 kilometres along the South Downs south of Slindon in the west towards Tortington and Arundel in the east. These deposits have been found in some places to contain internationally important in situ Palaeolithic activity with knapping floors and animal butchery sites recorded at former quarries at Boxgrove.\textsuperscript{25} Such deposits have been excavated in Arundel itself (Archaeological Notification Area DWS8141).

8.5.1.4 Options 1V5, 1V9, 3V1, 4/5AV1 and 4/5AV2 have the potential to adversely impact on this resource. This may result in the loss of hitherto unknown below-ground archaeological assets. There is a high potential for similar archaeological remains to be present where the Scheme crosses other archaeologically sensitive areas such as Binsted rife.

8.5.1.5 Although Binsted village is not a conservation area, the conservation area significance has been applied because it can be seen as a settlement of special architectural or historic interest or groups of buildings within their boundaries. Such qualities align with SDNP Authority’s guidance on Conservation Areas.\textsuperscript{26} This is a qualitative assessment based on professional judgement.


\textsuperscript{25} South Downs National Park Authority, 2017 A27 Improvements: Arundel By-Pass and Land North of Worthing, Report NPA 20/17 Agenda Item 10 Appendix 1 Annex 6, 232

\textsuperscript{26} South Downs National Park Authority, Conservation Areas, Available at: https://www.southdowns.gov.uk/planning/historic-environment/conservation-areas/ (Accessed on 17/07/2019)
8.5.1.6 Binsted Village, is a dispersed settlement that derives its significance from St Mary’s Church, as well as its historic parish boundary and historic connections with Binsted Woods and the former Binsted Park. The SDNPA guidance, however, states that the historic interest should overwhelmingly characterised by built form, rather than open space. Historic England defines a conservation area as areas that exist to protect the special architectural and historic interest of a place; the features that make it unique and distinctive.

8.5.1.7 The Binsted website also outlines the importance of archaeological assets within this area, including the presence of a medieval tile and pottery kiln (ANA DWS8131), as well as sites discovered as a result of the Secrets of the High Woods LiDAR survey, for instance the Chichester to Arundel Roman Road and possible site of the medieval open-air meeting place for the Binsted Hundred (EAR Chapter 6: Cultural Heritage, Figure 6-13). Options 4/5AV1, 4/5AV2 and 5BV1 are all likely to have potential adverse impacts on the setting and below ground archaeological deposits within Binsted.

8.5.1.8 Slindon is located at the north-west corner of the Wider Study Area of Option 5BV1. Slindon is a fair-sized downland village of about 500 people sitting on the dip slope of the South Downs. The Slindon Conservation Area Appraisal and Management Plan suggests that, as emphasised in SDNP Special Quality 7, the settlement has a strong and vibrant community with a sense of identity with their local area, its history and culture.

8.6 Scoping

8.6.1.1 The potential impacts outlined in Section 8.2.1 have been considered with regard to the Scheme and those scoped in are provided in Table 8-5.

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Scoped in/out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential impacts on the settings of historic villages and communities</td>
<td>Scoped in</td>
</tr>
<tr>
<td>Impacts on buried archaeology (this comprises Scheduled Monuments, Grade I, II* and II Listed Buildings, Grade II* Listed Park and Garden; non-designated assets comprise Archaeological Notification areas and other archaeological remains)</td>
<td>Scoped in</td>
</tr>
</tbody>
</table>

27 www.binsted.org/
### 8.7 Design, mitigation and enhancement

#### 8.7.1.1 The design has been adjusted to reduce harm to the following designated heritage assets (and an associated curtilage structures) by screening for example, which lie either within the SDNP boundary or derive their significance from:

- **Options 1V5 and 1V9: Arundel town Conservation Area which contains Scheduled Monuments, Grade I, Grade II* and numerous Grade II Listed Buildings**
- **Options 4/5AV1, 4/5AV2 and 5BV1: The Grade II Listed Buildings of Firgrove House (LB 1277881); The Royal Oak Inn (LB 1274588); Church Farmhouse, Binsted (LB 1222198); Morley’s Croft (LB 1222201); Meadow Lodge (LB 1274878).**

#### 8.7.1.2 Once a preferred Scheme option is selected, further opportunities for mitigation will be embedded into the design. These opportunities will be discussed with Historic England, the SDNPA, Arun District Council and West Sussex County Council.

#### 8.7.2 Construction Phase Mitigation Measures

#### 8.7.2.1 A Construction Environmental Management Plan (CEMP) will be prepared prior to and implemented during construction. Discussions will take place with SDNP Authority, the West Sussex County Archaeologist and Historic England in order to deliver the most effective investigation and mitigation measures. The CEMP will include measures to implement in the event unknown archaeological assets are found during construction, as well as measures to screen construction activities.

#### 8.7.2.2 The following construction phase mitigation measures are those which are standard best practice and are applicable to all Scheme options. These comprise mitigation measures for impacts on setting and below-ground archaeological remains.
8.7.2.3 For below-ground remains DMRB Volume 11, Section 3, Part 2 recommends that prevention of potential impacts can be achieved by design, via realignment of the Scheme options. If it has not been possible to avoid the asset then the option of archaeological excavation should be adopted. In the first instance this will be an assessment comprising a range of non-intrusive and intrusive ground investigation techniques. These have been outlined below (see EAR Chapter 6: Cultural Heritage, paragraph 6.8.1.4). Mitigation will comprise investigation, recording, analysis, interpretation and the appropriate dissemination of the results.

8.7.2.4 It is proposed that, where possible, preliminary archaeological investigations are undertaken within the preferred Scheme option to establish the nature, extent and survival of hitherto unknown below-ground archaeological remains. This is likely to comprise a geophysical survey followed by an appropriate form of intrusive investigation such as trial trenching or strip, map and sample. The results of this investigation can be used to devise a suitable programme of mitigation where applicable. An archaeological watching brief should be maintained during any geotechnical ground investigations.

8.7.2.5 The following construction phase mitigation measures have been devised in consultation with the County Archaeologist for West Sussex County Council. Recommended construction phase mitigation measures include:

- Construction phase - below ground archaeological remains mitigation:
  - Geophysical survey of the entire footprint of the preferred Scheme option during PCF Stage 3. It should be noted that a geophysical survey was completed for Option 5AV3 following the announcement of a referred route in 2018 (as per PCF Stage 3 (Preliminary Design)). consultation with the West Sussex County Council County Archaeologist was undertaken to confirm the scope of the survey works.
  - 5% archaeological trial trench investigation of the entire footprint of the preferred Scheme option during PCF Stage 3
  - Archaeological trial trenching of the edge of flood plain during PCF Stage 3

---

31 Mills, J (2019) A27 Arundel buried archaeological remains, pers comm
32 HE551523-WSP-EGN-SWI-RP-LE-0036 Chapter 6–Cultural Heritage: A27 Arundel Bypass – Stage 2 Further Consultation, August 2019, Table 6-6
- Geophysical survey in the flood plain using electrical resistivity tomography survey complemented by LiDAR and existing aerial photography during PCF Stage 3
- Monitoring by a geo-archaeologist of geotechnical ground investigations during PCF Stage 3
- Archaeological Notification Area investigation utilising a range of intrusive and non-intrusive investigation techniques (see EAR Chapter 6: Cultural Heritage, Paragraph 6.8.1.3). This would be followed by further mitigation if necessary which could require analysis, interpretation and appropriate dissemination of the results during PCF Stage 3
- Archaeological surveys of any areas of ancient woodland (LiDAR complemented by walk-over survey) during PCF Stage 3
- Archaeological surveys of any areas of pasture, and River Arun Flood plain (LiDAR, aerial photography complemented by walk-over survey) during PCF Stage 3.

8.7.2.6 Historic England guidelines for the mitigation of project impacts on the setting of a heritage asset suggest that if the impacts cannot be mitigated either by relocation of the scheme or changes to its design, then good design, through best practice, may reduce the harm or provide opportunities for enhancement. High quality design will be particularly important for the junction options that may have an adverse effect on the settings of heritage assets.

- Construction phase - setting mitigation:
  - Re-establishing lost historic setting
  - Screening of intrusive elements
  - Improved lighting scheme systems to impact less on night time scene.

8.7.2.7 Mitigation for the impact of the scheme on historic landscapes can include:

- Re-establishment of historic landscape patterns
- Screening of intrusive elements
- Re-establishment of historic landscape pattern.34

---

8.7.3 Operational phase mitigation measures

8.7.3.1 The following design elements and operational phase mitigation measures are those which are standard best practice that have been included in the pre-mitigation assessment of effects. These measures are applicable to all Scheme options.

8.7.3.2 For some developments affecting settings, the design of a development may not be capable of sufficient adjustment to avoid or significantly reduce the harm.\textsuperscript{35} This may be the case where impacts are caused by issues such as the proximity, location, scale, prominence or noisiness of a development. In some instances, the scale, location, positioning and design of the road across an Historic landscape will not accommodate suitable mitigation and the adverse effect will remain unchanged.

8.7.3.3 The following design elements and operational phase mitigation measures have been identified and are those which are standard best practice, as well as following Historic England guidelines for the mitigation of the Scheme impacts on the setting of a heritage asset\textsuperscript{36} for potential implementation as part of the Scheme:

- Noise reduction screening
- Planted screening
- Re-establishment of historic settings
- Screening of intrusive elements
- Interpretative panels and guided trails for the rich cultural heritage located both within and outside the SDNP around the Binsted Village.

8.7.4 Opportunities for enhancement

8.7.4.1 The Scheme options provide varying opportunities for enhancement. The following opportunities for enhancement are recommended for further consideration at PCF Stage 3 and can be found in EAR Chapter 6: Cultural Heritage (Section 6.8):

- Opportunities could be provided to introduce new views of historical features which can be augmented by interpretive signage.

\textsuperscript{35} Historic England (2017), The Setting of Heritage Assets Historic Environment Good Practice Advice in Planning Note 3 (Second Edition)

Further archaeological work within these areas using the recent LiDAR survey as a basis. This might involve both surveying for woodland based industries sites and excavation of features such as the possible recently identified meeting place / moot mound located in Hundred House Copse.\textsuperscript{37}

Based on the finding outlined above, areas of ancient woodland within the SDNP, in particular in areas such as Tortington Common, Stewards copse, Barn’s Copse and Hundred House Copse could be enhanced with local opportunities to undertake historic coppice based activities.

Improved lighting scheme systems to impact less on night time scene.

8.7.4.2 Local groups could be involved in community excavations of some of the non-designated heritage assets located in and around Binsted that could be adversely impacted by the option footprints. Such work could involve existing organisations to further the work of understanding and helping to enhance the natural and historic environment.\textsuperscript{38}

8.8 Assessment of potential impacts

8.8.1 Option 1V5

Assessment of effects on settings of designated assets and historic villages and communities (construction phase)

8.8.1.1 The full description these effects are presented in EAR Chapter 6: Cultural Heritage (Section 6.9.3). The historic core of the Arundel town is covered by a number of designations, comprising a Conservation Area, and two Scheduled Monuments: Arundel Castle and the remains of Maison Dieu (former hospital of the Holy Trinity; \textit{Figure 8-1} and EAR Chapter 6: Cultural Heritage, Figure 6-3). Arundel also comprises a concentrated core of significant historic assets and is a location of historical significance. There are likely to be significant effects on the setting of Arundel and therefore the significance of the assets within their setting. The Arundel Conservation Area lies partly within the SDNP boundary and contains four Grade I Listed Buildings, including the parish church and the Cathedral of St Philip Neri, and four Grade II* Listed Buildings and 186 Grade II Listed Buildings.

8.8.1.2 In the southern extent, the Arundel Conservation Area experiences traffic noise, movement and light spill, which is likely to increase during the construction phase. These impacts are outlined in Section 8.2.

\textsuperscript{37} Tristram, E, 2017 A village on the edge: Binsted Woods, LiDAR and the Arundel bypass, 13-16

\textsuperscript{38} www.binsted.org/environment
8.8.1.3 The value (sensitivity) of site of the town of Arundel, including the castle and Maison Dieu Scheduled Monuments, Grade I, II*, II, Listed Buildings is High. The magnitude of impact is considered to be Moderate Adverse. Following the implementation of mitigation for the designated assets (Section 8.7), such as sympathetic screening and good design, the adverse significance of effect would be Moderate.

Assessment of effects on below-ground (buried) archaeology (construction phase)

8.8.1.4 The construction of Option 1V5 is likely to disturb below-ground archaeology associated with three ANAs (DWS8132, DWS8141 and DWS8148; Figure 8-2 and EAR Chapter 6: Cultural Heritage, Figure 6-7). Two Historic Landscape areas will be impacted (HWS24767 and HWS24819; EAR Chapter 6: Cultural Heritage, Figure 6-5). Impacts to these assets is likely to be caused by ground moving works such as top soil stripping and ground levelling. There will also be impacts on six non-designated assets (see Figure 8-2 and EAR Chapter 6: Cultural Heritage, Figures 6-4 and 6-7): WWII Loopholed Wall (MWS7583); two brickyards (MWS5681 and MWS4696); Iron Age - Romano British Field System (MWS2312); Sites of Historic Outfarm, Arundel (MWS12763 and MWS12762). These impacts are outlined in Section 8.2.

8.8.1.5 The value (sensitivity) of site of the two Archaeology Notification Areas (DWS8141 and DWS8132) is Medium and the magnitude of impact is considered to be Moderate Adverse.

8.8.1.6 The value (sensitivity) of site of the two brickyards (MWS5681 and MWS4696), the site of Historic Outfarm (MWS12763 and MWS12762) WWII Loopholed Wall (MWS7583) and Iron Age - Romano British Field System (MWS2312) is Low and the magnitude of impact is considered to be Major Adverse.

8.8.1.7 The implementation of mitigation measures presented in Section 8.7, includes intrusive and non-intrusive investigation, and if necessary, followed by excavation, analysis, interpretation and appropriate dissemination of the results. Therefore, the significance of effect for the assets would be Slight adverse.
Assessment of effects on historic landscape (construction phase)

8.8.1.8 The construction of Option 1V5 have the potential to impact on Historic Landscape Area of Stewards Copse (HWS24801; EAR Chapter 6: Cultural Heritage, Figure 6-5). Impacts to these assets is likely to be caused by ground moving works such as top soil stripping, ground levelling, removal of trees and of historic vegetation and Road alignment. The value (sensitivity) of site of the Historic Landscape Area is Medium and the magnitude of impact is considered to be Moderate Adverse. The implementation of mitigation measures presented in Section 8.7, includes establishment of historic landscape patterns, Screening of intrusive elements and re-establishment of historic landscape pattern. Therefore, the adverse significance of effect for the assets would be Slight.

Assessment of effects on settings of designated assets and historic villages and communities (operational phase)

8.8.1.9 Potential impacts on setting during the Operational phase are outlined in Section 8.2. The value (sensitivity) of the town of Arundel, including the castle and Maison Dieu Scheduled Monuments, Grade I, II* and II Listed Buildings is High. The magnitude of impact is considered to be Minor Adverse.

8.8.1.10 The implementation of the mitigation measures presented in Section 8.7, includes sympathetic screening of designated assets, or the screening of intrusive elements where the option crosses the River Arun flood plain. Therefore, the adverse significance of effect would be Slight which would not be significant. However, in some instances, the scale, location, positioning and design of the road across the landscape will not accommodate suitable mitigation and the adverse effect will remain unchanged.

8.8.2 Option 1V9

Assessment of effects on settings of designated assets and historic villages and communities (construction phase)

8.8.2.1 The full description these effects are presented in EAR Chapter 6: Cultural Heritage (Section 6.9.4). Although there are differences in the design of the junction at Ford Road junction within Arundel the impacts on heritage assets are the same as Option 1V5. The changes and impacts to the settings of the town of Arundel have been assessed in Section 8.8.2 (Figure 8-1 and EAR Chapter 6: Cultural Heritage Figure 6-3).

8.8.2.2 The Arundel Conservation Area experiences traffic noise, movement and light spill, which is likely to increase during the construction phase. These impacts are outlined in Section 8.2.
The value (sensitivity) of site of the town of Arundel, including the castle and Maison Dieu Scheduled Monuments, Grade I, II*, II, Listed Buildings is High. The magnitude of impact is considered to be Moderate Adverse.

Following the implementation of mitigation for the designated assets (Section 8.7), such as sympathetic screening and good design, the adverse significance of effect would be Moderate.

Assessment of effects on below-ground (buried) archaeology (construction phase)

The construction of Option 1V9 is likely to disturb below-ground archaeology associated with one Archaeology Notification Area (DWS8132; Figure 8-2 and EAR Chapter 6: Cultural Heritage Figure 6-7). One Historic Landscape area will be impacted (HWS24819). Impacts to these assets are likely to be caused by ground moving works such as top soil stripping and ground levelling. There will also be impacts on four non-designated assets: three brickyards (MWS5681, MWS6506 and MWS4696) and an Iron Age - Romano British Field System (MWS2312). These impacts are outlined in Section 8.2.

The value (sensitivity) of site of the ANA (DWS8132) and the Historic Landscape area (HWS24819) is Medium and the magnitude of impact is considered to be Moderate Adverse.

The value (sensitivity) of site of the three brickyards (MWS5681, MWS6506 and MWS4696), and Iron Age - Romano British Field System (MWS2312) is Low and the magnitude of impact is considered to be Major Adverse.

The implementation of mitigation measures presented in Section 8.7, include intrusive and non-intrusive investigation, and if necessary, followed by excavation, analysis, interpretation and appropriate dissemination of the results. Therefore, the adverse significance of effect for the assets would be Slight.

Assessment of effects on historic landscape (Construction Phase)

The construction of Option 1V9 has the potential to impact on the Historic Landscape Area of Stewards Copse (HWS24801; EAR Chapter 6: Cultural Heritage Figure 6-5). Impacts to these assets is likely to be caused by ground moving works such as top soil stripping, ground levelling, removal of trees and of historic vegetation. The value (sensitivity) of site of the Historic Landscape Area is Medium and the magnitude of impact is considered to be Moderate Adverse. The implementation of mitigation measures presented in Section 8.7, includes establishment of historic landscape patterns, screening of intrusive elements and re-establishment of historic landscape pattern. Therefore, the adverse significance of effect for the assets would be Slight.
8.8.2.10 Potential impacts on setting during the operational phase are outlined in Section 8.2. The value (sensitivity) of the town of Arundel, including the castle and Maison Dieu Scheduled Monuments, Grade I, II* and II Listed Buildings is High. The magnitude of impact is considered to be Minor Adverse.

8.8.2.11 The implementation of the mitigation measures presented in Section 8.7 includes sympathetic screening of designated assets. Therefore, the significance of effect would be Slight, which would not be significant.

8.8.2.12 However, in some instances, the scale, location, positioning and design of the road across the landscape will not accommodate suitable mitigation and the adverse effect will remain unchanged.

8.8.3 Option 3V1

8.8.3.1 The full description these effects are presented in EAR Chapter 6: Cultural Heritage, Section 6.9.5. There will be both temporary changes and impacts on the settings of heritage assets due to related noise, lighting and vibration, including construction-related traffic, as outlined in Section 8.7. These works have the potential to cause adverse impacts on the appreciation of the historical significance of the following assets. This includes Grade II* The Priory Farm House (LB1034405), Grade II listed assets of the Hermitage and Camellia Hotel (LB1027599; 1027602), Grade II listed assets of Calcetto Cottage and House at Bushacre (LB1027598; 1027597) and two other Grade II listed buildings (LB1027600 and 1027601; Figure 8-1; EAR Chapter 6: Cultural Heritage Figure 6-10).

8.8.3.2 The value (sensitivity) of Grade II* The Priory Farm House (LB1034405) is High and the magnitude of impact is considered to be Negligible. The value (sensitivity) Grade II listed assets of the Hermitage and Camellia Hotel (LB1027599; 1027602), Grade II listed assets of Calcetto Cottage and House at Bushacre (LB1027598 and 1027597) and two other Grade II listed buildings (LB1027600 and 1027601) are considered to be Medium and the magnitude of impact is considered to be Minor Adverse. Following the implementation of mitigation measures (see Section 8.7), the significance of effect is likely to be Neutral.
**Assessment of effects on below-ground (buried) archaeology (construction phase)**

8.8.3.3 The construction of Option 3V1 (Figure 8-2 and EAR Chapter 6: Cultural Heritage, Figure 6-11) is likely to disturb below-ground archaeology associated with one Archaeology Notification Area (DWS8132). Where the option crosses the two Historic Landscape areas of Stewards Copse and Tortington Common and Tortington Common (HWS24819 and HWS24801) there will potential negative impacts on any below ground archaeological remains within these areas as well as a section of the Chichester to Brighton Roman Road (MWS14385). Ancient woodland is also likely to harbour archaeological remains often in the form of earthworks, pits and platforms.

8.8.3.4 The value (sensitivity) of the two Historic Landscape area of Stewards Copse and Tortington Common and Tortington Common (HWS24819 and HWS24801) is Medium and the magnitude of impact is considered to be Moderate Adverse. The value (sensitivity) of the two Archaeology Notification Areas (DWS8141 and DWS8132) is Medium and the magnitude of impact is considered to be Moderate Adverse. The value (sensitivity) of the section of the Chichester to Brighton Roman Road running through Binsted Wood (MWS14385) is Medium and the magnitude of impact is considered to be Moderate Adverse. Following the implementation of mitigation measures (see Section 8.7), this would result in a significance of effect of Slight for these assets.

**Assessment of effects on historic landscape (construction phase)**

8.8.3.5 The construction of Option 3V1 has the potential to impact on Historic Landscape Areas of Stewards Copse and Tortington Common (HWS24801 and HWS24819; EAR Chapter 6: Cultural Heritage, Figure 6-5). Impacts to these assets is likely to be caused by ground moving works such as top soil stripping, ground levelling, removal of trees and of historic vegetation and Road alignment. The value (sensitivity) of site of the Historic Landscape Area is Medium and the magnitude of impact is considered to be Major Adverse. The implementation of mitigation measures presented in Section 8.7, includes establishment of historic landscape patterns, Screening of intrusive elements and re-establishment of historic landscape pattern. Therefore, the adverse significance of effect for the assets would be Moderate or Large.

**Assessment of effects on settings of designated assets and historic villages and communities (operational phase)**

8.8.3.6 The sensitivity, magnitude of impact and the significance of effect on the settings of heritage assets will remain the same as during the construction phase.
8.8.4 Option 4/5AV1

Assessment of effects on settings of designated assets and historic villages and communities (construction phase)

8.8.4.1 The full description of these effects is presented in EAR Chapter 6: Cultural Heritage (Section 6.9.6). There will be both temporary changes and impacts on the settings of heritage assets due to related noise, lighting and vibration, including construction-related traffic, as outlined in Section 8.7 (See Figure 8-1 and EAR Chapter 6: Cultural Heritage, Figure 6-14). Such works have the potential to cause adverse impacts on the appreciation of the historical significance of the following assets.

8.8.4.2 The following Grade II listed assets which will also be impacted upon within the SDNP boundary: LB127881; 1274588; 1027598; 1027597; 1027600 1027601 and 1027602. There is one grade I listed asset (1034405) and eight other Grade II listed assets whose setting lies partly within the SDNP boundary or are part of Binsted Village: Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198), St Mary’s Church, Binsted (LB1274877); Avisford Park Hotel; the lodge of Avisford Park Hotel; House at Beam Ends; Swiss Cottage (1274555; 1222465; and 1222535); House at Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) located on Binsted Lane (west).

8.8.4.3 The value (sensitivity) of the above Grade II Listed Buildings is Medium and the magnitude of impact is considered to be Minor Adverse. Following the implementation of mitigation measures (see Section 8.7), the significance of effect would be Slight.

8.8.4.4 The value (sensitivity) of The Royal Oak Inn (LB1274588) and Firgrove House (LB1274881), which lie within the SDNP boundary, is Medium and the magnitude of impact is considered to be Major Adverse. The value of the lodge of Avisford Park Hotel (LB1274555), Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) and Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198) which are located outside of the SDNP but derive part of their setting from within SDNP is Medium and the magnitude of impact is considered to be Major Adverse. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.

8.8.4.5 Although the community of Binsted does not have conservation area status, the effect of Option 4/5AV1 on the setting of Binsted, the sensitivity of which would be Medium, would be Moderate or Large. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.
Assessment of effects on below-ground (buried) archaeology (construction phase)

8.8.4.6 The construction of Option 4/5AV1 (See Figure 8-2 and EAR Chapter 6: Cultural Heritage Figure 6-15) has the potential to physically impact the curtilage of Grade II Listed Building (LB1274588). The option may also disturb below-ground archaeology associated with three Archaeological Notification Areas distributed along western half of the Option (DWS8130, DWS8131 and DWS8141), all of which lie within the SDNP boundary or partially within it.

