M25 junction 10/A3 Wisley interchange
TR010030
6.3 Environmental Statement (Chapters 1-4)

Regulation 5(2)(a)
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M25 junction 10 / A3 Wisley interchange improvement

Development Consent Order 202[x]

6.3 ENVIRONMENTAL STATEMENT

(CHAPTERS 1-4)

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1. Introduction

1.1 Overview of the Scheme

1.1.1 In December 2014 the Department for Transport (DfT) and the Highways Agency published its Road Investment Strategy (RIS) for 2015-2020, announcing £15 billion to invest in England's strategic road network between 2015 and 2020. The RIS sets out the list of schemes that are to be delivered by Highways England over the period 2015 - 2020. The RIS identified improvements to the M25 junction 10/A3 Wisley interchange as one of the key investments in the Strategic Road Network (SRN) for the London and south east region.

1.1.2 The M25 junction 10/A3 Wisley interchange is on the south west quadrant of the M25 London Orbital Motorway. At junction 10 the A3, a key radial route from London to Portsmouth, crosses the M25 motorway. Just to the north of junction 10 on the A3 is the Painshill interchange with the A245. Together with M25 junction 10, the junctions in their current configurations restrict traffic flow through the area and a package of options is required to improve junction performance. The location of the M25 junction 10 and the A3 junctions is shown in Figure 1.1.

1.1.3 The Scheme proposes increased capacity at the M25 junction 10 roundabout by elongating the existing roundabout, providing additional lanes to provide more circulatory capacity and enabling more traffic to discharge the roundabout, as well as providing dedicated free-flowing left turns that bypass the traffic signals. The elongated roundabout would use the existing bridges under the A3 and new bridges over the M25, with additional lanes and capacity between the traffic signals. Most of the existing roundabout and slip roads that would not be reused would be broken out and removed, with the existing structures over the M25 being demolished. The Scheme also includes the conversion of the hard shoulders on the M25 through the junction to running lanes to enable the future introduction of a Smart Motorway scheme west of the junction.

1.1.4 The Scheme includes widening the A3 from the Ockham Park junction to M25 junction 10 and M25 junction 10 to Painshill junction from three lanes to four lanes in both directions to improve safety and capacity of the A3. There would also be widening of the A245 to three lanes ~~in both directions~~westbound between the Painshill junction and the B365 Seven Hills Road junction ~~and widening to three lanes on the eastbound approach to