8.8.4.7 Besides the three Archaeology Notification Areas the option will also impact on the sites of other non-designated assets clustered around the ANA DWS8131 and Binsted Lane (west) at the western end of Option 4/5AV1. These include MWS14421 and the possible site of Binsted Hundred Meeting place.

8.8.4.8 ANA DWS8131, the site of medieval tile and pottery kilns, is associated with the site of an historical farm (MWS9411), Church Farmhouse, Binsted (Grade II Listed Building 1222198) and House platforms (MWS2338). All of these sites lie outside of the SDNP boundary, but are located within Binsted village.

8.8.4.9 Such activity may indicate not only the presence of below-ground archaeological remains, but also surviving earthwork remains such as house platforms and potentially the curtilage of a Grade II listed asset. These sites have the potential to be adversely affected by Option 4/5AV1. The value (sensitivity) of Grade II listed asset LB1274588 is Medium, and the magnitude of impact is considered to be Moderate Adverse. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Slight. The value (sensitivity) is the ANAs is Medium, and the magnitude of impact is considered to be Moderate Adverse. Following the implementation of mitigation measures, this would result in an significance of effect of Slight.
8.8.4.10 Option 4/5AV1 would affect five Grade II Listed Buildings, all of which lie close to the SDNP boundary or are constituent parts of Binsted Village. These assets comprise the lodge of Avisford Park Hotel (LB1274555) and Church Farm, Binsted (LB1222198), Firgrove House (LB1274881), Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) and The Royal Oak Inn (LB1274588). The value (sensitivity) of the Grade II Listed Buildings is Medium. Until the curtilage boundaries have been defined, the magnitude of impact and significant effect is unclear. However, if the footprint of Option 4/5AV1 is found to directly impact on any curtilage features, then the magnitude of impact would be Major Adverse. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.

8.8.4.11 Satellite imagery from Google Earth shows cropmarks within the Inner Study area for Options 4/5AV1 (EAR Chapter 6: Cultural Heritage, Figure 6-18) which supports the assessment of the potential archaeological sensitivity of the area.

Assessment of effects on historic landscape (construction phase)

8.8.4.12 No historic landscapes are affected for this option.

Assessment of effects on settings of designated assets and Historic villages and communities (operational phase)

8.8.4.13 Potential impacts on settings during the operational phase is outlined in Section 8.2. The value (sensitivity) of the Grade II Listed Buildings is Medium and the magnitude of impact is considered to be Moderate Adverse. Following the implementation of mitigation for the remainder of the Grade II Listed Buildings (Section 8.7), such as sympathetic screening, and good design, this would result in a significance of effect of Slight.

8.8.4.14 Although the community of Binsted does not have conservation area status, the effect of Option 4/5AV1 on the setting of Binsted, the sensitivity of which would be Medium, would be Moderate or Large. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.
8.8.5 **Option 4/5AV2**

**Assessment of effects on settings of designated assets and historic villages and communities (construction phase)**

8.8.5.1 The full description these effects are presented in EAR Chapter 6: Cultural Heritage (Section 6.9.7). There will be both temporary changes and impacts on the settings of heritage assets due to related noise, lighting and vibration, including construction-related traffic, as outlined in Section 8.2. (Figure 8-1 and EAR Chapter 6: Cultural Heritage, Figures 6-5, 6-12 and 6-13). Such works will have the potential to cause adverse impacts on the appreciation of the historical significance of the assets.

8.8.5.2 Within the National Park boundary there will be impacts on Grade II listed Firgrove House (LB1274881) and The Royal Oak Inn (LB1274588). Bordering the SDNP or lying within BInsted Village are Grade II listed Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198), Grade II listed assets of the lodge of Avisford Park Hotel; House at Beam Ends; Swiss Cottage (LBs122253; 1274555;1222465; and 1222535). There would also be impacts on Grade II listed assets of House at Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) located on Binsted Lane (West). At the east end of the Scheme option are Grade II listed assets of Calcetto Cottage, House at Bushacre, The Plough and Sail Inn and Old Well House (LBs 1027598; 1027597; 1027600 and 1027601). The value (sensitivity) of the Grade II Listed Buildings described above is Medium.

8.8.5.3 The magnitude of impact to Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) is considered to be Major Adverse. Following the implementation measures (see Section 8.7), the adverse significance of effect would be Moderate for Morley’s Croft.

8.8.5.4 The magnitude of impact of the remainder of the Grade II Listed Buildings is considered to be Minor Adverse. Following the implementation of mitigation measures (see Section 8.7), such as sympathetic screening, the significance of effect would be Neutral. Where appropriate, this screening should complement the local landscape character, seasonal and diurnal changes.

8.8.5.5 Although the community of Binsted does not have conservation area status, the effect of Option 4/5AV1 on the setting of Binsted, the sensitivity of which would be Medium, would be Moderate or Large. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.
Assessment of effects on below-ground (buried) archaeology (construction phase)

8.8.5.6 The construction of Option 4/5AV2 (Figure 8-2 and EAR Chapter 6: Cultural Heritage, Figure 6-13) is likely to disturb below-ground archaeology associated with two ANAs distributed along western half of the option (DWS8132 and DWS8131). Beside the three ANAs the option also impacts on the site of a Building in Binsted Woods (MWS2301) and Park - Binsted House (MWS2354). There are also potentially adverse impacts on the curtilage of Grade II Listed Building (LB1274588).

8.8.5.7 The value (sensitivity) of Grade II Listed Building (LB1274588) is Medium and the magnitude of impact is considered to be Moderate. The value (sensitivity) of the two ANAs (DWS8131 and DWS8132) are Medium and the magnitude of impact is considered to be Moderate or Large.

8.8.5.8 The value (sensitivity) of a Building in Binsted Wood (MWS2301) is Low and the magnitude of impact is considered to be Major Adverse. For Park – Binsted House (MWS2354) further investigation would be necessary before any assessment can be determined, since the park may contain previously unrecorded archaeological features.

8.8.5.9 The implementation of mitigation measures presented in Section 8.7, include intrusive and non-intrusive investigation, and if necessary, followed by excavation, analysis, interpretation and appropriate dissemination of the results. Therefore, the adverse significance of effect would be Slight for the ANAs and the Building in Binsted Woods (MWS2301).

Assessment of effects on historic landscape (construction phase)

8.8.5.10 No historic landscapes are affected for this option.

Assessment of effects on settings of designated assets and Historic villages and communities (operational phase)

8.8.5.11 There will be both temporary changes and impacts on the settings of heritage assets due to related noise, lighting and vibration, including construction-related traffic, as outlined in Section 8.2. (See EAR Chapter 6, Appendix 6-2 for setting assessment; Figure 8-1 and EAR Chapter 6: Cultural Heritage, Figures 6-5, 6-12 and 6-13). Such works will have the potential to cause adverse impacts on the appreciation of the historical significance of the assets.

8.8.5.12 There will be impacts on Grade II listed Firgrove House (LB1274881), The Royal Oak Inn (1274588), Swiss Cottage (LB1222535) and Beam Ends (LB1222465) which lie within the SDNP boundary.
8.8.5.13 Grade II listed Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198), Grade II listed assets the lodge of Avisford Park Hotel; (LB; 1274555), lie outside the SDNP boundary but within Binsted Village, as do Grade II listed assets of House at Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) located on Binsted Lane (West).

8.8.5.14 At the east end of the Scheme option are Grade II listed assets of Calcetto Cottage, House at Bushacre, The Plough and Sail Inn and Old Well House (LBs 1027598; 1027597; 1027600 and 1027601). The value (sensitivity) of the Grade II Listed Buildings described above is Medium.

8.8.5.15 The magnitude of impact to Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) and Royal Oak Inn (1274588) is considered to be Major Adverse. Following the implementation measures (see Section 8.7), the adverse significance of effect would be Moderate.

8.8.5.16 The magnitude of impact of the remainder of the Grade II Listed Buildings is considered to be Minor Adverse. Following the implementation of mitigation measures (see Section 8.7), such as sympathetic screening, there would be a significance of effect of Neutral. Where appropriate, this screening should complement the local landscape character, seasonal and diurnal changes.

8.8.5.17 Although the community of Binsted does not have conservation area status, the effect of Option 4/5AV1 on the setting of Binsted, the sensitivity of which would be Medium, would be Moderate or Large. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.

8.8.6 Option 5BV1

Assessment of effects on settings of designated assets and historic villages and communities (construction phase)

8.8.6.1 The full description of these effects is presented in EAR Chapter 6: Cultural Heritage (Section 6.9.7). There will be both temporary changes and impacts on the settings of heritage assets due to related noise, lighting and vibration, including construction-related traffic (see EAR Chapter 6: Appendix 6-2 for setting assessment; Figure 8-1 and EAR Chapter 6: Cultural Heritage, Figure 6-16). Such works will have the potential to cause adverse impacts on the appreciation of the historical significance of the assets.
8.8.6.2 The value (sensitivity) of Firgrove (LB1274881), House, The Royal Oak Inn; (LB1274588), of the lodge of Avisford Park Hotel (LB1274555), House at Beam Ends; Swiss Cottage (LBs1222534; 1222465 and 1222535), Calcetto Cottage, House at Bushacre, The Plough and Sail Inn and Old Well House (LBs 1027598; 1027597; 1027600 and 1027601), which all lie within the SDNP boundary, is considered to be Medium and the magnitude of impact is considered to be Moderate Adverse. Following the implementation of mitigation measures (see Section 8.7), the adverse significance of effect would be Neutral.

8.8.6.3 The value (sensitivity) of Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) and Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198), is considered to be Medium. These assets although lying outside the SDNP boundary, either derive part of their setting from within it, or are located within Binsted Village. Prior to mitigation, the magnitude of impact is considered to be Moderate Adverse, following the implementation of mitigation measures (see Section 8.7), the adverse significance of effect would be Moderate.

8.8.6.4 The same can be said for St Mary’s Church, Binsted (LB1274877), the value (sensitivity) of which is Medium and the magnitude of impact is considered to be Major Adverse. Following the implementation of mitigation measures (see Section 8), the adverse significance of effect would be Moderate.

8.8.6.5 Although the community of Binsted does not have conservation Area status, the effect of Option 5BV1 on the setting of Binsted, the sensitivity of which would be Medium, would be Moderate or Large. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.

8.8.6.6 The value (sensitivity) of Slindon Conservation Area is Medium, however, the village is effectively screened from Option 5BV1 by existing woodland. There will be no impact, therefore there will be a Neutral significance of effect.
**Assessment of effects on above and below-ground (buried) archaeology (construction phase)**

8.8.6.7 The construction of Option 5BV1 (Figure 8-2 and EAR Chapter 6: Cultural Heritage, Figure 6-16 and 6-17) has the potential to directly disturb below-ground archaeology associated with one non-designated asset, the site of Woodlands Historic Farmstead, Slindon (MWS14031) at the western tie-in. The construction of Option 5BV1 (Figure 8-2 and EAR Chapter 6: Cultural Heritage, Figure 6-16 and 6-17) has the potential to directly impact on curtilage features of two Grade II Listed Buildings (Morley’s Croft, LB1222201 and House at Meadow Lodge, LB1274878) located on Binsted Lane (East). Curtilage features may comprise standing archaeological remains as well as below ground archaeological remains. Although these assets lie outside of the SDNP boundary, they are located within Binsted Village, the ancient parish of which straddles the boundary.

8.8.6.8 The value/sensitivity of the Grade II Listed Buildings is Medium and the magnitude of impact is considered to be Major Adverse. Following the implementation of mitigation measures (see Section 8.7), this would result in an adverse significance of effect of Moderate. The value (sensitivity) of the non-designated asset is Low, however, until they are subject to further investigation an assessment of the magnitude of impact remains unclear.

8.8.6.9 The mitigation measures presented in Section 8.7 include intrusive and non-intrusive investigation, and if necessary, will also include excavation, analysis, interpretation and appropriate dissemination of the results. This would result in an adverse significance of effect of Moderate.

**Assessment of effects on historic landscape (construction phase)**

8.8.6.10 No historic landscapes are affected for this option.

**Assessment of effects on settings of designated assets and historic villages and communities (operational phase)**

8.8.6.11 Potential impacts on settings during the operational phase are outlined in Section 8.2.

8.8.6.12 The value (sensitivity) of Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) and Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198), House at Beam Ends; Swiss Cottage (LBs1222534; 1222465 and 1222535) prior to mitigation, is considered to be Medium and the magnitude of impact is considered to be Moderate Adverse. Following the implementation of mitigation measures (see Section 8.7), the adverse significance of effect would be Moderate.
8.8.6.13 The value (sensitivity) of St Mary’s Church, Binsted (LB1274877) is Medium and the magnitude of impact is considered to be Major Adverse. Following the implementation of mitigation measures (see Section 8.7), the adverse significance of effect would be Moderate.

8.8.6.14 The value (sensitivity) of the following Grade II Listed Buildings is Medium. These comprise the Grade II listed assets of the lodge of Avisford Park Hotel; The Royal Oak Inn; (LB1274555 and 1274588); Calcetto Cottage, House at Bushacre, The Plough and Sail Inn and Old Well House (LBs 1027598; 1027597; 1027600 and 1027601). The magnitude of impact is considered to be Minor Adverse. Following the implementation of mitigation measures (see Section 8.7), the significance of effect would be Neutral.

8.8.6.15 Although the community of Binsted does not have conservation Area status, the effect of Option 4/5AV1 on the setting of Binsted, the sensitivity of which would be Medium, would be Moderate or Large. Following the implementation of mitigation measures, this would result in an adverse significance of effect of Moderate.

8.8.6.16 The value (sensitivity) of Slindon Conservation Area is Medium, however, the village is effectively screened from Option 5BV1 by existing woodland. There will be no impact, therefore there will be a Neutral significance of effect.

8.9 Summary

8.9.1.1 The likely significance of effect for each of the Scheme options assessed is outlined in Table 8-6. The post-mitigation significance of effect has been applied using professional judgement and in accordance with DMRB (sections 5.37 and 5.38 of HA 208/07).
Table 8-6 - Likely significance of effects on SQ6

<table>
<thead>
<tr>
<th>Impact: effects of designated assets and historic villages and communities (construction phase)</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5 AV1</th>
<th>Option 4/5 AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact: effects of designated assets and historic villages and communities (construction phase)</td>
<td>Moderate Adverse for all heritage assets (Significant)</td>
<td>Moderate Adverse for all heritage assets (Significant)</td>
<td>Neutral for all heritage assets (Not Significant)</td>
<td>Moderate Adverse (Significant) for Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878); the lodge of Avisford Park Hotel (LB1274555); Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198); The Royal Oak Inn (LB1274588) and Firgrove House (LB1274881).</td>
<td>Moderate Adverse (Significant) for Morley’s Croft; House at Meadow Lodge Neutral Adverse (Not Significant) for the remainder of the Grade II Listed Buildings Moderate Adverse (Significant) for Binsted</td>
<td>Moderate Adverse (Significant) for Morley’s Croft; House at Meadow Lodge; Glebe House and Church Farmhouse, Binsted (LB1221993 and 1222198), St Mary’s Church, Binsted (LB1274877), House at Beam Ends; Swiss Cottage (LBs1222465 and 1222535) Moderate Adverse (Significant) for Binsted</td>
</tr>
</tbody>
</table>
### Impact: effects on below-ground (buried) archaeology (construction phase)

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5 AV1</th>
<th>Option 4/5 AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>Moderate Adverse (Significant) for Binsted</td>
<td>Slight Adverse (Not Significant) for the remainder of heritage assets</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>Neutral (Not Significant) for Slindon Conservation Area and the following Grade II Listed Buildings of The Royal Oak Inn; (LB1274555 and 1274588); Calcetto Cottage, House at Bushacre, The Plough and Sail Inn and Old Well House (LBs 1027598; 1027597; 1027600 and 1027601).</td>
</tr>
<tr>
<td>Impact</td>
<td>Option 1V5</td>
<td>Option 1V9</td>
<td>Option 3V1</td>
<td>Option 4/5 AV1</td>
<td>Option 4/5 AV2</td>
<td>Option 5BV1</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>curtilage features of which may be affected: The Royal Oak Inn (LB1274588),</td>
<td>DWS8131), the curtilage features of a Grade II Listed Building</td>
<td>Farmstead, Slindon (MWS14031) and curtilage features of two Grade II Listed Buildings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Firgrove House (LB1274881) Morley’s Croft; the lodge of Avisford Park Hotel</td>
<td>(LB1274588) and a Building in Binsted Wood (MWS2301).</td>
<td>(Morley’s Croft, LB1222201 and House at Meadow Lodge, LB1274878) located on Binsted Lane (East).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(LB1274555); House at Meadow Lodge (LB1222201 and LB1274878) Church</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Farmhouse, Binsted (1222198)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Slight Adverse (Not Significant) for three ANAs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact</td>
<td>Option 1V5</td>
<td>Option 1V9</td>
<td>Option 3V1</td>
<td>Option 4/5 AV1</td>
<td>Option 4/5 AV2</td>
<td>Option 5BV1</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>----------------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Assessment of effects on historic landscape (construction phase)</td>
<td>Slight Adverse (Not Significant) for Historic Landscape Area of Stewards Copse (HWS24801)</td>
<td>Slight Adverse (Not Significant) for Historic Landscape Area of Stewards Copse (HWS24801)</td>
<td>Moderate adverse (Significant) impact on historic landscapes (HWS24801 and HWS24819) affected for this option.</td>
<td>No historic landscapes affected for this option.</td>
<td>No historic landscapes affected for this option.</td>
<td>No historic landscapes affected for this option.</td>
</tr>
<tr>
<td>Assessment of effects on settings of designated assets and historic villages and</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>Neutral (Not Significant) for all heritage assets. The sensitivity, magnitude of</td>
<td>Slight Adverse (Not Significant) for listed buildings.</td>
<td>Moderate Adverse (Significant) for Grade II Listed Buildings Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878)</td>
<td>Moderate Adverse (Significant) for Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) and Glebe House</td>
</tr>
<tr>
<td>Impact</td>
<td>Option 1V5</td>
<td>Option 1V9</td>
<td>Option 3V1</td>
<td>Option 4/5 AV1</td>
<td>Option 4/5 AV2</td>
<td>Option 5BV1</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>------------------------------------</td>
<td>------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>communities (operational phase)</td>
<td></td>
<td></td>
<td>impact and the significance of effect on the settings of heritage assets will remain the same as during the construction phase.</td>
<td>(Significant) for Binsted Village.</td>
<td>Meadow Lodge (LB1222201 and LB1274878) and Royal Oak Inn (1274588). Neutral (Not Significant) for the remainder of the Grade II Listed Buildings. Moderate Adverse (Significant) for Binsted Village.</td>
<td>and Church Farmhouse, Binsted (LB1221993 and 1222198), House at Beam Ends; Swiss Cottage (LBs1222534; 1222465 and 1222535) and for St Mary’s Church, Binsted (LB1274877). Neutral (Not Significant) for the Royal Oak Inn; (LB1274555 and 1274588); Calcetto Cottage, House at Bushacre, The Plough and Sail Inn and Old Well House (LBs 1027598; 1027597; 1027600 and 1027601).</td>
</tr>
<tr>
<td>Impact</td>
<td>Option 1V5</td>
<td>Option 1V9</td>
<td>Option 3V1</td>
<td>Option 4/5 AV1</td>
<td>Option 4/5 AV2</td>
<td>Option 5BV1</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Moderate Adverse (Significant) for Binsted Village.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Neutral (Not Significant) for Slindon Conservation Area</td>
</tr>
</tbody>
</table>
9 Special Quality 7: Distinctive towns and villages, and communities with real pride in their area

9.1 Introduction

9.1.1.1 The special quality assessed in this chapter is ‘Special Quality 7: Distinctive towns and villages, and communities with real pride in their area’. Hereafter, referred to as Special Quality 7 (SQ7). SQ7 has been described as:

‘The South Downs National Park is the most populated National Park in the United Kingdom, with around 110,000 people living within the boundary. Significantly more people live in the major urban areas and villages that surround the National Park including communities that are actively involved in the South Downs…

Many of these settlements contain strong and vibrant communities with much invested in the future of where they live, and a sense of identity with their local area, its culture and history.’

9.2 Assessment methodology

9.2.1 Potential impacts

9.2.1.1 According to the “A27 Position Statement” distributed by SDNPA, three potential impacts are anticipated to affect SQ7. These include:

- Positive and negative effects on any direct or indirect changes in traffic volumes and speeds
- Positive and negative effects on access to local services.

9.2.1.2 An additional impact anticipated to affect SQ7 was identified during a meeting with the SDNPA:

- Impacts on community pride in the area.

---


2 Meeting with the SDNPA undertaken in South Downs Centre, Midhurst on 29 April 2019.
9.2.1.3 Potential changes in traffic volume and speeds during construction and operation are anticipated. These may have positive and negative effects on residential receptors in the distinctive towns due to potential changes in air quality and noise. Severance is anticipated during construction where road diversions take place. The Scheme also has the opportunity to relieve existing severance due to the proposed under- and over-bridges.

9.2.2 Baseline information sources

9.2.2.1 The assessment has been based on desk based information only. No site surveys have been completed to date. The following sources of information have been used to provide baseline information for this assessment:

- OS Mapping
- MAGIC Map
- Traffic flow data
- Neighbourhood Plans
- Village Design Statements (VDS) for Buriton, East Dean and Friston, Liss, Lodsworth and Worldham
- Parish Councils’ websites.

9.2.2.2 The following EAR chapters have also been used to inform the assessment:

- EAR Chapter 5: Air Quality (residential receptors)
- EAR Chapter 11: Noise and Vibration (residential receptors)
- EAR Chapter 12: Population and Health (vehicle travellers and community severance).

9.2.3 Guidance

9.2.3.1 The A27 Position Statement states that “impacts to be assessed should include; positive and negative effects of any direct or indirect changes in traffic volumes and speeds, and access to local services”. Relevant topics which are assessed within the EAR, which address this requirement are as follows:

- Changes to, removal or provision of community and recreational facilities (including access to)
- Changes to community severance
- Changes to driver stress and road traffic accidents
- Changes to air quality

---

Changes to noise levels.

9.2.3.2 The relevant guidance followed for these aspects comprises:

- Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 1, HA207/07 (Air Quality)\(^5\) which provides guidance on the assessment of the impacts that road projects may have on the local air quality and emissions of pollutants.
- DMRB Volume 11, Section 3, Part 7 (Noise and Vibration)\(^6\) which provides guidance on the noise calculation and assessment.
- DMRB Volume 11, Section 3, Part 8 (Pedestrians, Cyclists, Equestrians and Community Effects)\(^7\) which provides guidance on assessing a scheme’s impact on community severance.
- DMRB Volume 11, Section 3, Part 9 (Vehicle Travellers)\(^8\) which provides guidance on assessing impacts on views from the road and driver stress.

9.2.3.3 Significance criteria including sensitivity criteria, magnitude of impact and level of significance is assigned according to the criteria stated in of EAR Chapter 5: Air Quality (Section 5.3.3), EAR Chapter 11: Noise and Vibration (Section 11.3.3) and EAR Chapter 12: Population and Health (Section 12.3.3).

9.2.3.4 The relevant topics and sources of guidance for methodologies relevant to each potential impact on SQ7 are outlined in Table 9-1.

9.2.3.5 The assessment has also considered the impact on community pride. In the absence of industry guidance on assessing effects on community pride, the assessment has focussed on impacts to receptors that provide a “sense of identity with their local area, its culture and history”, as stated within the SDNP Special Qualities document\(^9\). This has been considered in addition to the specific impacts mentioned under Section 7(7) of the A27 Position Statement, and as outlined above.

---

\(^6\) Highways Agency, Noise and Vibration, Design Manual for Roads and Bridges, Volume 11 Section 3, Part 7 (November 2011)
\(^7\) Highways Agency, Pedestrians, Cyclists, Equestrians and Community Effects, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 8 (June 1993)
\(^8\) Highways Agency, Vehicle Travellers, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 9 (June 1993)
9.2.3.6  It is not appropriate to assign levels of significance on the effects on community pride as pride will be subjective and will differ between individuals. Therefore, for the purposes of this assessment, a qualitative assessment based on professional judgment using knowledge and experience of similar schemes will be made and effects will be identified as adverse or beneficial. Correlations will be made between identified sources of pride (for example key local facilities which provide local identity or distinctions of character to the area, to be gained from a review of publicly available data) and impacts assessed in the PCF Stage 2 EAR.

Table 9-1 - Methodology and reference documents for SQ7

<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Relevant topic</th>
<th>WSP document</th>
<th>Relevant topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds</td>
<td>▪ Air quality – residential receptors</td>
<td>EAR Chapter 5: Air Quality (Section 5.3)</td>
<td>DMRB Volume 11 Section 3, Part 1 (Air Quality)10</td>
</tr>
<tr>
<td></td>
<td>▪ Noise and vibration – residential receptors</td>
<td>EAR Chapter 11: Noise and Vibration (Section 11.3)</td>
<td>DMRB Volume 11 Section 3, Part 7 (Noise and Vibration)11</td>
</tr>
<tr>
<td></td>
<td>▪ Vehicle travellers</td>
<td>EAR Chapter 12: Population and Health (Section 12.3)</td>
<td>DMRB Volume 11, Section 3, Part 9 (Vehicle Travellers)12</td>
</tr>
<tr>
<td></td>
<td>▪ Human health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive and negative effects on access to local services</td>
<td>▪ Community severance</td>
<td>EAR Chapter 12: Population and Health (Section 12.3)</td>
<td>DMRB Volume 11, Section 3, Part 8 (Pedestrians, Cyclists, Equestrians and Community Effects)13</td>
</tr>
<tr>
<td>Pride in the area</td>
<td>▪ Pride in the community</td>
<td>EAR Chapter 12: Population and Health</td>
<td>N/A</td>
</tr>
</tbody>
</table>

9.3 **Assessment assumptions and limitations**

9.3.1.1 The assumptions and limitations which apply to this assessment are outlined in EAR Chapter 5: Air Quality (Section 5.4), EAR Chapter 11: Noise and Vibration (Section 11.4) and EAR Chapter 12: Population and Health (Section 12.4). However, the additional assumptions and limitations of specific relevance to this assessment are outlined in Table 9-2. For each assumption or limitation an explanation of the possible effect of the assumption has been provided as well as a description of any corrective actions that have been taken to adjust for any limitations.

<table>
<thead>
<tr>
<th>Assumption or Limitation</th>
<th>Result of Assumption or Limitation</th>
<th>Correction for Assumption or Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk Study</td>
<td>The effect on people’s pride in the area would be assessed based on this assumption.</td>
<td>Not required.</td>
</tr>
<tr>
<td>No definition of “pride in an area” stated in the SDNP SQ7. It has been assumed that “sense of identity with their local area, its culture and history” stated within the SDNP special quality document would be the basis of “pride”.</td>
<td>The effect on people’s pride in the area would be assessed based on this assumption.</td>
<td>Not required.</td>
</tr>
<tr>
<td>Driver Stress calculations carried out according to DMRB guidance thresholds</td>
<td>Where traffic flows are particularly high in the first instance, reductions in predicted traffic levels on the road network may not be reflected in an overall change of significance of effect, according to the DMRB guidance thresholds.</td>
<td>Where changes in the driver stress calculations are predicted, but not recognised through changes in significance levels this will be noted in the assessment summary.</td>
</tr>
<tr>
<td>Likely routes taken have been identified by assuming that the nearest available facility will be used.</td>
<td>A detailed assessment of the level of use and origin and destination surveys will be carried out at PCF Stage 3 to estimate the</td>
<td></td>
</tr>
</tbody>
</table>
### 9.4 Study Area

#### 9.4.1.1 Study Areas for each potential impact on SQ7 are outlined in Table 9-3.

**Table 9-3 - Study Areas for potential impact on the SQ7**

<table>
<thead>
<tr>
<th>Potential impact</th>
<th>Proposed Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds</td>
<td>Pathways within and into the SDNP which fall within the Population and Health EAR Study Area (1 kilometre from option footprints).</td>
</tr>
</tbody>
</table>
| Positive and negative effects on access to local services     | Communities in close proximity to or within the SDNP that may be affected by the option footprints. These include:  
  ▪ Arundel  
  ▪ Crossbush  
  ▪ Tortington  
  ▪ Ford  
  ▪ Binsted  
  ▪ Walberton  
  ▪ Fontwell  
  ▪ Slindon. |
9.5 Baseline conditions

9.5.1 Positive and negative effects on any direct or indirect changes on traffic volumes and speeds

9.5.1.1 The existing A27 links to several communities within and adjacent to the SDNP. These include:

- Arundel
- Binsted
- Walberton
- Fontwell
- Slindon
- Crossbush
- Tortington

9.5.1.2 Baseline air quality data is provided in EAR Chapter 5: Air Quality (Section 5.6.2) and Appendix 5-4 Air Quality Background Data. In general, pollutant concentrations in the vicinity of human receptors have tended to be well below the air quality standards in recent years. No exceedance of air quality standards for PM$_{10}$ at the air quality monitoring sites in recent years has occurred. There are no Pollution Climate Mapping (PCM) model links with roadside exceedances of EU limit values that correspond to the affected road network (ARN) for any of the Scheme options.

9.5.1.3 Baseline noise levels are provided in EAR Chapter 11: Noise and Vibration (Sections 11.6.2 and 11.6.7). Areas near Lyminster Road and around Ford Road roundabout are currently subject to high levels of road traffic noise. Areas such as Binsted and Tortington are currently subject to noise levels below 55 dB L$_{Aeq,16h}$ during the daytime.
9.5.1.4 The baseline year (2015) average traffic flows for peak morning and afternoon hours, average speed and the driver stress rating for the existing A27 for each node are outlined in EAR Chapter 12: Population and Health (Table 12-17). The baseline data for traffic through Storrington are provided in Appendix B Table 1-1. The baseline figures show that along all nodes on the existing A27, users are likely to be experiencing high levels of driver stress in both the peak morning and afternoon hours.

9.5.1.5 A Cost and Benefit to Accidents – Light Touch (COBALT) assessment was completed to determine the likely number of accidents on the existing A27 between Mill Road / Tye Lane and Crossbush junction between 2026 and 2041. It was estimated that there would be 425 accidents for the do-minimum scenario over the 60-year appraisal period. Positive and negative effects on access to local services.

**Local services**

9.5.1.6 There are numerous local services within communities that are located in proximity to the Scheme and the SDNP, as follows (see EAR Chapter 12: Population and Health, Figure 12-2):

- Arundel
- Crossbush
- Storrington
- Tortington
- Ford
- Binsted
- Walberton
- Fontwell
- Slindon.

9.5.1.7 The identified facilities in the nearby communities are provided in the appropriate sections within EAR Chapter 12: Population and Health (Section 12.7.3). Additional information is provided below for Storrington and Ford.

9.5.1.8 Ford has a population of 1,690 in 2017\(^{14}\). The identified facilities in Ford are:

- A railway station
- A public house
- A place of worship.

9.5.1.9 For other facilities, residents are likely to travel to Littlehampton (via the A259), Yapton (via Ford Lane) and Arundel (via Ford Road) due to the proximity between Ford and the three communities.

9.5.1.10 Storrington has a population of 8,866 in 2017\textsuperscript{15}. The identified facilities in Storrington are:

- A doctor’s surgery (GP)
- Two dental practices
- Two pharmacies
- A primary school
- Three food stores
- Six public houses
- Six churches.

9.5.1.11 For other facilities, residents are likely to travel to West Chiltington (via Fryern Road), Pulborough (via the A283) and Ashington (via the A24) due to the proximity between Storrington and the three communities.

9.5.2 Pride in the area

9.5.2.1 Residents may have a sense of identity with their local area. A sense of identity and pride could be associated with community facilities and assets which demonstrate a distinct character and identity, local activities or assets to which locals contribute, assets which contribute greatly to the success of the community, or characteristic features of the landscape. Sites or activities that may be valued by the local community and provide a sense of pride have been identified below through reviewing publicly available information, including relevant Neighbourhood Plans for the communities.

9.5.2.2 Village Design Statements (VDS) adopted by the SDNPA have also been considered. However, these do not include the identified communities assessed within the Study Area.\textsuperscript{16}

**Arundel**

9.5.2.3 The Arundel Neighbourhood Plan 2018 – 2036 is currently under development and at the time of writing the Neighbourhood Plan Review\textsuperscript{17} was published for public consultation.

\textsuperscript{15} City Population, Storrington. Available at: https://www.citypopulation.de/en/uk/southeastengland/west_sussex/E34000712__storrington/ (Accessed: 12 August 2019)


9.5.2.4 The Neighbourhood Plan Review identifies Arundel as a popular tourist destination and successful market town and cultural centre. It states that “it is renowned for its historic and cultural character”\(^{18}\) and that the Arundel Conservation Area covers the majority of the historic town area. It also states that although there are no local nature reserves, significant ancient woodland lies within the SDNP boundary and Rewell Wood and Binsted Wood.

9.5.2.5 The key objectives of the Neighbourhood Plan, as listed within the Neighbourhood Review Plan, Section 5.2, are:

- To maintain and enhance the nationally and locally important heritage assets and special character of the town and its setting
- To plan and deliver a range of housing mix and types in locations with good access to services and facilities by foot and bus as well as car.
- To secure the long-term future of community and cultural facilities that help make the town special.
- To sustain a thriving town centre offering a range of goods and services to the local community and visitors.
- To reduce the harmful impact of road traffic on the local community and the town’s heritage assets.
- To plan for climate change and work in harmony with the environment to conserve natural resources.

9.5.2.6 Identified objectives and policies listed within the Arundel Neighbourhood Plan 2014-2029\(^{19}\) that are relevant to the Scheme are listed as follows:

- The Plan outlines the vision and core objectives for Arundel and Tortington. The visions indicate that the residents of Arundel and Tortington may value the heritage assets, SDNP, and its reputation as an important market town, cultural centre and creative hub. The core objective relevant to the assessment is objective five.
  “5. To reduce the harmful impact of road traffic on the local community and the town’s heritage assets: Improvements to the A27 encouraged…”
- Sites listed under Policy 11 Local Green Space, Policy 13 Buildings and Structures of Character and Appendix B Assets of Community Value


\(^{19}\) Arundel Town Council (February 2014), Arundel Neighbourhood Plan 2014-2029.
within the Arundel Neighbourhood Plan 2014-2029 are considered locally valuable. These sites are provided in Appendix B Section 2.

9.5.2.7 Other notable sites that are likely to be appreciated locally are (a more comprehensive list of attractions is provided in the **EAR Chapter 12: Population and Health**):

- Arundel town hall, where annual town meetings and other events are held.
- Arundel Castle, a tourist destination in Arundel.
- Arundel Football Club, a football club located in east Arundel.
- Arundel Cricket Club, a cricket club located in west Arundel.
- Arundel and District Hospital, a major hospital in Arundel.

**Crossbush**

9.5.2.8 The Lyminster and Crossbush Neighbourhood Plan has not been published on the Lyminster and Crossbush Parish Council’s website at the time of writing this assessment (note that neighbourhood area designation consultations were conducted between November and December 2018).

9.5.2.9 No events or values are stated on the Lyminster and Crossbush Parish Council website. Parish Council meetings are normally held at the St Mary Magdalene village church.

9.5.2.10 The majority of properties in close proximity to the existing Crossbush Junction are businesses within the service sector (restaurants and temporary accommodation), with a small number of residential properties.

**Storrington**

9.5.2.11 The Storrington and Sullington and Washington Neighbourhood Plan 2018-2031 has been published on the Storrington and Sullington Parish Council’s website for the purpose of public referendum. Identified objectives and policies stated in the Neighbourhood Plan, Section 4.2 that are relevant to the Scheme are listed as follows:

- Two of the objectives of the plan are to work with the SDNP Authority to protect and enhance the setting of the SDNP; and to protect assets such as schools, village halls, clubs and societies within Storrington.
- A skate park development within Storrington Recreation Ground is supported by the Parish Council under Policy 12.

---

- Sites listed under Policy 16 Local Green Spaces are considered to be valuable to residents in Storrington, Sullington and Washington. These sites are provided in Appendix B Section 2.
- Storrington Village Day is considered locally to be the biggest community event of the year. The event is held at the Hormare Recreation Ground\(^22\).

**Tortington**

9.5.2.12 Neighbourhood Plan information for Tortington is outlined within the Arundel Neighbourhood Plan 2014-2029 above.

9.5.2.13 No parish council website or information has been found online.

9.5.2.14 Tortington Priory Scheduled Monument has been noted as holding local historical value\(^23\).

**Ford**

9.5.2.15 The Ford Parish Council Neighbourhood Development Plan 2017-2031\(^24\) outlines the vision and core objectives for Ford.

9.5.2.16 The Plan states that “The village of Ford is situated in an area used for agriculture, industry, heavy infrastructure and commerce.”\(^25\) It also outlines that the village does not have an established main centre and does not have any notable community facilities, other than a public house located near to the river (outside of the Study Area). It is noted that “residents enjoy the countryside and the standard of living in Ford with 84% being satisfied with the local area as a place to live” but it is also noted that roads in the vicinity experience congestion and standing traffic and vehicles can travel at speeds between 40 to 60mph.

9.5.2.17 Key issues that have been identified by the community are listed as follows:

- The lack of a village centre or ‘heart’
- Preserving the rural file of the Parish
- Providing homes for local people
- Stopping Ford being the ‘dumping ground’ for heavy industrial uses.

---


9.5.2.18 Identified objectives and policies that are relevant to the Scheme are listed as follows:

- Two of the visions stated in the Neighbourhood Plan, Section 5.2 are to preserve agricultural land for food production; and protect natural habitat within the area. The core objective related to the assessment is objective five.
  “5. The requirements of pedestrians, cyclists, private vehicles and public transport will be properly met and accessible to all.”
- The Ship and Anchor public house is considered to be significant for the economic and social viability of the Parish and is listed under Policy LC3 Protection of assets of community value.
- Sites listed under Schedule A and B Local Green Space are considered to be valuable to the residents. These sites are provided in Appendix B Section 2.
- The neighbourhood plan stated the vision of retaining Ford Airfield Market which has a local historical value. Hence, it is considered that the market holds value to the locals.

**Walberton**

9.5.2.19 Walberton Neighbourhood Development Plan 2015-2035 outlines the vision and core objectives for Walberton, Binsted and Fontwell, which together form one parish. It states that the village has buildings of varied age, with no one period or architectural style dominating, and there are two Conservation Areas covering areas of the village. There are a number of amenities situated within Walberton including a village hall, playing field, a public house and a church. It also states that the Parish landscape comprises of four types: woodland; pasture; open arable land and horticulture.

9.5.2.20 Identified objectives and policies that are relevant to the Scheme are listed as follows:

- One of the visions is to preserve the three villages’ distinctive rural character which separates the villages from neighbouring areas of development. Core objectives stated within the Neighbourhood Plan, Section 4.2 that are relevant to the Scheme are objectives two and four:

---

“2. Development on the open land and fields where there is overwhelming opposition to any development will be resisted and so preserve the rural character of the villages”

“4. Subject to their meeting the necessary criteria all new development will be required to meet design standards which complement the character and heritage of the villages and the neighbouring properties.”

- Policy GA7 A27 Arundel Bypass, states that the Parish Council supports the proposed Arundel Bypass in principal. The land to the north of Binsted is locally designated as a Local Wildlife Site (LWS) (Binsted Wood Complex LWS). Schedule 2 of the policy also states support in principle of the Scheme. However, the design must safeguard the public footpaths and bridleways especially the Old Scotland Lane.

- Sites listed under the following schedules within the Neighbourhood Development Plan are considered valuable to the residents in Walberton, Binsted and Fontwell. These sites are listed in Appendix B Section 2:
  - Schedule 5A Buildings and Structures of Special Character
  - Schedule 5B Buildings and Structures of Special Character-Proposed Additions
  - Schedule 6 Assets of Community Value.

9.5.2.21 Avisford Park Golf Club is considered to be a valued recreational facility in Walberton, Binsted and Fontwell, open to all users rather than being a private club.

**Binsted**

9.5.2.22 The Neighbourhood Plan for Binsted is outlined in the Walberton Neighbourhood Development Plan 2015-2035. The Plan notes that Binsted has no publicly accessible amenities other than a public house, but is situated in “some of the best countryside in the Parish with its open views and large woodland”.

9.5.2.23 It is noted that a residential caravan park at Havenwood is situated in Binsted. However, it is not directly accessible from Binsted.

---

9.5.2.24 Other sites or events that are likely to be of local value include:

- Strawberry Fair, a one day event held at Flint Barn annually for the past 30 years. The exact location and extent of the land required to hold the Strawberry Fair has not been confirmed through the desk based study.
- Arts Festival, three days of art events organised in Binsted annually since 2016.
- The Spread-out Anglo-Saxon village, ‘Moot Mound’ and Roman road which holds historical value in Binsted.

9.5.2.25 The Neighbourhood Plan for Fontwell is outlined in Walberton Neighbourhood Development Plan 2015-2035. It is noted that significant new housing development has occurred in recent years and the village has lost its pub, GP surgery and other facilities. It does still have a number of shops to service residents and through traffic.

9.5.2.26 Fontwell Park racecourse is well-known for its racecourse which regularly hosts the National Hunt races.

**Slindon**

9.5.2.27 No current neighbourhood plan has been produced or planned by Slindon Parish Council.

9.5.2.28 No events or relevant features of note are stated on the Parish Council website. It is noted that council meetings were held in Coronation Hall which may be of value to the residents.

9.5.2.29 Other sites or events that are likely to be of local value include:

- Slindon Cricket Club, a cricket club located off Mill Road
- The Spur Country Pub and Restaurant, a pub where the Slindon Pudding Club holds their bi-annual auction
- The Forge, a village shop and café which provide a range of services and serves as an information point for community and the SDNP.

---

9.6 Scoping

9.6.1.1 The potential impacts outlined in Section 9.2.1 have been considered with regard to the Scheme. Justification of whether the potential impacts are scoped in or out are provided in Table 9-4.

Table 9-4 - Scoping

<table>
<thead>
<tr>
<th>Potential impact stated in the SDNP position statement</th>
<th>Potential Impact</th>
<th>Scoped in/out</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive and negative effects on any direct or indirect changes on traffic volumes and speeds</td>
<td>Temporary changes to driver stress during construction works.</td>
<td>Scoped in.</td>
<td>Changes in traffic volumes and speeds could affect driver stress.</td>
</tr>
<tr>
<td></td>
<td>Permanent changes to driver stress.</td>
<td>Scoped in.</td>
<td>Changes in traffic volumes and speeds could affect driver stress.</td>
</tr>
<tr>
<td></td>
<td>Permanent air quality and noise impacts on human receptors.</td>
<td>Scoped in.</td>
<td>Changes in traffic volumes and speeds could affect local air quality and noise level.</td>
</tr>
<tr>
<td></td>
<td>Change in accident numbers.</td>
<td>Scoped in.</td>
<td>Changes in traffic volumes could affect accident numbers.</td>
</tr>
<tr>
<td>Positive and negative effects on access to local services</td>
<td>Temporary and permanent impacts on access to community facilities.</td>
<td>Scoped in.</td>
<td>Changes in public rights of way and road access could affect the opportunities for service access.</td>
</tr>
<tr>
<td>Pride in the area</td>
<td>Permanent impacts on pride in the communities.</td>
<td>Scoped in.</td>
<td>Land take from sites with local values could affect pride in the area.</td>
</tr>
</tbody>
</table>
9.7 Design, mitigation and enhancement

9.7.1 Design phase mitigation measures

9.7.1.1 The design stage mitigation measures identified for the Scheme using professional judgement based on knowledge and experience of similar schemes, and considering best practice procedures are as follows and are applicable to all the Scheme options:

- Positive and negative effects on any direct or indirect changes on traffic volumes and speeds:
  - Identify potential direct and indirect changes on traffic flow and speeds through traffic modelling with an aim to improve and minimise potential negative impacts where possible.

- Positive and negative effects on access to local services:
  - Identify potential severance in accessing local services through consultations with an aim to improve and minimise potential negative impacts where possible.

- Pride in the area:
  - Identify potential land take from area valued by the local communities with an aim to minimise potential impact where possible.

9.7.2 Construction phase mitigation measures

9.7.2.1 The construction stage mitigation measures identified for the Scheme considering best practice procedures are as follows:

- Positive and negative effects on any direct or indirect changes on traffic volumes and speeds:
  - Air quality mitigation measures are provided in EAR Chapter 5: Air Quality (Section 5.8.1).
  - Noise and vibration mitigation measures are provided in EAR Chapter 11: Noise and Vibration (Section 11.9.1).
  - Any road diversions or closures undertaken during construction would be clearly advertised, and any diversionary routes should not lead to uncertainty.

- Positive and negative effects on access to local services:
- Any footways and cycle routes will remain open throughout the construction period where practicable, with diversions put in place where required for public safety reasons.

  - Pride in the area:
    - Identify potential land take from area valued by the local communities with an aim to minimise potential impact where possible.
  
  - For local events such as the Strawberry Fair:
    - Ensure organisers are consulted with during construction to minimise disruption from construction activities and traffic management.

9.7.3 Operational phase mitigation measures

9.7.3.1 The operation stage mitigation measures identified for the Scheme (applicable to all Scheme options) considering best practice procedures are as follows:

  - Positive and negative effects on any direct or indirect changes on traffic volumes and speeds

  - Air quality mitigation measures are provided in EAR Chapter 5: Air Quality (Section 5.8.2).

  - Noise and vibration mitigation measures are provided in EAR Chapter 11: Noise and Vibration (Section 11.9.2).

  - Positive and negative effects on access to local services

    - Existing footpaths will be retained where practicable and, where crossed by the option, provided with proper means of access to prevent severance. Existing roads which are crossed by the Scheme should be incorporated, allowing for crossing points within the design.

  - Pride in the area:

    - Identify potential land take from area valued by the local communities with an aim to minimise potential impact where possible.
9.7.4 Opportunities for enhancement

9.7.4.1 The Scheme options provide various opportunities for enhancement, including the improvement of pedestrian and cycle routes, and under- and over-bridges. Opportunities for enhancement for air quality and noise are provided in EAR Chapter 5: Air Quality (Section 5.8.3) and EAR Chapter 11: Noise and Vibration (Section 11.9.3). These opportunities will be considered in PCF Stage 3 and detailed design. The preferred route should also include provision to increase community integration, local access, and connecting to the wider public right of way network where possible. Potential opportunities will be considered in future design stages.

9.7.4.2 Opportunities for enhancement with regards to landscape are outlined in Chapter 3: Special Quality 1, Section 3.7.4.

9.8 Assessment of potential impacts

9.8.1 Positive and negative effects on any direct or indirect changes in traffic volumes and speeds

9.8.1.1 The detailed assessments of the following topics are provided in the relevant EAR chapters, a summary is provided below:

- Air quality: EAR Chapter 5: Air Quality (Sections 5.9.3 to 5.9.8)
- Noise and vibration: EAR Chapter 11: Noise and Vibration (Section 11)
- Predicted driver stress levels along the existing A27 for opening year 2026 and design year 2041 are outlined in EAR Chapter 12: Population and Health (Appendix 12-1: Table 1-15 to Table 1-18). Predicted driver stress levels through Storrington are outlined in Appendix B Table 1-2 to Table 1-5.

Option 1V5

Air Quality

9.8.1.2 Construction phase air quality impacts have not been assessed at this stage of the project. This will be assessed at PCF Stage 3 for the preferred option.
9.8.1.3 Option 1V5 attracts traffic from east-west routes parallel to the A27 onto the A27 itself. It therefore results in an increase in pollution levels at receptors along the Option 1V5 corridor (primarily online) and approach roads, and a corresponding decrease in levels on alternative east-west routes. Option 1V5 does not give rise to any new or worsened exceedances of air quality thresholds in the opening year (2026). Furthermore, it is anticipated that two existing exceedances will be reduced and removed. The area with greatest increase in air pollutant concentration would remain below the air quality standard. An overall Beneficial effect is anticipated on air quality, and therefore a Beneficial effect is also anticipated on community pride within communities along the route of Option 1V5.

9.8.1.4 Detailed potential changes in number of vehicles and impact on human receptors are provided in EAR Chapter 5: Air Quality (Sections 5.9.3.4 to 5.9.3.12).

**Noise and Vibration**

9.8.1.5 A total of 427 properties are potentially likely to experience a significant noise impact arising from the construction activities (level of significance has not been assessed, this will be undertaken in PCF Stage 3). A total of 1,065 properties would potentially experience a short-term noise level increase classified as Moderate and Major Adverse. A total of 380 properties would potentially experience a noise level increase classified as Moderate and Major Adverse in the long-term, therefore an Adverse effect on community pride is anticipated for residents of affected properties.

9.8.1.6 Detailed potential construction and operational noise level changes are provided in EAR Chapter 11 Noise and Vibration (Section 11.10.3).

**Driver Stress**

9.8.1.7 Driver Stress may be temporarily adversely affected by construction works. It is not possible at this stage of assessment to be able to quantify the magnitude of change for the construction phase. However, it is anticipated that Option 1V5 would have an adverse impact on driver stress due to the need for online improvement, where construction would be required along the existing carriageway alignment, while maintaining existing traffic flows on the A27. This is likely to impact journey time reliability and other elements of driver frustration.

9.8.1.8 Predicted driver stress levels along the existing A27 for opening year 2026 and design year 2041 are outlined in EAR Chapter: 12 Population and Health (Appendix 12-1 Table 1-15 to Table 1-18).
9.8.1.9 Predicted driver stress levels through Storrington are outlined in Appendix B: Table 1-2 to Table 1-5. The figures show that driver stress will remain as High for the majority of nodes throughout the scheme extent and through Storrington. Therefore, there is not likely to be a significant change in the driver stress experienced by road users due to this option or a change to community pride in communities along the A27 or in Storrington.

Accidents

9.8.1.10 For opening year and design year, an overall increase in traffic flow has been predicted on the existing A27 Arundel Road (west of Arundel) for Option 1V5. Furthermore, a reduction of through traffic from Ford Road roundabout to Storrington has been predicted for Option 1V5.

9.8.1.11 The COBALT assessment predicts that the total number of accidents between Mill Road / Tye Lane and Crossbush junction between 2026 and 2041 would decrease to 350 with the implementation of Option 1V5. This represents a decrease of 75 over the 60-year appraisal period when compared to the do-minimum scenario. This is likely to have an Adverse effect on community pride within Crossbush, Arundel, Walberton and Slindon.

Summary

9.8.1.12 Option 1V5 is likely to have: A Permanent Significant Beneficial effect on air quality; Temporary Significant Adverse and Permanent Significant Moderate to Major Adverse effect on noise level; and a Temporary Adverse effect during construction and remain a High level of driver stress during operation within and adjacent to the SDNP along the route of Option 1V5. A Beneficial effect is anticipated on community pride along the A27 due to improvements in air quality, but Adverse effects are anticipated in relation to increased noise levels and increased traffic.

Option 1V9

Air Quality

9.8.1.13 Construction phase air quality impacts have not been assessed at this stage of the project. This will be assessed at PCF Stage 3 for the preferred option.
Option 1V9 attracts traffic from east-west routes parallel to the A27 onto the A27 itself. It therefore results in an increase in pollution levels at receptors along the Option 1V9 corridor (primarily online) and approach roads, and a corresponding decrease in levels on alternative east-west routes. Option 1V9 does not give rise to any new or worsened exceedances of air quality thresholds in the opening year (2026). Furthermore, it is anticipated that two existing exceedances will be reduced and removed. The area with greatest increase in air pollutant concentration would remain well below the air quality standard. An overall Beneficial effect is anticipated on air quality, and therefore a Beneficial effect is also anticipated on community pride within communities along the route of Option 1V9.

Detailed potential changes in number of vehicles and impact on human receptors are provided in EAR Chapter 5: Air Quality Sections (5.9.4.4 to 5.9.4.12).

**Noise and Vibration**

A total of 429 properties are potentially likely to experience a significant noise impact arising from the construction activities (level of significance has not been assessed, this will be undertaken in PCF Stage 3). A total of 987 properties would potentially experience a short-term noise level increase classified as Moderate and Major Adverse. 174 properties would experience a noise level increase classified as Moderate to Major Adverse in the long-term, therefore an Adverse effect on community pride is anticipated for residents of affected properties.

Detailed potential construction and operational noise level changes are provided in EAR Chapter 11: Noise and Vibration (Section 11.10.4).

**Driver Stress**

Driver Stress may be temporarily adversely affected by construction works. It is not possible at this stage of assessment to be able to quantify the magnitude of change for the construction phase. However, it is anticipated that Option 1V9 would have an adverse impact on driver stress due to the need for online improvement, where construction would be required along the existing carriageway alignment, while maintaining existing traffic flows on the A27. This is likely to impact journey time reliability and other elements of driver frustration, and have a temporary Adverse effect on community pride in Arundel and other communities along the A27 within the Study Area.

Predicted driver stress levels along the existing A27 for opening year 2026 and design year 2041 are outlined in EAR Chapter 12: Population and Health (Appendix 12-1 Table 1-15 to Table 1-18).
9.8.1.20 Predicted driver stress levels through Storrington are outlined in Appendix B: Table 1-2 to Table 1-5. The figures show that driver stress will remain as High for the majority of nodes throughout the extent of the Scheme option and through Storrington. Therefore, there is not likely to be a significant change in the driver stress experienced by road users due to this option, or a change to community pride in communities along the A27 or in Storrington.

Accidents

9.8.1.21 For opening year and design year, an overall increased traffic flow has been predicted on the existing A27 Arundel Road (west of Arundel) for Option 1V9. Furthermore, a reduction of through traffic from Ford Round roundabout to Storrington has been predicted for Option 1V9.

9.8.1.22 The COBALT assessment predicts that the total number of accidents between Mill Road / Tye Lane and Crossbush junction between 2026 and 2041 would increase to 448 with the implementation of Option 1V9. This represents an increase of 23 when compared to the do-minimum scenario over the 60-year appraisal period. This is likely to have an Adverse effect on community pride within Crossbush, Arundel, Walberton and Slindon.

Summary

9.8.1.23 Option 1V9 is likely to have: A Permanent Significant Beneficial effect on air quality; Temporary Significant Adverse and Permanent Significant Moderate to Major Adverse effect on noise level; and a Temporary Adverse effect during construction and remain a High level of driver stress during operation within and adjacent to the SDNP along the route of the Option 1V9. A Beneficial effect is anticipated on community pride along the A27 due to improvements in air quality, but Adverse effects are anticipated in relation to increased noise levels and increased traffic.

Option 3V1

Air Quality

9.8.1.24 Construction phase air quality impacts have not been assessed at this stage of the project. This will be assessed at PCF Stage 3 for the preferred option.
9.8.1.25 Option 3V1 attracts traffic from east-west routes parallel to the A27 onto the bypass corridor to the south of Arundel. It therefore results in an increase in pollution levels at receptors along the Option 3V1 corridor (primarily offline) and approach roads, and a corresponding decrease in levels on alternative east-west routes. Option 3V1 does not give rise to any new or worsened exceedances of air quality thresholds in the opening year (2026). Furthermore, it is anticipated that two existing exceedances will be reduced and removed. The area with greatest increase in air pollutant concentration would be remain within the air quality standard. An overall Beneficial effect is anticipated on air quality, and therefore a Beneficial effect is also anticipated on community pride within communities along the route of the existing A27. However, it is possible that an Adverse effect on community pride will be felt in communities within the Option 3V1 corridor.

9.8.1.26 Detailed potential changes in number of vehicles and impact on human receptors are provided in **EAR Chapter 5: Air Quality** (Sections 5.9.5.4 to 5.9.4.12).

*Noise and Vibration*

9.8.1.27 A total of 24 properties are potentially likely to experience a significant noise impact arising from the construction activities (level of significance has not been assessed, this will be undertaken in PCF Stage 3). A total of 554 properties would potentially experience a short-term noise level increase classified as Moderate and Major Adverse. A potential of 379 properties would experience a noise level increase classified as Moderate and Major Adverse in the long-term therefore an Adverse effect on community pride is anticipated for residences of affected properties.

9.8.1.28 Most properties north of Ford Road roundabout, properties on Fitzalan Road, and one property in Walberton with noise levels above SOAEL will experience a reduction in noise level. This is therefore likely to have a Beneficial effect on community pride in Arundel.

9.8.1.29 Detailed potential construction and operational noise level changes are provided in **EAR Chapter 11: Noise and Vibration** (Section 11.10.5).
**Driver Stress**

9.8.1.30 Driver Stress may be temporarily adversely affected by construction works. It is not possible at this stage of assessment to be able to quantify the magnitude of change for the construction phase. However, it is anticipated that Option 3V1 would result in some Temporary Not Significant Minor Adverse impacts on driver stress due to disruption from construction works, which may result in diversions or delays. This is likely to impact journey time reliability and other elements of driver frustration, and have a temporary Adverse effect on community pride in Arundel and other communities along the A27 within the Study Area. Predicted driver stress levels for opening year 2026 and design year 2041 are outlined in EAR Chapter 12: Population and Health (Appendix 12-1 Table 1-15 to Table 1-18).

9.8.1.31 Predicted driver stress levels through Storrington are outlined in Appendix B: Table 1-2 to Table 1-5. The figures show that driver stress will remain as High for the majority of nodes throughout the scheme extent and through Storrington. Therefore, there is not likely to be a significant change in the driver stress experienced by road users due to this option, or a change to community pride in communities along the A27 or in Storrington.

**Accidents**

9.8.1.32 For opening year and design year, an overall increased traffic flow has been predicted on the existing A27 Arundel Road (west of Arundel), while a decreased in traffic flow on the existing A27 Chichester Road has been predicted. It is possible that during the operation of Option 3V1, vehicles travelling through Arundel would be reduced. Furthermore, a reduction of through traffic from Ford Round roundabout to Storrington has been predicted for Option 3V1.

9.8.1.33 The COBALT assessment predicts that the total number of accidents between Mill road / Tye Lane and Crossbush junction between 2026 and 2041 would increase to 449 with the implementation of Option 3V1, an increase of 24 when compared to the do-minimum scenario. This is likely to have an Adverse effect on community pride within Crossbush, Arundel, Walberton and Slindon.
Summary

9.8.1.34 Option 3V1 is likely to have: A Permanent Significant Beneficial effect on air quality; Temporary Significant Adverse and Permanent Significant Moderate to Major Adverse effect on noise level; and a Temporary Not Significant Minor Adverse effect during construction and remain a High level of driver stress during operation within and adjacent to the SDNP along the route of Option 3V1. A Beneficial effect is anticipated on community pride along the existing A27 due to improvements in air quality and noise levels, but Adverse effects are anticipated in relation to, increased noise levels and increased traffic for communities within the Option 3V1 corridor.

Option 4/5AV1

Air Quality

9.8.1.35 Construction phase air quality impacts have not been assessed at this stage of the project. This will be assessed at PCF Stage 3 for the preferred option.

9.8.1.36 Option 4/5AV1 attracts traffic from east-west routes parallel to the A27 onto the bypass corridor to the south of Arundel. It therefore results in an increase in pollution levels at receptors along the Option 4/5AV1 corridor (primarily offline) and approach roads, and a corresponding decrease in levels on alternative east-west routes. Option 4/5AV1 does not give rise to any new or worsened exceedances of air quality thresholds in the opening year (2026). Furthermore, it is anticipated that two existing exceedances will be reduced and removed. The area with greatest increase in air pollutant concentration would be remain below the air quality standard. An overall Beneficial effect is anticipated on air quality, and therefore a Beneficial effect is also anticipated on community pride within communities along the route of the existing A27. However, it is possible that an Adverse effect on community pride will be felt in communities within the Option 4/5AV1 corridor.

9.8.1.37 Detailed potential changes in number of vehicles and impact on human receptors are provided in EAR Chapter 5: Air Quality Sections (5.9.6.4 to 5.9.6.12).

Noise and Vibration

9.8.1.38 A total of 70 properties are potentially likely to experience a significant noise impact arising from the construction activities (level of significance has not been assessed, this will be undertaken in PCF Stage 3). A total of 402 properties would potentially experience a short-term noise level increase classified as Moderate and Major Adverse. 232 properties would experience a noise level increase classified as Moderate to Major Adverse in the long-term. Therefore, an Adverse effect on community pride is anticipated for residences of affected properties.
9.8.1.39 Properties on Fitzalan Road and one property in Walberton with noise levels above SOAEL will experience a reduction in noise level. This is therefore likely to have a Beneficial effect on community pride in Arundel.

9.8.1.40 Detailed potential construction and operational noise level changes are provided in EAR Chapter 11: Noise and Vibration (Section 11.10.6).

Driver Stress

9.8.1.41 Driver Stress may be temporarily adversely affected by construction works. It is not possible at this stage of assessment to be able to quantify the magnitude of change for the construction phase. However, it is anticipated that Option 4/5AV1 would result in some Temporary Not Significant Minor Adverse impacts on driver stress due to disruption from construction works, which may result in diversions or delays. This is likely to impact journey time reliability and other elements of driver frustration, and have a temporary Adverse effect on community pride in Arundel and other communities along the A27 within the Study Area. Predicted driver stress levels for opening year 2026 and design year 2041 are outlined in EAR Chapter 12: Population and Health (Appendix 12-1 Table 1-15 to Table 1-18).

9.8.1.42 Predicted driver stress levels through Storrington are outlined in Appendix B: Table 1-2 to Table 1-5. The figures show that driver stress will remain as High for the majority of nodes throughout the scheme extent and through Storrington. Therefore, there is not likely to be a significant change in the driver stress experienced by road users due to this option, or a change to community pride in communities along the A27 or in Storrington.

Accidents

9.8.1.43 For opening year and design year, an overall reduction in traffic flow is anticipated at Ford Road roundabout and Crossbush Roundabout. Furthermore, a reduction of through traffic from Ford Round roundabout to Storrington has been predicted for Option 4/5AV1.

9.8.1.44 The COBALT assessment predicts that the total number of accidents between Mill Road / Tye Lane and Crossbush junction between 2026 and 2041 would decrease to 399 with the implementation of Option 4/5AV1. This represents a decrease of 25 when compared to the do-minimum scenario. This is likely to have a Beneficial effect on community pride within Crossbush, Arundel, Walberton and Slindon.
Summary

9.8.1.45 Option 4/5AV1 is likely to have: A Permanent Significant Beneficial effect on air quality; Temporary Significant Adverse and Permanent Significant Moderate to Major Adverse effect on noise level; and a Temporary Not Significant Minor Adverse effect during construction and remain a High level of driver stress during operation within and adjacent to the SDNP along the route of option 4/5AV1. A Beneficial effect is anticipated on community pride along the existing A27 due to improvements in air quality and noise levels, but Adverse effects are anticipated in relation to increased noise levels and increased traffic for communities within the Option 4/5AV1 corridor.

Option 4/5AV2

Air Quality

9.8.1.46 Construction phase air quality impacts have not been assessed at this stage of the project. This will be considered at PCF Stage 3 for the preferred option.

9.8.1.47 Option 4/5AV2 attracts traffic from east-west routes parallel to the A27 onto the bypass corridor to the south of Arundel. It therefore results in an increase in pollution levels at receptors along the Option 4/5AV2 corridor (primarily offline) and approach roads, and a corresponding decrease in levels on alternative east-west routes. Option 4/5AV2 does not give rise to any new or worsened exceedances of air quality thresholds in the opening year (2026). Furthermore, it is anticipated that two existing exceedances will be reduced and removed. The area with greatest increase in air pollutant concentration would be remain within the air quality standard. An overall Beneficial effect is anticipated on air quality, and therefore a Beneficial effect is also anticipated on community pride within communities along the route of the existing A27. However, it is possible that an Adverse effect on community pride will be felt in communities within the Option 4/5AV2 corridor.

9.8.1.48 Detailed potential changes in number of vehicles and impact on human receptors are provided in EAR Chapter 5: Air Quality Sections (5.9.7.4 to 5.9.7.12).

Noise and Vibration

9.8.1.49 A total of 76 properties are potentially likely to experience a significant noise impact arising from the construction activities (level of significance has not been assessed, this will be undertaken in PCF Stage 3). A total of 375 properties would potentially experience a short-term noise level increase classified as Moderate and Major Adverse. 224 properties would experience a noise level increase classified as Moderate and Major Adverse in the long-term. Therefore, an Adverse effect on community pride is anticipated for residences of affected properties.
9.8.1.50 Most properties north of Ford Road Roundabout, properties on Fitzalan Road and one property in Walberton currently experiencing noise levels above SOAEL will experience a reduction in noise level. This is therefore likely to have a Beneficial effect on community pride in Arundel.

9.8.1.51 Detailed potential construction and operational noise level changes are provided in EAR Chapter 11: Noise and Vibration (Section 11.10.7).

**Driver Stress**

9.8.1.52 Driver Stress may be temporarily adversely affected by construction works. It is not possible at this stage of assessment to be able to quantify the magnitude of change for the construction phase. However, it is anticipated that Option 4/5AV2 would result in some Temporary Not Significant Minor Adverse effects on driver stress due to disruption from construction works, which may result in diversions or delays. This is likely to impact journey time reliability and other elements of driver frustration, and have a temporary Adverse effect on community pride in Arundel and other communities along the A27 within the Study Area. Predicted driver stress levels for opening year 2026 and design year 2041 are outlined in EAR Chapter 12: Population and Health (Appendix 12-1 Table 1-15 to Table 1-18).

9.8.1.53 Predicted driver stress levels through Storrington are outlined in Appendix B: Table 1-2 to Table 1-5. The figures show that driver stress will remain as High for the majority of nodes throughout the scheme extent and through Storrington. Therefore, there is not likely to be a significant change in the driver stress experienced by road users due to this option, or a change to community pride in communities along the A27 or in Storrington.

**Accidents**

9.8.1.54 For opening year and design year, an overall reduction in traffic flow is anticipated at Ford Road roundabout and Crossbush Roundabout. Furthermore, a reduction of through traffic from Ford Round roundabout to Storrington has been predicted for Option 4/5AV2.

9.8.1.55 The COBALT assessment predicts that the total number of accidents between Mill Road / Tye Lane and Crossbush junction between 2026 and 2041 would decrease to 375 with the implementation of Option 4/5AV2, a decrease of 49 when compared to the do-minimum scenario. This is likely to have a Beneficial effect on community pride within Crossbush, Arundel, Walberton and Slindon.
Summary

9.8.1.56 Option 4/5AV2 is likely to have: A Permanent Significant Beneficial effect on air quality; Temporary Significant Adverse and Permanent Significant Moderate to Major Adverse effect on noise levels; a Temporary Not Significant Minor Adverse effect during construction and remain a High level of driver stress within and adjacent to the SDNP along the route of Option 4/5AV2. A Beneficial effect is anticipated on community pride along the existing A27 due to improvements in air quality and noise levels, but Adverse effects are anticipated in relation to increased noise levels and increased traffic for communities within the Option 4/5AV2 corridor.

Option 5BV1

Air Quality

9.8.1.57 Construction phase air quality impacts have not been assessed at this stage of the project. This will be considered at PCF Stage 3 for the preferred option.

9.8.1.58 Option 5BV1 attracts traffic from east-west routes parallel to the A27 onto the bypass corridor to the south of Arundel. It therefore results in an increase in pollution levels at receptors along the Option 5BV1 corridor (primarily offline) and approach roads, and a corresponding decrease in levels on alternative east-west routes. Option 5BV1 does not give rise to any new or worsened exceedances of air quality thresholds in the opening year (2026). Furthermore, it is anticipated that two existing exceedances will be reduced and removed. The area with greatest increase in air pollutant concentration would be remain well below the air quality standard. An overall Beneficial effect is anticipated on air quality, and therefore a Beneficial effect is also anticipated on community pride within communities along the route of the existing A27. However, it is possible that an Adverse effect on community pride will be felt in communities within the Option 5BV1 corridor.

9.8.1.59 Detailed potential changes in number of vehicles and impact on human receptors are provided in EAR Chapter 5: Air Quality (Sections 5.9.8.4 to 5.9.8.12).

Noise and Vibration

9.8.1.60 A total of 98 properties are potentially likely to experience a significant noise impact arising from the construction activities (level of significance has not been assessed, this will be undertaken in PCF Stage 3). A total of 531 properties would potentially experience a short-term noise level increase classified as Moderate and Major Adverse. 265 properties would experience a noise level increase classified as Moderate and Major Adverse in the long-term. Therefore, an Adverse effect on community pride is anticipated for residences of affected properties.
9.8.1.61 Most properties north of Ford Road roundabout and properties on Fitzalan Road with noise levels above SOAEL will experience a reduction in noise level. This is therefore likely to have a Beneficial effect on community pride in Arundel.

9.8.1.62 Detailed potential construction and operational noise level changes are provided in **EAR Chapter 11: Noise and Vibration** (Section 11.10.8).

**Driver Stress**

9.8.1.63 Driver Stress may be temporarily adversely affected by construction works. It is not possible at this stage of assessment to be able to quantify the magnitude of change for the construction phase. However, it is anticipated that Option 5BV1 would result in some Temporary Not Significant Minor Adverse effects on driver stress due to disruption from construction works, which may result in diversions or delays. This is likely to impact journey time reliability and other elements of driver frustration, and have a temporary Adverse effect on community pride in Arundel and other communities along the A27 within the Study Area. Predicted driver stress levels for opening year 2026 and design year 2041 are outlined in **EAR Chapter 12: Population and Health** (Appendix 12-1 Table 1-15 to Table 1-18).

9.8.1.64 Predicted driver stress levels through Storrington are outlined in **Appendix B: Table 1-2 to Table 1-5**. The figures show that driver stress will remain as High for the majority of nodes throughout the scheme extent and through Storrington. Therefore, there is not likely to be a significant change in the driver stress experienced by road users due to this option, or a change to community pride in communities along the A27 or in Storrington.

**Accidents**

9.8.1.65 For opening year and design year, an overall reduction in traffic flow is anticipated at Ford Road roundabout and Crossbush Roundabout. Furthermore, a reduction of through traffic from Ford Round roundabout to Storrington has been predicted for Option 5BV1.

9.8.1.66 The COBALT assessment predicts that the total number of accidents between Mill Road / Tye Lane and Crossbush junction between 2026 and 2041 would decrease to 403 with the implementation of Option 5BV1. This represents a decrease of 22 when compared to the do-minimum scenario. This is likely to have a Beneficial effect on community pride within Crossbush, Arundel, Walberton and Slindon.
Summary

9.8.1.67 Option 5BV1 is likely to have: A Permanent Significant Beneficial effect on air quality; Temporary Significant Adverse and Permanent Significant Moderate to Major Adverse effect on noise level; a Temporary Not Significant Minor Adverse effect during construction and remain a High level of driver stress within and adjacent to the SDNP along the route of Option 5BV1. A Beneficial effect is anticipated on community pride along the existing A27 due to improvements in air quality and noise levels, but Adverse effects are anticipated in relation to increased noise levels and increased traffic for communities within the Option 5BV1 corridor.

9.8.2 Positive and negative effects on access to local services

9.8.2.1 All effects on access to local services are considered to occur during the construction period.

Option 1V5

9.8.2.2 Temporary public rights of way and access road diversions will be provided during construction. Access to local services including Arundel and District Hospital will be maintained, resulting in a Neutral effect during construction. Permanent public rights of way diversions have been provided. Access to local services during operation of Option 1V5 would not be affected, resulting in a Neutral effect.

9.8.2.3 Option 1V5 is likely to have a Temporary and Permanent Not Significant Neutral effect on the access of local services within the distinctive towns, villages and communities within and adjacent to the SDNP, and therefore no effect on community pride is anticipated in relation to access to community facilities.

Option 1V9

9.8.2.4 Temporary public rights of way and access road diversions will be provided during construction. Access to local services including Arundel and District Hospital will be maintained, resulting a neutral effect during construction. Permanent public rights of way diversions have been provided. Access to local services during operation of Option 1V9 would not be affected, resulting in a Neutral effect.

9.8.2.5 Option 1V9 is likely to have a Temporary and Permanent Not Significant Neutral effect on the access of local services within the distinctive towns, villages and communities within and adjacent to the SDNP, and therefore no effect on community pride is anticipated in relation to access to community facilities.
**Option 3V1**

9.8.2.6 Temporary public rights of way and access road diversions will be provided during construction. Access to local services will be maintained, resulting in a Neutral effect during construction. Permanent public rights of way diversions have been provided. Access to local services during operation of Option 3V1 would not be affected, resulting in a Neutral effect.

9.8.2.7 Option 3V1 is likely to have a Temporary and Permanent Not Significant Neutral effect on the access of local services within the distinctive towns, villages and communities within and adjacent to the SDNP, and therefore no effect on community pride is anticipated in relation to access to community facilities.

**Option 4/5AV1**

9.8.2.8 Temporary public rights of way and access road diversions will be provided during construction. Access to local services will be maintained, resulting in a Neutral effect during construction. Permanent public rights of way diversions have been provided. Access to local services during operation of Option 4/5AV1 would not be affected, resulting in a Neutral effect.

9.8.2.9 Option 4/5AV1 is likely to have a Temporary and Permanent Not Significant Neutral effect on the access of local services within the distinctive towns, villages and communities within and adjacent to the SDNP, and therefore no effect on community pride is anticipated in relation to access to community facilities.

**Option 4/5AV2**

9.8.2.10 Temporary public rights of way and access road diversion will be provided during construction. Access to local services will be maintained, resulting in a Neutral effect during construction. Permanent public rights of way diversion have been provided. Access to local services during operation of Option 4/5AV2 would not be affected, resulting in a Neutral effect.

9.8.2.11 Option 4/5AV2 is likely to have A Temporary and Permanent Not Significant Neutral effect on the access of local services within the distinctive towns, villages and communities within and adjacent to the SDNP, and therefore no effect on community pride is anticipated in relation to access to community facilities.
Option 5BV1

9.8.2.12 Temporary public rights of way and access road diversions will be provided during construction. Access to local services will be maintained, resulting in a Neutral effect during construction. Permanent public rights of way diversions have been provided. Access to local services during operation of Option 5BV1 would not be affected, resulting in a Neutral effect.

9.8.2.13 Option 5BV1 is likely to have a Temporary and Permanent Not Significant Neutral effect on the access of local services within the distinctive towns, villages and communities within and adjacent to the SDNP, and therefore no effect on community pride is anticipated in relation to access to community facilities.

9.8.3 Pride in the area

Option 1V5

Construction

9.8.3.1 Permanent land take may be required from Arundel Cricket Club (partly located within the SDNP) to facilitate Option 1V5. Due to the potential value of Arundel Cricket Club as a recreational and sporting facility with local supporters, a precautionary approach has been undertaken with a predicted permanent significant moderate adverse effect on the Cricket club, which is likely to have a Permanent Adverse effect on the residents’ pride in Arundel.

Operation

9.8.3.2 It is likely that widening the existing A27 through Arundel will have a Permanent Adverse effect on residents’ pride within Arundel. A reduction in amenity is expected due to increased noise levels during operation.

9.8.3.3 It is not likely that the Scheme at Crossbush is likely to result in a notable change in pride in the area as the A27 is already in existence in this area. Additionally, there are very few numbers of permanent residents living within close proximity of the Scheme (at Crossbush Junction), with temporary accommodation facilities bordering the existing A27. It is therefore thought that there will be a Permanent Neutral effect on community pride in Crossbush.
**Option 1V9**

**Construction**

9.8.3.4 Permanent land take may be required from Arundel Cricket Club to facilitate Option 1V9. Due to the potential value of Arundel Cricket Club, a precautionary approach has been undertaken with a predicted permanent significant moderate adverse effect on the Cricket Club, which is likely to have a Permanent Adverse effect on the residents’ pride in Arundel (partly within the SNDP).

**Operation**

9.8.3.5 It is likely that widening the existing A27 through Arundel will have a Permanent Adverse effect on residents’ pride within Arundel due to the likely reduction in amenity (from increased noise levels).

9.8.3.6 It is not likely that the Scheme at Crossbush is likely to result in a notable change in pride in the area as the A27 is already in existence in this area. Additionally, there are very few numbers of permanent residents living within close proximity of the Scheme (at Crossbush Junction), with temporary accommodation facilities bordering the existing A27. It is therefore thought that there will be a Permanent Neutral effect on community pride in Crossbush.

**Option 3V1**

**Construction**

9.8.3.7 Permanent land take from woodland located north of Binsted in Binsted Woods Complex Local Wildlife Site (LWS) would be required to facilitate Option 3V1. It is anticipated that there will be a permanent not significant adverse effect on the woodlands from land take. This is likely to have an Adverse effect on residents’ pride in Binsted, Tortington and Arundel due to the perceived recreational value of the woodland and its addition to the identity of the settlements (as outlined within the Walberton Neighbourhood Development Plan\(^{34}\) and the Arundel Neighbourhood Plan\(^{35}\)).

---


\(^{35}\) Arundel Town Council (February 2014), Arundel Neighbourhood Plan 2014-2029.
9.8.3.8 Option 3V1 would potentially require land within the Old Scotland Lane which is valued by residents of Walberton, Binsted and Fontwell. Old Scotland Lane overbridge has been incorporated into the design to maintain access along the path. Due to the perceived value of Old Scotland Lane, it is anticipated that a predicted temporary significant adverse effect on users during construction and a permanent not significant neutral effect on users during operation. It is anticipated that there will therefore be a Temporary Adverse on the resident’s pride in Walberton (adjacent to the SNDP), Binsted (within the SDNP) and Fontwell (adjacent to the SNDP) during the construction period.

**Operation**

9.8.3.9 It is likely that de-trunking the existing A27 through Arundel and diverting traffic away from the town will have a permanent beneficial effect on residents' pride within Arundel due to the likely improvement in amenity and improved non-motorised user facilities. A detailed assessment of relief from severance (for non-motorised users) will be carried out at PCF Stage 3, which, in addition to a more detailed level of design, will enable further assessment of these effects in relation to community pride.

9.8.3.10 It is likely that residents of Tortington will experience a reduction in pride in their community due to the proximity of Option 3V1, due to the reductions in amenity from increased noise levels, reduced air quality and visual intrusion on the landscape, resulting in a Permanent Adverse effect. It was noted within the Ford Neighbourhood Plan that residents “enjoy the countryside and the standard of living in Ford”⁶⁶ and the introduction of the Scheme is likely to impact on this enjoyment.

9.8.3.11 It is not likely that the Scheme at Crossbush is likely to result in a notable change in pride in the area as the A27 is already in existence in this area. Additionally, there are very few numbers of permanent residents living within close proximity of the Scheme (at Crossbush Junction), with temporary accommodation facilities bordering the existing A27. It is therefore thought that there will be a Permanent Neutral effect on community pride in Crossbush.

---

Option 4/5AV1

Construction

9.8.3.12 Permanent land take from Avisford Park Golf Club may be required to facilitate Option 4/5AV1. A precautionary approach has been undertaken with a predicted permanent significant adverse effect, which is likely to result in a Permanent Adverse effect on residents’ pride in Walberton (adjacent to the SNDP), Binsted (within the SDNP) and Fontwell (adjacent to the SNDP) due to the perceived recreational value of Avisford Park Golf Club.

9.8.3.13 Permanent land take is required from land used annually to hold the Binsted Strawberry Fair. Although the full extent of land required to hold the fair is not confirmed, it is assumed for the purposes of assessment that a worst case applies and the Scheme requires use of the entire area. It is anticipated that this will have a permanent not significant adverse effect on loss of land used by the community, and this is likely to have a Permanent Adverse effect on resident’s pride in Binsted. However, it should be noted that this event is held over one day and the nature of the event may allow it to be relocated.

9.8.3.14 Permanent land take from Binsted Park and woods may be required to facilitate Option 4/5AV1. It is anticipated that there will be a temporary significant adverse effect during construction and a permanent significant neutral effect during operation due to the land take. This is likely to have a Permanent Adverse effect on residents’ pride in Binsted (within the SDNP) due to the perceived recreational value of the woodland and its addition to the identity of the settlement and the value given by local residents to the Fair (as outlined within the Neighbourhood Plan37).

9.8.3.15 Option 4/5AV1 would potentially require land within the Old Scotland Lane which is valued by residents of Walberton, Binsted and Fontwell. Old Scotland Lane overbridge has been incorporated into the design to maintain access along the path. Due to the perceived value of Old Scotland Lane, it is anticipated that a predicted temporary significant adverse effect on users during construction and a permanent not significant neutral effect on users during operation. It is anticipated that there will therefore be a Temporary Adverse on the resident’s pride in Walberton (adjacent to the SNDP), Binsted (within the SDNP) and Fontwell (adjacent to the SNDP) during the construction period.

---

**Operation**

9.8.3.16 It is likely that de-trunking the existing A27 through Arundel and diverting traffic away from the town will have a Permanent Beneficial effect on residents’ pride within Arundel due to the likely improvement in amenity and improved non-motorised user facilities. A detailed assessment of relief from severance will be carried out at PCF Stage 3, which, in addition to a more detailed level of design, will enable further assessment of these effects in relation to community pride.

9.8.3.17 It is likely that residents of Tortington, Binsted and Walberton will experience a reduction in pride in their community due to the proximity of Option 4/5AV1, due to the reductions in amenity from increased noise levels, reduced air quality and visual intrusion on the landscape, resulting in a Permanent Adverse effect. It was noted within the Ford Neighbourhood Plan that residents “enjoy the countryside and the standard of living in Ford”\(^{38}\) and the introduction of the Scheme is likely to impact on this enjoyment. It was also noted within the Walberton Neighbourhood Development Plan that Binsted is situated in “some of the best countryside in the Parish with its open views and large woodland”\(^{39}\) and the introduction of the Scheme is likely to impact on these landscape features.

9.8.3.18 It is not likely that the Scheme at Crossbush is likely to result in a notable change in pride in the area as the A27 is already in existence in this area. Additionally, there are very few numbers of permanent residents living within close proximity of the Scheme (at Crossbush Junction), with temporary accommodation facilities bordering the existing A27. It is therefore thought that there will be a Permanent Neutral effect on community pride in Crossbush.

**Option 4/5AV2**

**Construction**

9.8.3.19 Permanent land take from Binsted Park and woods would be required to facilitate Option 4/5AV2. It is anticipated that there will be a permanent significant adverse effect due to the land take. This is likely to have a Permanent Adverse effect on residents’ pride in Binsted (within the SDNP) due to the perceived recreational value of the woodland and its addition to the identity of the settlement (as outlined within the Neighbourhood Plan).


9.8.3.20 Option 4/5AV2 would potentially require land within the Old Scotland Lane which is valued by Walberton, Binsted and Fontwell. A diversion has been incorporated into the design near the western tie-in on Old Scotland Lane to maintain access along the path. This is predicted to result in temporary significant adverse effect during construction and a permanent not significant neutral effect during operation. This is likely to result in a Temporary Adverse effect on residents’ pride in Walberton (adjacent to the SNDP), Binsted (within the SDNP) and Fontwell (adjacent to the SNDP) due to the perceived value of Old Scotland Lane.

Operation

9.8.3.21 It is likely that de-trunking the existing A27 through Arundel and diverting traffic away from the town will have a beneficial effect on residents’ pride within Arundel due to the likely improvement in amenity and improved non-motorised user facilities. A detailed assessment of relief from severance (for non-motorised users) will be carried out at PCF Stage 3, which, in addition to a more detailed level of design, will enable further assessment of these effects in relation to community pride.

9.8.3.22 It is likely that residents of Tortington, Walberton and Binsted will experience a reduction in pride in their community due to the proximity of Option 4/5AV2, due to the reductions in amenity from increased noise levels, reduced air quality and visual intrusion on the landscape, resulting in an Adverse effect. It was noted within the Ford Neighbourhood Plan that residents “enjoy the countryside and the standard of living in Ford”\textsuperscript{40} and the introduction of the Scheme is likely to impact on this enjoyment. It was also noted within the Walberton Neighbourhood Development Plan that Binsted is situated in “some of the best countryside in the Parish with its open views and large woodland”\textsuperscript{41} and the introduction of the Scheme is likely to impact on these landscape features.

\textsuperscript{40} Ford Parish Council (May 2017), Ford Parish Council Neighbourhood Development Plan 2017-2031, Section 3.3, Paragraph 4.
\textsuperscript{41} Walberton Parish Council Office (November 2016), Walberton Neighbourhood Development Plan 2015-2035, Section 3.1.1, Paragraph 2.
9.8.3.23 It is likely that residents of Tortington, Walberton and Binsted will experience a reduction in pride in their community due to the proximity of Option 4/5AV2, due to the reductions in amenity from increased noise levels, reduced air quality and visual intrusion on the landscape, resulting in a Permanent Adverse effect. It was noted within the Arundel Neighbourhood Plan that residents “enjoy the countryside and the standard of living in Ford” \(^{42}\) and the introduction of the Scheme is likely to impact on this enjoyment. It was also noted within the Walberton Neighbourhood Development Plan that Binsted is situated in “some of the best countryside in the Parish with its open views and large woodland” \(^{43}\) and the introduction of the Scheme is likely to impact on these landscape features.

9.8.3.24 It is not likely that the Scheme at Crossbush is likely to result in a notable change in pride in the area as the A27 is already in existence in this area. Additionally, there are very few numbers of permanent residents living within close proximity of the Scheme (at Crossbush Junction), with temporary accommodation facilities bordering the existing A27. It is therefore thought that there will be a Permanent Neutral effect on community pride in Crossbush.

**Option 5BV1 Construction**

9.8.3.25 Permanent land take from Avisford Park Golf Club may be required to facilitate Option 5BV1. A precautionary approach has been undertaken with a predicted permanent significant adverse effect due to this land take. This is anticipated to have a Permanent Adverse effect on the pride of residents’ within Walberton (adjacent to the SNDP), Binsted (within the SDNP) and Fontwell (adjacent to the SNDP) due to the perceived recreational value of Avisford Park Golf Club.

9.8.3.26 Works located adjacent to the Binsted Strawberry Fair may have a Temporary Significant Adverse effect during construction due to likely disruption of the road network and reduction of amenity due to construction works. A permanent not significant neutral Effect during operation is anticipated, and this is likely to have a Temporary Adverse effect on residents’ pride in Binsted (within the SDNP).


Operation

9.8.3.27 It is likely that de-trunking the existing A27 through Arundel and diverting traffic away from the town will have a Beneficial effect on residents’ pride within Arundel due to the likely improvement in amenity and improved non-motorised user facilities. A detailed assessment of relief from severance (for non-motorised users) will be carried out at PCF Stage 3, which, in addition to a more detailed level of design, will enable further assessment of these effects in relation to community pride.

9.8.3.28 Walberton Parish Council Office (November 2016), Walberton Neighbourhood Development Plan 2015-2035. It is likely that residents of Tortington, Walberton and Binsted will experience a reduction in pride in their community due to the proximity of Option 5BV1, due to the reductions in amenity from increased noise levels, reduced air quality and visual intrusion on the landscape, resulting in an Adverse effect. It was noted within the Ford Neighbourhood Plan that residents “enjoy the countryside and the standard of living in Ford” and the introduction of the Scheme is likely to impact on this enjoyment. It was also noted within the Walberton Neighbourhood Development Plan that Binsted is situated in “some of the best countryside in the Parish with its open views and large woodland” and the introduction of the Scheme is likely to impact on these landscape features.

9.8.3.29 It is not likely that the Scheme at Crossbush is likely to result in a notable change in pride in the area as the A27 is already in existence in this area. Additionally, there are very few numbers of permanent residents living within close proximity of the Scheme (at Crossbush Junction), with temporary accommodation facilities bordering the existing A27. It is therefore thought that there will be a Permanent Neutral effect on community pride in Crossbush.

9.9 Summary

9.9.1.1 The likely construction and operation effects for each of the Scheme options assessed are outlined in Table 9-5 and Table 9-6.

---

Table 9-5 - Likely effects on SQ7 during construction

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds</td>
<td>Air Quality Not assessed at this stage</td>
<td>Not assessed at this stage</td>
<td>Not assessed at this stage</td>
<td>Not assessed at this stage</td>
<td>Not assessed at this stage</td>
<td>Not assessed at this stage</td>
</tr>
<tr>
<td>Noise and Vibration</td>
<td>Temporary Adverse (significant) effect on 427 properties</td>
<td>Temporary Adverse (significant) effect on 429 properties</td>
<td>Temporary Adverse (significant) effect on 24 properties</td>
<td>Temporary Adverse (significant) effect on 70 properties</td>
<td>Temporary Adverse (significant) effect on 76 properties</td>
<td>Temporary Adverse (significant) effect on 98 properties</td>
</tr>
<tr>
<td>Driver Stress</td>
<td>Temporary adverse effect</td>
<td>Temporary adverse effect</td>
<td>Temporary adverse effect</td>
<td>Temporary adverse effect</td>
<td>Temporary adverse effect</td>
<td>Temporary adverse effect</td>
</tr>
<tr>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td>Positive and negative effects on access to local services</td>
<td>Permanent adverse effect on Arundel</td>
<td>Permanent adverse effect on Arundel</td>
<td>Permanent adverse effect on Tortington and Binsted</td>
<td>Temporary adverse effect on Fontwell and Walberton</td>
<td>Permanent adverse effect on Fontwell Walberton and Binsted</td>
<td>Permanent adverse effect on Fontwell Walberton and Binsted</td>
</tr>
<tr>
<td>Pride in the area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent adverse effect on Arundel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 9-6 - Likely effects on SQ7 during operation

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds</td>
<td><strong>Air Quality</strong></td>
<td><strong>Noise and Vibration</strong></td>
<td><strong>Noise and Vibration</strong></td>
<td><strong>Noise and Vibration</strong></td>
<td><strong>Noise and Vibration</strong></td>
<td><strong>Noise and Vibration</strong></td>
</tr>
<tr>
<td>Air Quality</td>
<td>Permanent beneficial (significant)</td>
<td>Permanent beneficial (significant)</td>
<td>Permanent beneficial (significant)</td>
<td>Permanent beneficial (significant)</td>
<td>Permanent beneficial (significant)</td>
<td>Permanent beneficial (significant)</td>
</tr>
<tr>
<td>Noise and Vibration (Short-term assessment)</td>
<td>Permanent moderate and major adverse effect for 1,065 properties</td>
<td>Permanent moderate and major adverse effect for 987 properties</td>
<td>Permanent moderate and major adverse effect for 554 properties</td>
<td>Permanent moderate and major adverse effect for 402 properties</td>
<td>Permanent moderate and major adverse effect for 375 properties</td>
<td>Permanent moderate and major adverse effect for 531 properties</td>
</tr>
<tr>
<td>Noise and Vibration (Long-term assessment)</td>
<td>Permanent moderate to major adverse effect for 380 properties</td>
<td>Permanent moderate to major adverse effect for 174 properties</td>
<td>Permanent moderate to major adverse effect for 379 properties</td>
<td>Permanent moderate to major adverse effect for 232 properties</td>
<td>Permanent moderate to major adverse effect for 224 properties</td>
<td>Permanent moderate to major adverse effect for 265 properties</td>
</tr>
<tr>
<td>Driver Stress</td>
<td>Remains high</td>
<td>Remains high</td>
<td>Remains high</td>
<td>Remains high</td>
<td>Remains high</td>
<td>Remains high</td>
</tr>
<tr>
<td>Change in accident numbers*</td>
<td>Decrease of 75</td>
<td>Increase of 23</td>
<td>Increase of 24</td>
<td>Decrease of 25</td>
<td>Decrease of 49</td>
<td>Decrease of 22</td>
</tr>
</tbody>
</table>
### Table: Positive and negative effects on access to local services and Pride in the area

<table>
<thead>
<tr>
<th>Impact</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive and negative effects on access to local services</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td>Pride in the area</td>
<td>Permanent adverse effect on Arundel</td>
<td>Permanent adverse effect on Arundel</td>
<td>Permanent beneficial effect on Arundel</td>
<td>Permanent beneficial effect on Arundel</td>
<td>Permanent beneficial effect on Arundel</td>
<td>Permanent beneficial effect on Arundel</td>
</tr>
</tbody>
</table>

*The change in accident numbers between Mill Road/Tye Lane and Crossbush junction between 2026 and 2041 over the 60 year appraisal period when compared to the do-minimum scenario.*
10 Summary

10.1.1.1 As requested by the SDNPA in the A27 Position Statement (Appendix A) the effects on the SDNP have been assessed using the framework of the special qualities and generally using the impacts outlined by SDNPA in paragraph 7 of Appendix A (interpretation of the impacts outlined in the A27 Position Statement have been discussed in Chapter 2: Assessment Methodology and Chapters 3 to 9).

10.1.1.2 The SDNP special qualities assessment will be considered by Highways England, Department for Transport and other project stakeholders, in the selection of the preferred option, and further decision making as appropriate.

10.1.1.3 Following this guidance, the results of the assessment of the potential impacts are collated in Table 10-1 in the context of the potential impacts assessed in Chapters 3 to 9.

10.1.1.4 Therefore, an adverse effect is taken to be one which is inconsistent with the relevant special quality and the significance of effect category (where provided) is an indication of the severity of the effect.

10.1.1.5 All of the Scheme options are considered to be inconsistent with the special qualities to some extent.
Table 10-1 – Summary of the special qualities assessment

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Diverse, inspirational landscapes and breathtaking views</strong></td>
<td>Inspirational landscapes</td>
<td>1V5: Slight to Moderate Adverse (Not Significant) 1V9: Slight to Moderate Adverse (Not Significant) 3V1: Very Large Adverse (Significant) 4/5AV1: Moderate to Large Adverse (Significant) 4/5AV2: Large Adverse (Significant) 5BV1: Slight - Moderate Adverse (Not Significant)</td>
</tr>
<tr>
<td></td>
<td>Breathtaking views (long distance and panoramic views within the SDNP)</td>
<td>1V5: Slight Adverse (Not Significant) 1V9: Slight Adverse (Not Significant) 3V1: Slight Adverse (Not Significant) 4/5AV1: Slight Adverse (Not Significant) 4/5AV2: Slight Adverse (Not Significant) 5BV1: Slight Adverse (Not Significant)</td>
</tr>
<tr>
<td><strong>2 A rich variety of wildlife and habitats including rare and internationally important species</strong></td>
<td>Binsted Wood Complex LWS</td>
<td>1V5: Significant - Large Adverse + 1V9: Significant - Large Adverse + 3V1: Significant - Very Large Adverse 4/5AV1: Large Adverse + 4/5AV2: Very Large Adverse 5BV1: N/A</td>
</tr>
<tr>
<td></td>
<td>Rewell Wood Complex LWS</td>
<td>1V5: Significant - Large Adverse + 1V9: Significant - Large Adverse + 3V1: Significant - Large Adverse + 4/5AV1: N/A 4/5AV2: N/A 5BV1: N/A</td>
</tr>
<tr>
<td></td>
<td>A27 Avisford 'site A' A27 Avisford 'site B' A27 Avisford 'site C' Notable Road Verges</td>
<td>1V5: N/A 1V9: N/A 3V1: Significant - Slight Adverse 4/5AV1: Significant - Slight Adverse 4/5AV2: Significant - Slight Adverse 5BV1: N/A</td>
</tr>
<tr>
<td>Special Quality</td>
<td>Potential Impact</td>
<td>Results of post mitigation assessment for each Scheme option</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>1V5</td>
<td>1V9</td>
</tr>
<tr>
<td>Ancient woodland</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Large Adverse +</td>
</tr>
<tr>
<td>Wood Pasture and Parkland HPI</td>
<td>Significant - Moderate Adverse +</td>
<td>Significant - Moderate Adverse</td>
</tr>
<tr>
<td>Ancient or Veteran Trees</td>
<td>Significant - Very Large Adverse</td>
<td>Significant - Very Large Adverse</td>
</tr>
<tr>
<td>Deciduous Woodland HPI</td>
<td>Significant - Large Adverse +</td>
<td>Significant - Large Adverse +</td>
</tr>
<tr>
<td>Wet Woodland HPI</td>
<td>Not assessed separately – the impact assessment for Binsted Wood Complex LWS incorporates Wet Woodland HPI which is inside this LWS</td>
<td></td>
</tr>
<tr>
<td>Coastal and floodplain grazing marsh HPI and other wetland HPIs</td>
<td>Significant – Moderate Adverse</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Aquatic Ecology</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### Special Quality Potential Impact

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td>1V5</td>
<td>1V9</td>
</tr>
<tr>
<td>Bats</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Birds (woodland birds)</td>
<td>Significant – Slight Adverse</td>
</tr>
<tr>
<td>Barn owl</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Hazel dormouse</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Terrestrial invertebrates</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Water vole</td>
<td>N/A</td>
</tr>
<tr>
<td>Protected/ Notable Plants</td>
<td>Significant – Moderate Adverse</td>
</tr>
<tr>
<td>Noise impact Short-term</td>
<td>Negligible or minor adverse</td>
</tr>
</tbody>
</table>
### 3 Tranquil and unspoilt places

**Noise impact:**
- **Long-term:**
  - Adverse noise impact (not significant) ¹

**Impact of lighting on dark night skies:**
- Designated dark sky areas:
  - Not Significant
- Other sources of lighting (headlights):
  - Not Significant

### 4 An environment shaped by centuries of farming economy

**Permanent effects on the farming economy:**
- Moderate or Large Adverse (Significant)
<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1V5</td>
<td>1V9</td>
</tr>
<tr>
<td>farming and embracing new enterprise</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
</tr>
<tr>
<td>Temporary effects on new enterprises</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
</tr>
<tr>
<td>Permanent effect on diversified farm businesses</td>
<td>Adverse²</td>
<td>Adverse²</td>
</tr>
<tr>
<td>Permanent effect on diversified farm businesses</td>
<td>Neutral (Not significant)</td>
<td>Neutral (Not significant)</td>
</tr>
<tr>
<td>Effects on rights of way and other access routes</td>
<td>Moderate Adverse (significant)</td>
<td>Moderate Adverse (significant)</td>
</tr>
</tbody>
</table>
### Potential Impact

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>1V5</th>
<th>1V9</th>
<th>3V1</th>
<th>4/5AV1</th>
<th>4/5AV2</th>
<th>5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>activities and learning experiences</td>
<td>(construction phase)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effects on sustainable transport schemes (construction phase)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
</tr>
<tr>
<td>Severance of the National Park from coastal communities (construction phase)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
<td>Neutral (Not Significant)</td>
</tr>
<tr>
<td>Effects on recreational and educational facilities (construction phase)</td>
<td>Temporary Slight Adverse</td>
<td>Temporary Slight Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
<td>Temporary Slight Adverse and Permanent Adverse</td>
<td></td>
</tr>
<tr>
<td>Effects on public rights of way and other access route (operational phase)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
<td>Moderate Adverse (Significant)</td>
</tr>
</tbody>
</table>
### Potential Impact

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on sustainable transport schemes (operational phase)</td>
<td>1V5</td>
</tr>
<tr>
<td>Severance of the National Park from coastal communities (operational phase)</td>
<td>Neutral (Not Significant)</td>
</tr>
<tr>
<td>Recreational and educational facilities (operational phase)</td>
<td>Permanent Adverse</td>
</tr>
<tr>
<td>Impact: effects of designated assets and historic villages and communities</td>
<td>Moderate Adverse (Significant)</td>
</tr>
<tr>
<td>Well-conserved historical features and a rich cultural heritage</td>
<td>Moderate Adverse (Significant) for all heritage assets</td>
</tr>
</tbody>
</table>
### Special Quality

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Quality</td>
<td>1V5</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>and LB1274878;</td>
<td></td>
</tr>
<tr>
<td>the lodge of</td>
<td></td>
</tr>
<tr>
<td>Avisford Park</td>
<td></td>
</tr>
<tr>
<td>Hotel (LB1274555)</td>
<td></td>
</tr>
<tr>
<td>Glebe House and</td>
<td></td>
</tr>
<tr>
<td>Church Farmhouse,</td>
<td></td>
</tr>
<tr>
<td>Binsted (LB1221993</td>
<td></td>
</tr>
<tr>
<td>and 1222198);</td>
<td></td>
</tr>
<tr>
<td>The Royal Oak</td>
<td></td>
</tr>
<tr>
<td>Inn (LB1274588)</td>
<td></td>
</tr>
<tr>
<td>and Firgrove</td>
<td></td>
</tr>
<tr>
<td>House (LB1274881)</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Adverse (Significant)</td>
<td>Neutral Adverse (Not Significant) for the remainder of the Grade II Listed Buildings</td>
</tr>
</tbody>
</table>
### Special Quality

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1V5</td>
</tr>
<tr>
<td>Slight Adverse (Not Significant) for the remainder of heritage assets</td>
<td></td>
</tr>
</tbody>
</table>
### Special Quality Assessment

#### Chapter 10: Summary

**A27 Arundel Bypass – PCF Stage 2 Further Consultation**

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1V5</td>
</tr>
<tr>
<td>Impact: effects on below-ground (buried) archaeology (construction phase)</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
</tr>
</tbody>
</table>
## Results of post mitigation assessment for each Scheme option

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>1V5</th>
<th>1V9</th>
<th>3V1</th>
<th>4/5AV1</th>
<th>4/5AV2</th>
<th>5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>House at Meadow Lodge (LB1222201 and LB1274878) Church Farmhouse, Binsted (1222198) Slight Adverse (Not Significant) for three ANAs (DWS8130, DWS8131 and DWS8141) and Historic Landscape area (Brooks innings type)</td>
<td></td>
<td>LB1274878) located on Binsted Lane (East).</td>
</tr>
<tr>
<td>Special Quality</td>
<td>Potential Impact</td>
<td>Results of post mitigation assessment for each Scheme option</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of effects on historic landscape</td>
<td>Slight Adverse (Not Significant) for Historic Landscape Area of Stewards Copse</td>
<td>Moderate adverse (Significant) impact on historic landscapes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(construction phase)</td>
<td>(HWS24801)</td>
<td>affected for this option.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of effects on settings of designated assets and historic villages and communities (operational phase)</td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>No historic landscapes affected for this option.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Slight Adverse (Not Significant) for all heritage assets</td>
<td>No historic landscapes affected for this option.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neutral (Not Significant) for all heritage assets</td>
<td>Moderate Adverse (Significant) for Morley’s Croft; House at Meadow Lodge (LB1222201 and LB1274878) and Glebe House and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The sensitivity, magnitude of impact and the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Quality</td>
<td>Potential Impact</td>
<td>Results of post mitigation assessment for each Scheme option</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
<td>----------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1V5</td>
<td>1V9</td>
<td>3V1</td>
<td>4/5AV1</td>
<td>4/5AV2</td>
<td>5BV1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Significance of effect on the settings of heritage assets will remain the same as during the construction phase.**

**4/5AV1**

- and LB1274878) and Royal Oak Inn (1274588).
- Neutral (Not Significant) for the remainder of the Grade II Listed Buildings.
- Moderate Adverse (Significant) for Binsted Village.

**5BV1**

- Church Farmhouse, Binsted (LB1221993 and 1222198),
- House at Beam Ends;
- Swiss Cottage (LBs1222534; 1222465 and 1222535) and for St Mary’s Church, Binsted (LB1274877).
- Neutral (Not Significant) for the Royal Oak Inn; (LB1274555 and 1274588);
- Calcetto Cottage,
### Potential Impact

<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Distinctive towns and villages and communities with real</td>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds: Air</td>
<td>Not assessed at this stage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1V5</td>
</tr>
</tbody>
</table>

- House at Bushacre, The Plough and Sail Inn and Old Well House (LBs 1027598; 1027597; 1027600 and 1027601).
- Moderate Adverse (Significant) for Binsted Village.
- Neutral (Not Significant) for Slindon Conservation Area

---

August 2019
<table>
<thead>
<tr>
<th>Special Quality</th>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1V5</td>
</tr>
<tr>
<td>pride in their area</td>
<td>Quality (construction phase)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds: Noise and Vibration (construction phase)</td>
<td>Temporary Adverse (significant) effect on 427 properties</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary Adverse (significant) effect on 429 properties</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary Adverse (significant) effect on 24 properties</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary Adverse (significant) effect on 70 properties</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary Adverse (significant) effect on 76 properties</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temporary Adverse (significant) effect on 98 properties</td>
</tr>
<tr>
<td></td>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds: Driver Stress (construction phase)</td>
<td>Temporary adverse effect</td>
</tr>
<tr>
<td></td>
<td>Positive and negative effects on access to local services</td>
<td>Neutral</td>
</tr>
<tr>
<td>Special Quality</td>
<td>Potential Impact</td>
<td>Results of post mitigation assessment for each Scheme option</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1V5</td>
</tr>
<tr>
<td>(construction phase)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pride in the area (construction phase)</td>
<td>Permanent adverse effect on Arundel</td>
<td>Permanent adverse effect on Arundel</td>
</tr>
<tr>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds: Air Quality (operational phase)</td>
<td>Permanent Beneficial (significant)</td>
<td>Permanent Beneficial (significant)</td>
</tr>
<tr>
<td>Positive and negative effects on any direct or</td>
<td>Permanent moderate and major adverse</td>
<td>Permanent moderate and major</td>
</tr>
</tbody>
</table>

Note: The table continues with similar entries for other special quality assessments.
### Special Quality

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>indirect changes in traffic volumes and speeds:</strong></td>
<td></td>
</tr>
<tr>
<td>Noise and Vibration short- term assessment (operational phase)</td>
<td></td>
</tr>
<tr>
<td>1V5 effect for 1,065 properties</td>
<td>1V9 adverse effect for 987 properties</td>
</tr>
<tr>
<td>3V1 adverse effect for 554 properties</td>
<td>4/5AV1 adverse effect for 402 properties</td>
</tr>
<tr>
<td>4/5AV2 adverse effect for 375 properties</td>
<td>5BV1 adverse effect for 531 properties</td>
</tr>
<tr>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds: Noise and Vibration long-term assessment operational phase</td>
<td></td>
</tr>
<tr>
<td>Permanent moderate to major adverse effect for 380 properties</td>
<td>Permanent moderate to major adverse effect for 174 properties</td>
</tr>
<tr>
<td>Permanent moderate to major adverse effect for 379 properties</td>
<td>Permanent moderate to major adverse effect for 232 properties</td>
</tr>
<tr>
<td>Permanent moderate to major adverse effect for 224 properties</td>
<td>Permanent moderate to major adverse effect for 265 properties</td>
</tr>
<tr>
<td>Positive and negative effects on any direct or indirect changes in traffic volumes and speeds: Driver Stress</td>
<td>Remains high</td>
</tr>
<tr>
<td>Remains high</td>
<td>Remains high</td>
</tr>
<tr>
<td>Remains high</td>
<td>Remains high</td>
</tr>
<tr>
<td>Remains high</td>
<td>Remains high</td>
</tr>
<tr>
<td>Remains high</td>
<td>Remains high</td>
</tr>
<tr>
<td>Special Quality</td>
<td>Potential Impact</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(operational phase)</td>
<td>Decrease of 75</td>
</tr>
</tbody>
</table>

Positive and negative effects on any direct or indirect changes in traffic volumes and speeds: Change in accident numbers³ (operational phase)

| Positive and negative effects on access to local services (operational phase) | Neutral | Neutral | Neutral | Neutral | Neutral | Neutral |

<table>
<thead>
<tr>
<th>Pride in the area (operational phase)</th>
<th>Permanent adverse effect on Arundel</th>
<th>Permanent adverse effect on Arundel</th>
<th>Permanent beneficial effect on Arundel</th>
<th>Permanent beneficial effect on Arundel</th>
<th>Permanent beneficial effect on Arundel</th>
<th>Permanent beneficial effect on Arundel</th>
</tr>
</thead>
</table>
### Special Quality Potential Impact

<table>
<thead>
<tr>
<th>Potential Impact</th>
<th>Results of post mitigation assessment for each Scheme option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1V5</td>
</tr>
<tr>
<td>Special Quality</td>
<td></td>
</tr>
<tr>
<td>Special Quality</td>
<td>Binsted and Walberton</td>
</tr>
</tbody>
</table>

Note for the assessment of SQ2: The + indicates the significance of effect category applied is a deviation from those described in Table 3 of IAN 130/10. To allow for differentiation of the effects per Scheme option professional judgement has been used where an effect is deemed to be of lower magnitude.

Note for the assessment of SQ3: ¹The noise impact assessment is based on the noise impact experienced by the majority of the SDNP within the Study Area. Limited areas would be subject to a minor, moderate and major adverse noise impact and minor, moderate and major beneficial noise impact.

Note for the assessment of SQ4: ²No known existing or planned diversified farm businesses within agricultural holding, however, development of the Proposed Scheme provides the potential for adverse effects on future diversification of farm businesses. Impacts and level of effect to be confirmed during PCF Stage 3.

Note for the assessment of SQ7: ³The change in accident numbers between Mill Road/Tye Lane and Crossbush junction between 2026 and 2041 over the 60 year appraisal period when compared to the do-minimum scenario.
Figures of Appendix 1-1
FIGURE 5-1: OPTION 1V5 - SHORT TERM NOISE IMPACT CONTOURS

SHORT TERM NOISE IMPACT

MAJOR BENEFICIAL
MODERATE BENEFICIAL
MINOR BENEFICIAL
NEGLECTIBLE / NO CHANGE
MINOR ADVERSE
MODERATE ADVERSE
MAJOR ADVERSE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

Decommissioning / Demolition

Construction

Use

Maintenance / Cleaning

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

Decommissioning / Demolition

Construction

Use

Maintenance / Cleaning

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

Decommissioning / Demolition

Construction

Use

Maintenance / Cleaning

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

Decommissioning / Demolition

Construction

Use

Maintenance / Cleaning

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

Decommissioning / Demolition

Construction

Use

Maintenance / Cleaning
FIGURE 5-2: OPTION 1V5 - LONG TERM NOISE IMPACT CONTOURS

LONG TERM NOISE IMPACT

- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

STUDY AREA
SOUTH DOWNS NATIONAL PARK BOUNDARY
NOISE IMPORTANT AREAS

REGIONAL INVESTMENT PROGRAMME
A27 ARUNDEL BYPASS

Decommission / Demolition
Use
Maintenance / Cleaning
Construction

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

HESS11252-WSP-GEN-396-EG-0312
FIGURE 5-3:
OPTION 1V9 - SHORT TERM NOISE IMPACT CONTOURS

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing note the following significant residual risks (Reference shall also be made to the design hazard log).

KEY:
OPTION 1V9
STUDY AREA
SOUTH DOWNS NATIONAL PARK BOUNDARY
NOISE IMPORTANT AREAS

SHORT TERM NOISE IMPACT
MAJOR BENEFICIAL
MODERATE BENEFICIAL
MINOR BENEFICIAL
NEGISIBLE / NO CHANGE
MINOR ADVERSE
MODERATE ADVERSE
MAJOR ADVERSE

Copyright © WSP Group (2019)
Client

FIGURE 5-3: OPTION 1V9 - SHORT TERM NOISE IMPACT CONTOURS

Copyright © WSP Group 2019

S0
REGIONAL INVESTMENT PROGRAMME
A27 ARUNDEL BYPASS

You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of the licensed data in any form.

Work on behalf of: highways england

WSP House
70 Chancery Lane
London WC2A 1AF
Tel: +44 (0)20 7314 5000
www.wsp.com
FIGURE 5-4: OPTION 1V9 - LONG TERM NOISE IMPACT CONTOURS

LONG TERM NOISE IMPACT
- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
In addition to the hazards/risks normally associated with the types of works detailed on this drawing note the following significant residual risks (Reference shall also be made to the design hazard log).

You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data in whole or in part, or any derivative work or substantial portion of it, to any third party.
FIGURE 5-5:
OPTION 3V1 - SHORT TERM NOISE IMPACT CONTOURS

KEY:
- OPTION 3V1
- STUDY AREA
- SOUTH DOWNS NATIONAL PARK BOUNDARY
- NOISE IMPORTANT AREAS

SHORT TERM NOISE IMPACT
- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

INFORMATION
- SAFETY, HEALTH AND ENVIRONMENTAL

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks.

You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of the data and no parties or any form.
FIGURE 5-6: OPTION 3V1 - LONG TERM NOISE IMPACT CONTOURS

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing note the following significant residual risks. Further information is available in the design hazard log.

OPTION 3V1
STUDY AREA
SOUTH DOWNS NATIONAL PARK BOUNDARY
NOISE IMPORTANT AREAS

KEY:
- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

© Crown copyright and database rights 2019 Ordnance Survey 100030649. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data or the hardcopy products of any form.
FIGURE 5-7: OPTION 4/5AV1 - SHORT TERM NOISE IMPACT CONTOURS

SHORT TERM NOISE IMPACT
- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

1:30,000

DO NOT SCALE

WSP House 70 Chancery Lane London WC2A 1AF Tel: +44 (0)20 7314 5000 www.wsp.com

KEY:
- OPTION 4/5AV1
- STUDY AREA
- SOUTH DOWNS NATIONAL PARK BOUNDARY
- NOISE IMPORTANT AREAS

COPYRIGHT © WSP GROUP (2019)

You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of the data or derived products in any form.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

Decommissioning / Demolition

Use

Maintenance / Cleaning

Construction

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).
FIGURE 5-8: OPTION 4/5AV1 - LONG TERM NOISE IMPACT CONTOURS

LONG TERM NOISE IMPACT

- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

DECOMMISSIONING / DEMOLITION

- Use
- Maintenance / Cleaning
- Construction

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).
FIGURE 5-10: OPTION 4/5AV2 - LONG TERM NOISE IMPACT CONTOURS

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks. Reference shall also be made to the design hazard log.

KEY:
- OPTION 4/5AV2
- STUDY AREA
- SOUTH DOWNS NATIONAL PARK BOUNDARY
- NOISE IMPORTANT AREAS

LONG TERM NOISE IMPACT

- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

NOTE: DO NOT SCALE

© Crown copyright and database rights 2019 Ordnance Survey 100030649. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of the data or end products or any form thereof without permission from the Crown copyright owner. If you require further information about the Crown copyright owner or if you wish to report a breach of copyright, please contact info@ordnancesurvey.gov.uk.

WSP House
70 Chancery Lane
London WC2A 1AF
Tel: +44 (0)20 7314 5000
www.wsp.com
FIGURE 5-11: OPTION 5BV1 - SHORT TERM NOISE IMPACT CONTOURS

SHORT TERM NOISE IMPACT

- Major Beneficial
- Moderate Beneficial
- Minor Beneficial
- Negligible / No Change
- Minor Adverse
- Moderate Adverse
- Major Adverse

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

© Crown copyright and database rights 2019 Ordnance Survey 100030649. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of the data or any part of it in any form.
FIGURE 5-12:
OPTION 5BV1 - LONG TERM NOISE IMPACT CONTOURS

LONG TERM NOISE IMPACT

- MAJOR BENEFICIAL
- MODERATE BENEFICIAL
- MINOR BENEFICIAL
- NEGLIGIBLE / NO CHANGE
- MINOR ADVERSE
- MODERATE ADVERSE
- MAJOR ADVERSE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

Decommission / Demolition
Use
Maintenance / Cleaning
Construction

In addition to the hazards/risks normally associated with the types of work
detailed on this drawing, note the following significant residual risks
(Reference shall also be made to the design hazard log).

Do not scale

WSP House
70 Chancery Lane
London
WC2A 1AF
Tel: +44 (0)20 7314 5000
www.wsp.com

You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.
FIGURE 6-1: FARM HOLDINGS

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (reference shall also be made to the design hazard log).

KEY:
- OPTION 1V5
- OPTION 1V9
- OPTION 3V1
- OPTION 4/5AV1
- OPTION 4/5AV2
- OPTION 5BV1
- SOUTH DOWNS NATIONAL PARK

FARM BOUNDARIES
- ARUNDEL ARBORETUM
- BROOM HURST FARM
- CHURCH FARM
- HOODE FARM
- LAND PARCELS OFF BINSTED LANE
- LITTLETON FARM
- MANOR FARM
- PARK FARM
- OPTION 1
- OPTION 3
- OPTION 4/5
- OPTION 5

SOUTH DOWNS NATIONAL PARK

ARUNDEL
Binsted
Tortington
Crossbush
Lyminster

DO NOT SCALE
FIGURE 8.1: NON-DESIGNATED HERITAGE ASSET LOCATION AND OLD BINSTED VILLAGE PARISH BOUNDARY

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

© Crown copyright and database rights 2019 Ordnance Survey 100030649. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.

KEY:
- 200M STUDY
- PARISH BOUNDARY OF BINSTED VILLAGE
- SOUTH DOWNS NATIONAL PARK
- NON-DESIGNATED HERITAGE ASSET
- OUTSIDE THE SOUTH DOWNS NATIONAL PARK
- ARCHAELOGICAL NOTIFICATION
- ARCHAELOGICAL NOTIFICATION AREA OUTSIDE THE SOUTH DOWNS NATIONAL PARK
- NON-DESIGNATED HERITAGE ASSET (AREA)
- NON-DESIGNATED HERITAGE ASSET (POINT)

WSP House
70 Chancery Lane
London
WC2A 1AF
Tel: +44 (0)20 7314 5000
www.wsp.com
Appendix A of Appendix 1-1: SDNPA A27 Position Statement
The approach set out below will be consistently applied by the Authority in the case of any future transport infrastructure projects – road, rail, airport or port related – which may come forward. In relation to roads in particular, Defra guidance in ‘English National Parks and the Broads - UK Government Vision and Circular 2010’, states:

‘there is a strong presumption against any significant road widening or the building of new roads through a (National) Park unless it can be shown there are compelling reasons for the new or enhanced capacity and with any benefits outweighing the costs significantly. Any investment in trunk roads should be directed to developing routes for long distance traffic which avoids the Parks’.

In responding to any general proposals or specific schemes for upgrading sections of the A27, the South Downs National Park Authority will frame its views according to the statutory Purposes of National Parks as laid down by Parliament:

Purpose 1 is to conserve and enhance the natural beauty, wildlife and cultural heritage of the NP

Purpose 2 is to promote opportunities for the understanding and enjoyment of its special qualities

In bringing forward schemes, and in the detailed design of any chosen options, the Highways Agency has a statutory duty under Section 62 (1) of the Environment Act (1995) “to have regard to the twin purposes of the National Park”. This Duty is important and also relates to all of the Special Qualities.

The use of the term impact in this document follows the approach set out in EU Environmental Impact Assessment (EIA) legislation, ie such impacts may be positive or negative, direct or secondary, and will be considered relative to the impacts of the current situation.

In considering any proposals the South Downs National Park Authority will be mindful that the current state of congestion on sections of the A27 creates secondary impacts on routes within the National Park and its communities – for example pollution from stationary queuing vehicles or diversion of traffic onto smaller roads within the boundary. Where feasible, the primary impacts of any new schemes must therefore be objectively assessed alongside the potential secondary impacts.

In assessing the specific impacts of any detailed options the South Downs National Park Authority will ask the Highways Agency to use the framework of the seven Special Qualities of the National Park (see Note). These are listed below, and a full description is in Annex A . Under each SQ are described the types of impacts which proposed schemes might have on it and which the South Downs National Park Authority would expect to see objectively assessed:

1) Diverse, inspirational landscapes and breath-taking views. (impacts to be assessed should include: effects on landscape character, experience of the landscape and long, uninterrupted views)

2) Tranquil and unspoilt places. (impacts to be assessed should include: noise, lighting, effects on dark night skies; reduction of disturbance from some existing roads)

3) A rich variety of wildlife and habitats including rare and internationally important species (impacts to be assessed should include; effects on internationally, nationally and locally designated and protected habitats and species, fragmentation and connectivity issues)

4) An environment shaped by centuries of farming and embracing new enterprise. (impacts to be assessed should include; effects on the farming economy and diversification and the ability of new enterprises to set up and develop sustainable businesses)

5) Great opportunities for recreational activities and learning experiences. (impacts to be assessed should include; effects on rights of way and other access routes, the effects on sustainable transport schemes, severance of the NP from coastal communities)
6) Well-conserved historical features and a rich cultural heritage. (impacts to be assessed should include; positive and negative effects on historic and protected monuments, historic villages and communities)

7) Distinctive towns and villages, and communities with real pride in their area. (impacts to be assessed should include; positive and negative effects on historic and protected monuments, historic villages and communities)

8. The Authority expects that any schemes which are ultimately proposed will:
   • Demonstrate that there is no alternative which would have avoided or had a lesser impact on the seven Special Qualities for which the National Park is nationally designated
   • Set out clearly, based on robust evidence, the nature and scale of these impacts
   • Demonstrate how these impacts would be mitigated or compensated for, bearing in mind that a National Park landscape is of national importance.

9. In considering the impacts of any such schemes, and any alternatives, the DfT travel hierarchy is also therefore vital in ensuring that all reasonable options have been fully considered alongside proposals for new infrastructure schemes, i.e. measures which:
   • Reduce the need to travel
   • Enable switching to more sustainable modes of transport
   • Improve management of existing networks

10. Clearly, a balance needs to be struck - nationally - between the need for accessibility and mobility and the need to safeguard the National Park landscapes and communities. This balance must be struck by Government based on robust evidence on both.

Annex A

All NPAs are required by Defra to set out and describe the Special Qualities (SQs) for which the particular NP landscape was designated and given national protected status. In the South Downs National Park these SQs were published in and formed the basis for the State of the National Park report 2012, informed the Partnership Management Plan 2014 and are informing the development of the Local Plan.
South Downs National Park

Special Qualities
Introduction

Within the diversity of the English countryside, the National Parks are recognised as landscapes of exceptional beauty, fashioned by nature and the communities which live in them. The National Parks and Access to the Countryside Act 1949 enabled the creation of the National Parks, and ensures that our most beautiful and unique landscapes have been, and will continue to be, protected in the future.

The purposes of National Parks are to conserve and enhance the natural beauty, wildlife and cultural heritage of the area and promote opportunities for the understanding and enjoyment of the special qualities of the National Park by the public. Working in partnership with other Local Authorities and organisations, National Park Authorities also have a duty to seek to foster the economic and social-well being of communities within the Park in carrying out the purposes.

The South Downs National Park is Britain’s newest National Park. Situated in the heavily populated south east it has strong social, historical and environmental links with the major towns and cities in its hinterland.

The South Downs National Park is a living, working and ever-changing landscape, shaped by its underlying geology and its human history. It has many special qualities which together define its sense of place and attract people to live and work in the area and visit the National Park. These special qualities need to be understood, appreciated, conserved and enhanced.

The special qualities reflect both the engagement with stakeholders of the National Park and technical evidence.
The geology of the South Downs underpins so much of what makes up the special qualities of the area: its diverse landscapes, land use, buildings and culture. The rock types of the National Park are predominately chalk and the alternating series of greensands and clays that form the Western Weald. Over time a diversity of landscapes has been created in a relatively small area which is a key feature of the National Park. These vary from the wooded and heathland ridges on the greensand in the Western Weald to wide open downland on the chalk that spans the length of the National Park, both intersected by river valleys. Within these diverse landscapes are hidden villages, thriving market towns, farms both large and small and historic estates, connected by a network of paths and lanes, many of which are ancient.

There are stunning, panoramic views to the sea and across the Weald as you travel the hundred mile length of the South Downs Way from Winchester to Eastbourne, culminating in the impressive chalk cliffs at Seven Sisters. From near and far, the South Downs is an area of inspirational beauty that can lift the soul.
The unique combination of geology and microclimates of the South Downs has created a rich mosaic of habitats that supports many rare and internationally important wildlife species. Sheep-grazed downland is the iconic habitat of the chalk landscape. Here you can find rare plants such as the round-headed rampion, orchids ranging from the burnt orchid and early spider orchid to autumn lady’s tresses, and butterflies including the Adonis blue and chalkhill blue.

The greensand of the Western Weald contains important lowland heathland habitats including the internationally designated Woolmer Forest, the only site in the British Isles where all our native reptile and amphibian species are found. There are large areas of ancient woodland, for example the yew woodlands of Kingley Vale and the magnificent ‘hanging’ woodlands of the Hampshire Hangers.

The extensive farmland habitats of the South Downs are important for many species of wildlife, including rare arable wildflowers and nationally declining farmland birds. Corn bunting, skylark, lapwing, yellowhammer and grey partridge are notable examples.

The river valleys intersecting the South Downs support wetland habitats and a wealth of birdlife, notably at Pulborough Brooks. Many fish, amphibians and invertebrates thrive in the clear chalk streams of the Meon and Itchen in Hampshire where elusive wild mammals such as otter and water vole may also be spotted. The extensive chalk sea cliffs and shoreline in the East host a wide range of coastal wildlife including breeding colonies of seabirds such as kittiwakes and fulmars.
The South Downs National Park is in South East England, one of the most crowded parts of the United Kingdom. Although its most popular locations are heavily visited, many people greatly value the sense of tranquillity and unspoilt places which give them a feeling of peace and space. In some areas the landscape seems to possess a timeless quality, largely lacking intrusive development and retaining areas of dark night skies. This is a place where people seek to escape from the hustle and bustle in this busy part of England, to relax, unwind and re-charge their batteries.
4. An environment shaped by centuries of farming and embracing new enterprise

The rural economy has strongly influenced the landscape and over 80 per cent of the South Downs is farmed. Past agricultural practices have produced some nationally valuable habitats including chalk downland and lowland heath, with traditional breeds specific to the area such as Southdown and Hampshire Down sheep significant in the past and still bred today. Many farmers and landowners are helping to conserve and enhance important habitats through environmental stewardship schemes. Large estates such as Goodwood, Cowdray, Petworth and Firle, with their designed parklands, have a significant effect on the landscape and the rural economy. The ownership of large areas of the eastern Downs by local authorities or the National Trust is a legacy of the early 20th century conservation movements to protect the iconic cliffs and Downs and the water supply to coastal towns.

Farming has always responded to the economy of the day and continues to do so. Some farmers are diversifying their businesses, for example by providing tourist accommodation and meeting the growing market for locally produced food and drink. Climate change and market forces continue to influence the landscape leading to new enterprises such as vineyards, and increasing opportunities for producing alternative energy, for example wood fuel.

However, the economy of the National Park is by no means restricted to farming. There are many popular tourist attractions and well-loved local pubs which give character to our towns and villages. The National Park is also home to a wide range of other businesses, for example new technology and science, which supports local employment.

Durleighmarsh Farm & Orchard, West Sussex

Harveys Brewery, Lewes, East Sussex

Sheep in the Meon Valley, Hampshire
The South Downs offers a wide range of recreational and learning opportunities to the large and diverse populations living both within and on the doorstep of the National Park, and to visitors from further afield.

With 3,200 kilometres (2,000 miles) of public rights of way and the entire South Downs Way National Trail within the National Park there is exceptional scope for walking, cycling and horse riding. Many other outdoor activities take place such as paragliding, orienteering and canoeing. There is a chance for everyone to walk, play, picnic and enjoy the countryside, including at Queen Elizabeth Country Park in Hampshire and Seven Sisters Country Park in East Sussex.

The variety of landscapes, wildlife and culture provides rich opportunities for learning about the South Downs as a special place, for the many school and college students and lifelong learners. Museums, churches, historic houses, outdoor education centres and wildlife reserves are places that provide both enjoyment and learning. There is a strong volunteering tradition providing chances for outdoor conservation work, acquiring rural skills, leading guided walks and carrying out survey work relating to wildlife species and rights of way.
6. Well-conserved historical features and a rich cultural heritage

The distinct character of many areas of the South Downs has been created by well-conserved historical features, some of which are rare and of national importance. Bronze Age barrows, Iron Age hill forts, Saxon and Norman churches, dew ponds, historic houses and landmarks of the two World Wars help to give the National Park strong links to its past human settlement. These links are reinforced by the variety of architectural building styles spanning the ages. Evidence of earlier farming traditions can still be seen today in the pattern of field boundaries, and relics of the industrial past remain in the form of old iron workings, brickworks, quarries and ancient coppiced woodlands.

The South Downs has a rich cultural heritage of art, music and rural traditions. There is a strong association with well-known writers, poets, musicians and artists who have captured the essence of this most English of landscapes and drawn inspiration from the sense of place: Virginia Woolf, Jane Austen, Hilaire Belloc, Edward Thomas, Gilbert White, Edward Elgar, Joseph Turner, Eric Gill and Eric Ravilious, among many others. Today traditions continue through activities such as folk singing and events like Findon sheep fair. Culture lives on with new art and expression, celebrating the strong traditions of the past.
7. Distinctive towns and villages, and communities with real pride in their area

The South Downs National Park is the most populated National Park in the United Kingdom, with around 110,000 people living within the boundary. Significantly more people live in the major urban areas and villages that surround the National Park including communities that are actively involved in the South Downs such as Brighton and Hove, and Eastbourne.

The South Downs is unique in having the largest market towns of any UK National Park - Lewes, Petersfield and Midhurst. The character and appearance of these and many other settlements throughout the National Park derives in large part from the distinctive local building materials. Picturesque villages like Selborne, Charlton and Alfriston blend into their landscapes.

Many of these settlements contain strong and vibrant communities with much invested in the future of where they live, and a sense of identity with their local area, its culture and history. Across the South Downs there are also communities of people who come together through common interests, for example, farming, conservation and recreation. These communities dedicate time and resources to enhancing community life, conserving what is important to them and planning for future generations.
Appendix B of Appendix 1-1: Special Quality 7 Additional Information
1 Driver Stress Calculations

1.1 Baseline driver stress through Storrington

1.1.1.1 Table 1-1 outline the predicted average morning and afternoon peak hour Driver Stress levels along the traffic modelling nodes from Arundel to Storrington for opening year (2026) and design year (2041) for each Scheme option.

1.1.1.2 Flow units for the Driver Stress (shown in columns 6 and 11) are calculated by using the following allocation for vehicle units:

- A car or light van is one flow unit
- A commercial vehicle over 1.5 tonnes or a public service vehicle is three flow units

1.1.1.3 Full numbers of vehicle units recorded are provided in columns 4 and 9 of the following tables, the proportion of these which are heavy duty vehicles (three flow units) are provided in columns 5 and 10.

1.1.1.4 Driver Stress rating are categorised following the guidance set out in the Design Manual for Road and Bridges (DMRB) Volume 11, Section 3, Part 9 (Vehicle Travellers) Table 2 and Table 3.

\[\text{\textsuperscript{1}}\text{ Highways Agency, Vehicle Travellers, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 9 (June 1993)}\]
## Table 1-1 – Baseline year (2015) average peak hourly flows and driver stress rating

<table>
<thead>
<tr>
<th>Node</th>
<th>Lanes</th>
<th>Road name</th>
<th>AM peak period flows (veh)</th>
<th>AM HDV No. (veh)</th>
<th>AM Driver Stress units</th>
<th>AM average speed kph</th>
<th>Driver Stress Rating</th>
<th>PM peak period flows (veh)</th>
<th>PM HDV No. (veh)</th>
<th>PM Driver Stress units</th>
<th>PM average speed kph</th>
<th>Driver Stress Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>7572-2416</td>
<td>1</td>
<td>A284 Arundel Bypass (bothways)</td>
<td>1435</td>
<td>33</td>
<td>1500</td>
<td>89</td>
<td>High</td>
<td>1641</td>
<td>21</td>
<td>1684</td>
<td>88</td>
<td>High</td>
</tr>
<tr>
<td>2594-2592</td>
<td>2</td>
<td>Whiteways Lodge Roundabout</td>
<td>2277</td>
<td>165</td>
<td>2606</td>
<td>28</td>
<td>High</td>
<td>3888</td>
<td>124</td>
<td>4135</td>
<td>22</td>
<td>High</td>
</tr>
<tr>
<td>2596-2594</td>
<td>2</td>
<td>Whiteways Lodge Roundabout</td>
<td>2426</td>
<td>175</td>
<td>2776</td>
<td>33</td>
<td>High</td>
<td>3319</td>
<td>124</td>
<td>3567</td>
<td>32</td>
<td>High</td>
</tr>
<tr>
<td>7572-2594</td>
<td>2</td>
<td>A284 London Road (northbound)</td>
<td>800</td>
<td>9</td>
<td>819</td>
<td>85</td>
<td>Low</td>
<td>1153</td>
<td>7</td>
<td>1167</td>
<td>82</td>
<td>Low</td>
</tr>
<tr>
<td>2598-2596</td>
<td>2</td>
<td>Whiteways Lodge Roundabout</td>
<td>2420</td>
<td>135</td>
<td>2691</td>
<td>31</td>
<td>High</td>
<td>3298</td>
<td>120</td>
<td>3539</td>
<td>30</td>
<td>High</td>
</tr>
<tr>
<td>7570-2596</td>
<td>2</td>
<td>B2139 (southbound)</td>
<td>1152</td>
<td>76</td>
<td>1305</td>
<td>74</td>
<td>Moderate</td>
<td>1203</td>
<td>45</td>
<td>1293</td>
<td>71</td>
<td>Moderate</td>
</tr>
<tr>
<td>2592-2598</td>
<td>2</td>
<td>Whiteways Lodge Roundabout</td>
<td>2899</td>
<td>172</td>
<td>3244</td>
<td>34</td>
<td>High</td>
<td>2923</td>
<td>87</td>
<td>3097</td>
<td>35</td>
<td>High</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
<td>Driver Stress Rating</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>--------------------------------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>------------------------</td>
<td>------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>2616-2610</td>
<td>1</td>
<td>B2139 (westbound)</td>
<td>1152</td>
<td>76</td>
<td>1305</td>
<td>49</td>
<td>High</td>
<td>1203</td>
<td>45</td>
<td>1293</td>
<td>49</td>
<td>High</td>
</tr>
<tr>
<td>7570-2610</td>
<td>1</td>
<td>B2139 (eastbound)</td>
<td>1146</td>
<td>36</td>
<td>1219</td>
<td>86</td>
<td>High</td>
<td>1182</td>
<td>41</td>
<td>1265</td>
<td>86</td>
<td>High</td>
</tr>
<tr>
<td>2634-2616</td>
<td>1</td>
<td>B2139 (westbound)</td>
<td>1152</td>
<td>76</td>
<td>1305</td>
<td>96</td>
<td>High</td>
<td>1203</td>
<td>45</td>
<td>1293</td>
<td>96</td>
<td>High</td>
</tr>
<tr>
<td>2610-2616</td>
<td>1</td>
<td>B2139 (eastbound)</td>
<td>1146</td>
<td>36</td>
<td>1219</td>
<td>49</td>
<td>High</td>
<td>1182</td>
<td>41</td>
<td>1265</td>
<td>49</td>
<td>High</td>
</tr>
<tr>
<td>7576-2634</td>
<td>1</td>
<td>B2139 New Barn Road (westbound)</td>
<td>1152</td>
<td>76</td>
<td>1305</td>
<td>67</td>
<td>High</td>
<td>1203</td>
<td>45</td>
<td>1293</td>
<td>67</td>
<td>High</td>
</tr>
<tr>
<td>2616-2634</td>
<td>1</td>
<td>B2139 (eastbound)</td>
<td>1146</td>
<td>36</td>
<td>1219</td>
<td>96</td>
<td>High</td>
<td>1182</td>
<td>41</td>
<td>1265</td>
<td>96</td>
<td>High</td>
</tr>
<tr>
<td>2700-2576</td>
<td>1</td>
<td>School Road (southbound)</td>
<td>288</td>
<td>4</td>
<td>296</td>
<td>35</td>
<td>High</td>
<td>294</td>
<td>3</td>
<td>299</td>
<td>35</td>
<td>High</td>
</tr>
<tr>
<td>2690-2576</td>
<td>1</td>
<td>B2139 Turnpike (westbound)</td>
<td>865</td>
<td>72</td>
<td>1009</td>
<td>62</td>
<td>High</td>
<td>909</td>
<td>43</td>
<td>994</td>
<td>62</td>
<td>High</td>
</tr>
<tr>
<td>7576-2676</td>
<td>1</td>
<td>New Barn Road (eastbound)</td>
<td>1146</td>
<td>36</td>
<td>1219</td>
<td>64</td>
<td>High</td>
<td>1182</td>
<td>41</td>
<td>1265</td>
<td>64</td>
<td>High</td>
</tr>
<tr>
<td>6036-2690</td>
<td>1</td>
<td>B2139 (eastbound)</td>
<td>865</td>
<td>72</td>
<td>1009</td>
<td>61</td>
<td>High</td>
<td>909</td>
<td>43</td>
<td>994</td>
<td>61</td>
<td>High</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
<td>Driver Stress Rating</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>----------------------------------</td>
<td>----------------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>------------------------</td>
<td>------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2676-2690</td>
<td>1</td>
<td>B2139 Turnpike Road (eastbound)</td>
<td>935</td>
<td>34</td>
<td>1003</td>
<td>67</td>
<td>High</td>
<td>990</td>
<td>35</td>
<td>1059</td>
<td>67</td>
<td>High</td>
</tr>
<tr>
<td>2732-2700</td>
<td>1</td>
<td>Crossgates (westbound)</td>
<td>288</td>
<td>4</td>
<td>296</td>
<td>49</td>
<td>High</td>
<td>294</td>
<td>3</td>
<td>299</td>
<td>49</td>
<td>High</td>
</tr>
<tr>
<td>2676-2700</td>
<td>1</td>
<td>School road (northbound)</td>
<td>212</td>
<td>2</td>
<td>217</td>
<td>49</td>
<td>High</td>
<td>192</td>
<td>7</td>
<td>206</td>
<td>49</td>
<td>High</td>
</tr>
<tr>
<td>7938-2732</td>
<td>2</td>
<td>Crossgate (southbound)</td>
<td>288</td>
<td>4</td>
<td>296</td>
<td>57</td>
<td>High</td>
<td>294</td>
<td>3</td>
<td>299</td>
<td>57</td>
<td>High</td>
</tr>
<tr>
<td>2700-2732</td>
<td>2</td>
<td>Crossgate (westbound)</td>
<td>212</td>
<td>2</td>
<td>217</td>
<td>49</td>
<td>High</td>
<td>192</td>
<td>7</td>
<td>206</td>
<td>49</td>
<td>High</td>
</tr>
<tr>
<td>7346-2740</td>
<td>2</td>
<td>A283 Washington Road (westbound)</td>
<td>1663</td>
<td>62</td>
<td>1787</td>
<td>61</td>
<td>High</td>
<td>1292</td>
<td>20</td>
<td>1332</td>
<td>61</td>
<td>Moderate</td>
</tr>
<tr>
<td>2748-2740</td>
<td>1</td>
<td>A283 Washington Road (eastbound)</td>
<td>1399</td>
<td>38</td>
<td>1476</td>
<td>64</td>
<td>High</td>
<td>1688</td>
<td>38</td>
<td>1765</td>
<td>64</td>
<td>High</td>
</tr>
<tr>
<td>2792-2740</td>
<td>2</td>
<td>Water Lane (southbound)</td>
<td>138</td>
<td>5</td>
<td>148</td>
<td>74</td>
<td>Moderate</td>
<td>313</td>
<td>11</td>
<td>335</td>
<td>72</td>
<td>Moderate</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
<td>Driver Stress Rating</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
<td>--------------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>2816-2744</td>
<td>1</td>
<td>Rock Road (eastbound)</td>
<td>27</td>
<td>0</td>
<td>27</td>
<td>67</td>
<td>Moderate</td>
<td>29</td>
<td>0</td>
<td>29</td>
<td>73</td>
<td>Low</td>
</tr>
<tr>
<td>2754-2748</td>
<td>1</td>
<td>A283 Washington Road (eastbound)</td>
<td>1162</td>
<td>36</td>
<td>1235</td>
<td>46</td>
<td>High</td>
<td>1507</td>
<td>37</td>
<td>1582</td>
<td>46</td>
<td>High</td>
</tr>
<tr>
<td>2740-2748</td>
<td>1</td>
<td>A283 Washington Road (westbound)</td>
<td>1671</td>
<td>62</td>
<td>1796</td>
<td>64</td>
<td>High</td>
<td>1310</td>
<td>21</td>
<td>1352</td>
<td>64</td>
<td>High</td>
</tr>
<tr>
<td>10270-2748</td>
<td>1</td>
<td>Washington Road (northbound)</td>
<td>261</td>
<td>3</td>
<td>268</td>
<td>19</td>
<td>High</td>
<td>206</td>
<td>2</td>
<td>211</td>
<td>20</td>
<td>High</td>
</tr>
<tr>
<td>7578-2750</td>
<td>1</td>
<td>B2139 Amberley Road (westbound)</td>
<td>865</td>
<td>72</td>
<td>1009</td>
<td>97</td>
<td>High</td>
<td>908</td>
<td>43</td>
<td>994</td>
<td>97</td>
<td>High</td>
</tr>
<tr>
<td>6036-2750</td>
<td>1</td>
<td>B2139 Amberley Road (northbound)</td>
<td>935</td>
<td>34</td>
<td>1003</td>
<td>97</td>
<td>High</td>
<td>990</td>
<td>35</td>
<td>1059</td>
<td>97</td>
<td>High</td>
</tr>
<tr>
<td>2764-2754</td>
<td>1</td>
<td>A283 Washington</td>
<td>1162</td>
<td>36</td>
<td>1235</td>
<td>49</td>
<td>High</td>
<td>1507</td>
<td>37</td>
<td>1582</td>
<td>49</td>
<td>High</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
<td>Driver Stress Rating</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
<td>--------------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2748-2754</td>
<td>1</td>
<td>A283 Washington Road (eastbound)</td>
<td>1519</td>
<td>57</td>
<td>1633</td>
<td>49</td>
<td>High</td>
<td>1040</td>
<td>20</td>
<td>1080</td>
<td>49</td>
<td>High</td>
</tr>
<tr>
<td>2766-2762</td>
<td>1</td>
<td>A283 West Street (eastbound)</td>
<td>1503</td>
<td>58</td>
<td>1618</td>
<td>47</td>
<td>High</td>
<td>1833</td>
<td>56</td>
<td>1945</td>
<td>47</td>
<td>High</td>
</tr>
<tr>
<td>2782-2762</td>
<td>1</td>
<td>Old Mill Drive (southbound)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>37</td>
<td>N/a</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>36</td>
<td>N/a</td>
</tr>
<tr>
<td>2764-2762</td>
<td>1</td>
<td>A283 High Street (westbound)</td>
<td>1656</td>
<td>105</td>
<td>1867</td>
<td>37</td>
<td>High</td>
<td>1502</td>
<td>57</td>
<td>1615</td>
<td>37</td>
<td>High</td>
</tr>
<tr>
<td>2770-2764</td>
<td>1</td>
<td>B2139 School Hill (southbound)</td>
<td>136</td>
<td>49</td>
<td>234</td>
<td>39</td>
<td>High</td>
<td>462</td>
<td>37</td>
<td>536</td>
<td>38</td>
<td>High</td>
</tr>
<tr>
<td>2754-2764</td>
<td>1</td>
<td>A283 Washington Road (eastbound)</td>
<td>1519</td>
<td>57</td>
<td>1633</td>
<td>38</td>
<td>High</td>
<td>1040</td>
<td>20</td>
<td>1080</td>
<td>39</td>
<td>High</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
<td>Driver Stress Rating</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>-------------------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>2762-2764</td>
<td>1</td>
<td>A283 High Street (eastbound)</td>
<td>1503</td>
<td>58</td>
<td>1618</td>
<td>19</td>
<td>High</td>
<td>1833</td>
<td>56</td>
<td>1945</td>
<td>18</td>
<td>High</td>
</tr>
<tr>
<td>2772-2766</td>
<td>1</td>
<td>A283 Pullborough Road (westbound)</td>
<td>578</td>
<td>24</td>
<td>626</td>
<td>46</td>
<td>High</td>
<td>861</td>
<td>22</td>
<td>904</td>
<td>46</td>
<td>High</td>
</tr>
<tr>
<td>2762-2766</td>
<td>1</td>
<td>A283 (eastbound)</td>
<td>1656</td>
<td>105</td>
<td>1867</td>
<td>41</td>
<td>High</td>
<td>1502</td>
<td>57</td>
<td>1615</td>
<td>41</td>
<td>High</td>
</tr>
<tr>
<td>7578-2766</td>
<td>1</td>
<td>B2139 Amberley Road (northbound)</td>
<td>935</td>
<td>34</td>
<td>1003</td>
<td>40</td>
<td>High</td>
<td>990</td>
<td>35</td>
<td>1059</td>
<td>41</td>
<td>High</td>
</tr>
<tr>
<td>2782-2770</td>
<td>1</td>
<td>Fryern Road (southbound)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>35</td>
<td>N/a</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>34</td>
<td>N/a</td>
</tr>
<tr>
<td>7580-2770</td>
<td>1</td>
<td>B2139 Thakeham Road (southbound)</td>
<td>136</td>
<td>49</td>
<td>234</td>
<td>47</td>
<td>High</td>
<td>462</td>
<td>37</td>
<td>536</td>
<td>47</td>
<td>High</td>
</tr>
<tr>
<td>2764-2770</td>
<td>1</td>
<td>B2139 School Hill (northbound)</td>
<td>340</td>
<td>22</td>
<td>383</td>
<td>47</td>
<td>High</td>
<td>326</td>
<td>19</td>
<td>363</td>
<td>47</td>
<td>High</td>
</tr>
<tr>
<td>2862-2772</td>
<td>1</td>
<td>A283 (southbound)</td>
<td>578</td>
<td>24</td>
<td>626</td>
<td>63</td>
<td>Moderate</td>
<td>861</td>
<td>22</td>
<td>904</td>
<td>62</td>
<td>High</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
<td>Driver Stress Rating</td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td>------------------------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2766-</td>
<td>1</td>
<td>A283 Pullborough Road (eastbound)</td>
<td>801</td>
<td>34</td>
<td>869</td>
<td>48</td>
<td>High</td>
<td>611</td>
<td>14</td>
<td>640</td>
<td>48</td>
<td>High</td>
</tr>
<tr>
<td>2772</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6036-</td>
<td>1</td>
<td>Clay Lane (northbound)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>68</td>
<td>N/a</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>68</td>
<td>N/a</td>
</tr>
<tr>
<td>2772</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2770-</td>
<td>1</td>
<td>Fryern Road (northbound)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>49</td>
<td>N/a</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>49</td>
<td>N/a</td>
</tr>
<tr>
<td>2782</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2762-</td>
<td>1</td>
<td>Old Mill Drive (southbound)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>49</td>
<td>N/a</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>49</td>
<td>N/a</td>
</tr>
<tr>
<td>2782</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2804-</td>
<td>1</td>
<td>B2139 Thakeham Road (southbound)</td>
<td>274</td>
<td>54</td>
<td>382</td>
<td>38</td>
<td>High</td>
<td>775</td>
<td>48</td>
<td>871</td>
<td>37</td>
<td>High</td>
</tr>
<tr>
<td>2792</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2740-</td>
<td>1</td>
<td>Nightingale Lane (southbound)</td>
<td>46</td>
<td>1</td>
<td>49</td>
<td>78</td>
<td>Low</td>
<td>43</td>
<td>1</td>
<td>44</td>
<td>78</td>
<td>Low</td>
</tr>
<tr>
<td>2792</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7580-</td>
<td>1</td>
<td>B2139 School Hill (eastbound)</td>
<td>340</td>
<td>22</td>
<td>383</td>
<td>43</td>
<td>High</td>
<td>326</td>
<td>19</td>
<td>363</td>
<td>43</td>
<td>High</td>
</tr>
<tr>
<td>2792</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2824-</td>
<td>1</td>
<td>B2139 Storrinton</td>
<td>174</td>
<td>54</td>
<td>282</td>
<td>38</td>
<td>High</td>
<td>734</td>
<td>48</td>
<td>829</td>
<td>38</td>
<td>High</td>
</tr>
<tr>
<td>2804</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Node Lanes Road name AM peak period flows (veh) AM HDV No. (veh) AM Driver Stress units AM average speed kph PM peak period flows (veh) PM HDV No. (veh) PM Driver Stress units PM average speed kph Driver Stress Rating

<table>
<thead>
<tr>
<th>Node</th>
<th>Lanes</th>
<th>Road name</th>
<th>AM peak period flows (veh)</th>
<th>AM HDV No. (veh)</th>
<th>AM Driver Stress units</th>
<th>AM average speed kph</th>
<th>PM peak period flows (veh)</th>
<th>PM HDV No. (veh)</th>
<th>PM Driver Stress units</th>
<th>PM average speed kph</th>
<th>Driver Stress Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>2808-2804</td>
<td>1</td>
<td>Roack Road (southbound)</td>
<td>157</td>
<td>2</td>
<td>161</td>
<td>37</td>
<td>High</td>
<td>120</td>
<td>2</td>
<td>123</td>
<td>36</td>
</tr>
<tr>
<td>2792-2804</td>
<td>1</td>
<td>B2139 Thakeham Road (eastbound)</td>
<td>386</td>
<td>23</td>
<td>432</td>
<td>38</td>
<td>High</td>
<td>368</td>
<td>20</td>
<td>407</td>
<td>38</td>
</tr>
<tr>
<td>2816-2808</td>
<td>1</td>
<td>Rock Road (southbound)</td>
<td>93</td>
<td>1</td>
<td>95</td>
<td>78</td>
<td>Low</td>
<td>123</td>
<td>0</td>
<td>123</td>
<td>78</td>
</tr>
<tr>
<td>4170-2808</td>
<td>1</td>
<td>Hillside Walk (northbound)</td>
<td>183</td>
<td>2</td>
<td>188</td>
<td>25</td>
<td>High</td>
<td>149</td>
<td>2</td>
<td>152</td>
<td>25</td>
</tr>
<tr>
<td>2804-2808</td>
<td>1</td>
<td>Rock Road (eastbound)</td>
<td>26</td>
<td>1</td>
<td>29</td>
<td>35</td>
<td>High</td>
<td>58</td>
<td>1</td>
<td>61</td>
<td>35</td>
</tr>
<tr>
<td>2852-2816</td>
<td>1</td>
<td>Merrywood Lane (eastbound)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>76</td>
<td>N/a</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>76</td>
</tr>
<tr>
<td>2744-2816</td>
<td>1</td>
<td>Rock Road (westbound)</td>
<td>769</td>
<td>75</td>
<td>920</td>
<td>72</td>
<td>High</td>
<td>745</td>
<td>41</td>
<td>827</td>
<td>73</td>
</tr>
<tr>
<td>2808-2816</td>
<td>1</td>
<td>Rock Road (eastbound)</td>
<td>27</td>
<td>0</td>
<td>27</td>
<td>78</td>
<td>Low</td>
<td>29</td>
<td>0</td>
<td>29</td>
<td>78</td>
</tr>
<tr>
<td>2852-2824</td>
<td>1</td>
<td>B2139 (southbound)</td>
<td>174</td>
<td>54</td>
<td>282</td>
<td>87</td>
<td>Low</td>
<td>734</td>
<td>48</td>
<td>829</td>
<td>85</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
<td>--------------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2804-2824</td>
<td>1</td>
<td>B2139 (northbound)</td>
<td>416</td>
<td>24</td>
<td>464</td>
<td>49</td>
<td>High</td>
<td>389</td>
<td>20</td>
<td>428</td>
<td>49</td>
</tr>
<tr>
<td>2816-2852</td>
<td>1</td>
<td>Merrywood Lane (eastbound)</td>
<td>677</td>
<td>74</td>
<td>825</td>
<td>71</td>
<td>High</td>
<td>622</td>
<td>40</td>
<td>703</td>
<td>70</td>
</tr>
<tr>
<td>2824-2852</td>
<td>1</td>
<td>B2139 (northbound)</td>
<td>416</td>
<td>24</td>
<td>464</td>
<td>81</td>
<td>Low</td>
<td>389</td>
<td>20</td>
<td>428</td>
<td>81</td>
</tr>
<tr>
<td>12233-2852</td>
<td>1</td>
<td>B2139 Storrinton Road (southbound)</td>
<td>174</td>
<td>54</td>
<td>282</td>
<td>67</td>
<td>Moderate</td>
<td>734</td>
<td>48</td>
<td>829</td>
<td>67</td>
</tr>
<tr>
<td>2772-2862</td>
<td>1</td>
<td>A283 (northbound)</td>
<td>801</td>
<td>34</td>
<td>869</td>
<td>63</td>
<td>High</td>
<td>611</td>
<td>14</td>
<td>640</td>
<td>63</td>
</tr>
<tr>
<td>2808-4170</td>
<td>1</td>
<td>Hillside Walk (southbound)</td>
<td>119</td>
<td>2</td>
<td>124</td>
<td>34</td>
<td>High</td>
<td>181</td>
<td>1</td>
<td>184</td>
<td>34</td>
</tr>
<tr>
<td>2772-6036</td>
<td>1</td>
<td>New Town Road (southbound)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>67</td>
<td>N/a</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>66</td>
</tr>
<tr>
<td>2750-6036</td>
<td>1</td>
<td>B2139 Amberley Road (southbound)</td>
<td>865</td>
<td>72</td>
<td>1009</td>
<td>94</td>
<td>High</td>
<td>908</td>
<td>43</td>
<td>994</td>
<td>94</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>AM average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>----------------------------</td>
<td>----------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>---------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2690-6036</td>
<td>1</td>
<td>B2139 Amberley Road (eastbound)</td>
<td>935</td>
<td>34</td>
<td>1003</td>
<td>61</td>
<td>High</td>
<td>990</td>
<td>35</td>
<td>1059</td>
<td>61</td>
</tr>
<tr>
<td>2740-7346</td>
<td>1</td>
<td>A283 (eastbound)</td>
<td>1482</td>
<td>42</td>
<td>1566</td>
<td>61</td>
<td>High</td>
<td>1940</td>
<td>48</td>
<td>2036</td>
<td>61</td>
</tr>
<tr>
<td>2610-7570</td>
<td>1</td>
<td>B2139 (southbound)</td>
<td>1152</td>
<td>76</td>
<td>1305</td>
<td>87</td>
<td>High</td>
<td>1203</td>
<td>45</td>
<td>1293</td>
<td>87</td>
</tr>
<tr>
<td>2596-7570</td>
<td>1</td>
<td>B2139 (northbound)</td>
<td>1146</td>
<td>36</td>
<td>1219</td>
<td>87</td>
<td>High</td>
<td>1182</td>
<td>41</td>
<td>1265</td>
<td>87</td>
</tr>
<tr>
<td>2594-7572</td>
<td>1</td>
<td>A284 (southbound)</td>
<td>950</td>
<td>19</td>
<td>988</td>
<td>89</td>
<td>High</td>
<td>584</td>
<td>7</td>
<td>599</td>
<td>90</td>
</tr>
<tr>
<td>9555-7572</td>
<td>1</td>
<td>Maltravers Street (southbound)</td>
<td>534</td>
<td>14</td>
<td>562</td>
<td>24</td>
<td>High</td>
<td>882</td>
<td>10</td>
<td>903</td>
<td>22</td>
</tr>
<tr>
<td>2416-7572</td>
<td>1</td>
<td>A284 (northbound)</td>
<td>1305</td>
<td>13</td>
<td>1331</td>
<td>84</td>
<td>High</td>
<td>1389</td>
<td>11</td>
<td>1411</td>
<td>86</td>
</tr>
<tr>
<td>9524-7572</td>
<td>1</td>
<td>Shayna Rose Way (southbound)</td>
<td>190</td>
<td>5</td>
<td>199</td>
<td>21</td>
<td>High</td>
<td>390</td>
<td>4</td>
<td>398</td>
<td>20</td>
</tr>
<tr>
<td>2634-7576</td>
<td>1</td>
<td>New Barn Road (northbound)</td>
<td>1146</td>
<td>36</td>
<td>1219</td>
<td>67</td>
<td>High</td>
<td>1182</td>
<td>41</td>
<td>1265</td>
<td>67</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>Am average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>-------------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>--------------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>2676-7576</td>
<td>1</td>
<td>New Barn Road (southbound)</td>
<td>1152</td>
<td>76</td>
<td>1305</td>
<td>67</td>
<td>High</td>
<td>1203</td>
<td>45</td>
<td>1293</td>
<td>67</td>
</tr>
<tr>
<td>2750-7578</td>
<td>1</td>
<td>B2139 Amberley Road (eastbound)</td>
<td>935</td>
<td>34</td>
<td>1003</td>
<td>97</td>
<td>High</td>
<td>990</td>
<td>35</td>
<td>1059</td>
<td>97</td>
</tr>
<tr>
<td>2766-7578</td>
<td>1</td>
<td>B2139 Amberley Road (southbound)</td>
<td>865</td>
<td>72</td>
<td>1009</td>
<td>49</td>
<td>High</td>
<td>908</td>
<td>43</td>
<td>994</td>
<td>49</td>
</tr>
<tr>
<td>2792-7580</td>
<td>1</td>
<td>B2139 Thakeham Road (southbound)</td>
<td>136</td>
<td>49</td>
<td>234</td>
<td>49</td>
<td>High</td>
<td>462</td>
<td>37</td>
<td>536</td>
<td>49</td>
</tr>
<tr>
<td>2770-7580</td>
<td>1</td>
<td>B2139 Thakeham Road (northbound)</td>
<td>340</td>
<td>22</td>
<td>383</td>
<td>49</td>
<td>High</td>
<td>326</td>
<td>19</td>
<td>363</td>
<td>49</td>
</tr>
<tr>
<td>2732-7938</td>
<td>1</td>
<td>Crossgates (northbound)</td>
<td>212</td>
<td>2</td>
<td>217</td>
<td>57</td>
<td>Moderate</td>
<td>192</td>
<td>7</td>
<td>206</td>
<td>57</td>
</tr>
<tr>
<td>7572-9524</td>
<td>1</td>
<td>Shayna Rose Way (northbound)</td>
<td>180</td>
<td>2</td>
<td>185</td>
<td>49</td>
<td>High</td>
<td>134</td>
<td>1</td>
<td>137</td>
<td>49</td>
</tr>
<tr>
<td>Node</td>
<td>Lanes</td>
<td>Road name</td>
<td>AM peak period flows (veh)</td>
<td>AM HDV No. (veh)</td>
<td>AM Driver Stress units</td>
<td>AM average speed kph</td>
<td>Driver Stress rating</td>
<td>PM peak period flows (veh)</td>
<td>PM HDV No. (veh)</td>
<td>PM Driver Stress units</td>
<td>PM average speed kph</td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>----------------------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>7572-9555</td>
<td>1</td>
<td>Maltravers Street</td>
<td>564</td>
<td>6</td>
<td>576</td>
<td>49</td>
<td>High</td>
<td>316</td>
<td>3</td>
<td>323</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(northbound)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2748-10270</td>
<td>1</td>
<td>Washington Road</td>
<td>176</td>
<td>7</td>
<td>189</td>
<td>34</td>
<td>High</td>
<td>296</td>
<td>2</td>
<td>300</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(southbound)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2852-12233</td>
<td>1</td>
<td>B2139 Storrington</td>
<td>1093</td>
<td>98</td>
<td>1289</td>
<td>75</td>
<td>High</td>
<td>1011</td>
<td>60</td>
<td>1131</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Road (northbound)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1.2 Predicted driver stress through Storrington

1.2.1.1 The following tables (Table 1-2, Table 1-3, Table 1-4 and Table 1-5) outline the predicted driver stress levels through Storrington for opening year (2026) and design year (2041).

Table 1-2 – Morning peak hour driver stress levels through Storrington for opening year for all options

<table>
<thead>
<tr>
<th>AM 2026 Road name</th>
<th>DM</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A284 Arundel Bypass and A284 London Road</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whiteways Lodge Roundabout</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
</tr>
<tr>
<td>B2139 (traffic through Houghton)</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
</tr>
<tr>
<td>B2139 New Barn Road, B2139 Turnpike Road, School Road and Crossgates (traffic through Amberley)</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
</tr>
<tr>
<td>B2139 Amberley Road, A283 High Street, A283 Washington Road, B2139 School Hill, B2139 Thakeham Road, Nightingale Lane and A283 Storrington Road (traffic through Storrington)</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
</tr>
</tbody>
</table>
### Table 1-3 – Afternoon peak hour driver stress levels through Storrington for opening year for all options

<table>
<thead>
<tr>
<th>PM 2026 Road name</th>
<th>DM</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A284 Arundel Bypass and A284 London Road</td>
<td>3 High 1 Moderate</td>
<td>4 High</td>
<td>3 High 1 Low</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
</tr>
<tr>
<td>Whiteways Lodge Roundabout</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
</tr>
<tr>
<td>B2139 (traffic through Houghton)</td>
<td>10 High 1 Moderate 1 Low</td>
<td>8 High 3 Moderate 1 Low</td>
<td>9 High 2 Moderate 1 Low</td>
<td>8 High 3 Moderate 1 Low</td>
<td>8 High 3 Moderate 1 Low</td>
<td>8 High 3 Moderate 1 Low</td>
<td>8 High 3 Moderate 1 Low</td>
</tr>
<tr>
<td>B2139 New Barn Road, B2139 Turnpike Road, School Road and Crossgates (traffic through Amberley)</td>
<td>11 High 1 Moderate</td>
<td>8 High 4 Moderate</td>
<td>8 High 4 Moderate</td>
<td>8 High 4 Moderate</td>
<td>8 High 4 Moderate</td>
<td>8 High 4 Moderate</td>
<td>8 High 4 Moderate</td>
</tr>
<tr>
<td>B2139 Amberley Road, A283 High Street, A283 Washington Road, B2139 School Hill, B2139 Thakeham Road, Nightingale Lane and A283 Storrington Road (traffic through Storrington)</td>
<td>28 High 1 Moderate 1 Low</td>
<td>25 High 2 Moderate 3 Low</td>
<td>25 High 2 Moderate 3 Low</td>
<td>25 High 2 Moderate 3 Low</td>
<td>25 High 2 Moderate 3 Low</td>
<td>25 High 2 Moderate 3 Low</td>
<td>25 High 2 Moderate 3 Low</td>
</tr>
</tbody>
</table>
### Table 1-4 – Morning peak hour driver stress levels through Storrington for design year for all options

<table>
<thead>
<tr>
<th>AM 2041 Road name</th>
<th>DM</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A284 Arundel Bypass and A284 London Road</td>
<td>3 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>3 High</td>
<td>4 High</td>
<td>3 High</td>
</tr>
<tr>
<td></td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
</tr>
<tr>
<td>Whiteways Lodge Roundabout</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
</tr>
<tr>
<td>B2139 (traffic through Houghton)</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
<td>9 High</td>
</tr>
<tr>
<td></td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
</tr>
<tr>
<td></td>
<td>2 Low</td>
<td>2 Low</td>
<td>2 Low</td>
<td>2 Low</td>
<td>2 Low</td>
<td>2 Low</td>
<td>2 Low</td>
</tr>
<tr>
<td>B2139 New Barn Road, B2139 Turnpike Road, School Road and Crossgates (traffic through Amberley)</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
<td>11 High</td>
</tr>
<tr>
<td></td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
</tr>
<tr>
<td>B2139 Amberley Road, A283 High Street, A283 Washington Road, B2139 School Hill, B2139 Thakeham Road, Nightingale Lane and A283 Storrington Road (traffic through Storrington)</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
<td>28 High</td>
</tr>
<tr>
<td></td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
<td>1 Moderate</td>
</tr>
<tr>
<td></td>
<td>1 Low</td>
<td>1 Low</td>
<td>1 Low</td>
<td>1 Low</td>
<td>1 Low</td>
<td>1 Low</td>
<td>1 Low</td>
</tr>
</tbody>
</table>
## Table 1-5 – Afternoon peak hour driver stress levels through Storrington for design year for all options

<table>
<thead>
<tr>
<th>PM 2041 Road name</th>
<th>DM</th>
<th>Option 1V5</th>
<th>Option 1V9</th>
<th>Option 3V1</th>
<th>Option 4/5AV1</th>
<th>Option 4/5AV2</th>
<th>Option 5BV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A284 Arundel Bypass and A284 London Road</td>
<td>4 High</td>
<td>4 High</td>
<td>3 High 1 Moderate</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
</tr>
<tr>
<td>Whiteways Lodge Roundabout</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
<td>4 High</td>
</tr>
<tr>
<td>B2139 (traffic through Houghton)</td>
<td>11 High 1 Moderate</td>
<td>11 High 1 Low</td>
<td>11 High 1 Low</td>
<td>11 High 1 Low</td>
<td>11 High 1 Low</td>
<td>11 High 1 Low</td>
<td>11 High 1 Low 8 High 2 Moderate 1 Low</td>
</tr>
<tr>
<td>B2139 New Barn Road, B2139 Turnpike Road, School Road and Crossgates (traffic through Amberley)</td>
<td>11 High 1 Moderate</td>
<td>10 High 2 Moderate</td>
<td>10 High 2 Moderate</td>
<td>10 High 2 Moderate</td>
<td>10 High 2 Moderate</td>
<td>10 High 2 Moderate</td>
<td>10 High 2 Moderate 8 High 4 Moderate</td>
</tr>
<tr>
<td>B2139 Amberley Road, A283 High Street, A283 Washington Road, B2139 School Hill, B2139 Thakeham Road, Nightingale Lane and A283 Storrington Road (traffic through Storrington)</td>
<td>29 High 1 Low</td>
<td>26 High 3 Moderate 1 Low</td>
<td>26 High 3 Moderate 1 Low</td>
<td>26 High 3 Moderate 1 Low</td>
<td>26 High 3 Moderate 1 Low</td>
<td>26 High 3 Moderate 1 Low</td>
<td>26 High 1 Moderate 3 Low</td>
</tr>
</tbody>
</table>
2 Sites listed under Parish Council Neighbourhood Plans

2.1.1.1 This section provides sites listed under Parish Council Neighbourhood Plans which are considered by local people to be valuable.

2.2 Arundel Neighbourhood Plan 2014-2029

2.2.1.1 Sites that are listed under Policy 11 Local Green Spaces include:

- “The Horse’s Field”, rear of Pearson Road
- Canada Road Playground
- Herington Fields, off Fitzalan Road

2.2.1.2 Sites that are listed under Policy 13 Building and Structures of Character include:

- Arun Street - 1 Quaker Cottage, 3, 5, 7, 9, 15, 17, and 19
- 1 Brewery Hill
- Arundel District and Community Hospital, Chichester Road
- High Street - 5 (Gibbs Newsagents), 16 (Lloyds Bank), 45 (Red Lion PH) and War Memorial
- London Road - 5 (Lychgate House), The stable building (former electricity generator house) and The Mews House
- Maltravers Street – 7, 20, 24, 24a, 28, 30, 32, 34, 36, 33-43 (odds), 62 Surrey Cottage, 64, 66, 68, 70, 85 and 87
- Mount Pleasant - 25, 29, 8, 10, 2, 4 and 6
- Orchard Place - 1, 3, 5, 7 and 11
- Park Place - The Coach House, Vine Cottage, 10, 12, 14, 16/18, 20, 24 and 26
- Arden Guest House, Queens Lane
- Queen Street - 12 (The White Hart PH), 4, 8, 14, 16 and 18
- River Road - 23, 25, 27, 29, 38 and 40
- 2 and 4 School Lane
- Library, Surrey Street
- Tarrant Street - 5, 7, 9, 11, 4, 9 Tarrant Square, 17, 23, 2, 4, 6, Old Printing Works, 25, 29, 31, 1-10 Castle Mews, 35, 37, 39, 41 (The Eagle PH), 16A, 20, 24, 28, 59, 61, 65, 91, 93, 95-101, 103, 105 and 107a
- The Causeway - Mill House Farm Barn, 13, 15, 17 and 19
- 21 and 51-63 Ford Road
2.2.1.3 Sites that are listed under Appendix B Section 2 Assets of Community Value include:

- Arundel CoE Primary School, Jarvis Road,
- St. Philips Catholic Primary School, London Road,
- Arundel Library and Early Years facilities, Surrey Street
- Police Station, The Causeway
- Fire Station, Ford Road
- Priory Playhouse, London Road
- St. Mary’s Hall, London Road
- Arundel Museum, Mill Road
- Norfolk Centre, Mill Road
- Scout Hall, Green Lane Close
- Arundel Lido, Queen Street
- Victoria Institute, Tarrant Street
- Arundel & District Community Hospital, Chichester Road n. Town Hall & Car Park, Maltravers Street
- Arundel Football Club, Mill Road
- Arundel Tennis Club, Mill Road
- Arundel Bowling Club, Mill Road
- Arundel Cricket Ground, Chichester Road
- Children’s Play Area, Mill Road
- Children’s Play Area, Canada Road
- The Swan Hotel, High Street
- Norfolk Hotel, High Street
- The Red Lion P.H., High Street
- The Eagle Inn, Tarrant Street
- The Kings Arms P.H., Tarrant Street
- Post Office, Mill Road
- The White Hart P.H., Queen Street
- The White Swan P.H., Chichester Road cc. The St. Mary’s Gate Inn, London Road
- Allotments, Maltravers Street
- Putting Green, Mill Road
- Herington Fields, off Fitzalan Road
2.3 Storrington and Sullington and Washington Neighbourhood Plan 2018-2031

2.3.1.1 Sites that are listed under Policy 16 Local Green Spaces include:
- The Mill Pond
- Meadowside
- The Hormare Field
- Storrington Memorial Pond, Pulborough Road.
- Windmill Copse
- Sullington Recreation Ground
- Matt’s Meadow
- Fryern Dell
- The Glade
- Washington Recreation Ground
- Storrington Recreation Grounds
- The Triangle
- Jockey’s meadow
- Vera’s Shelter and Green (Heath Common)
- 1st extension graveyard
- Milford Grange Country Park
- The Glebe Field
- Riverside Walk
- Sandgate Park

2.4 Ford Parish Council Neighbourhood Development Plan 2017-2031

2.4.1.1 Sites that are listed under Schedule A Local Green Space - Policy LC4 include:
- Land to the south of the HM Prison
- Land to the north of the HM Prison

2.4.1.2 Sites that are listed under Schedule B Local Open Space - Policy LC6 include:
- Land south of Rodney Crescent
- Rodney Close Green Space
- Wills Close Green Space
- Sproule Close Playground
- The Memorial Gardens
- Highway verge fronting Yapton Road
2.5 Walberton Neighbourhood Development Plan 2015-2035

2.5.1.1 Sites that are listed under Schedule 5A Buildings and Structures of Special Character include:

- Mill Lane
  - Ivy Cottage
  - Pipers Cottage Yapton Lane
- The Street
  - The Thatched Cottage
  - The Old Stables
  - The Old School house
  - 1 Orchard villas
  - 2 Orchard villas
  - 3 Orchard villas
  - 4 Orchard villas
  - 5 Orchard villas
  - 1 Orchard Terrace
  - 2 Orchard Terrace
  - 3 Orchard Terrace
  - 4 Orchard Terrace
  - Albert villa
  - 1 School Terrace
  - 2 School Terrace 3 School Terrace Fern Cottage
  - Rosslyn Cottage
  - Lion Cottage
  - Lion house
  - South Lodge
  - Entrance gates and piers to Avisford Park 1 Park view
  - 2 Park view
  - Walberton Baptist Church
  - Lansdown house
  - Fir Tree Cottage
- Binsted
  - Bramble Barn
  - Grove Lodge
  - The Old Rectory
- Yapton Lane
- Gate piers and gates to Walberton Place

2.5.1.2 Sites that are listed under Schedule 5B Buildings and Structures of Special Character-Proposed Additions include:

- The Old Smithy, Arundel Road, Fontwell
- Park Cottage, Old London Road, Fontwell
- The Black Horse PH, Binsted

2.5.1.3 Sites that are listed under Schedule 6 Assets of Community Value include:

- Walberton Post Office
- The Holly Tree PH, Walberton
- The Black Horse PH, Binsted
- Fontwell Village Stores
- Hunters Mews Play Area, Fontwell
- Orchard Crescent Green, Fontwell
- The Baptist Chapel and meeting room, Walberton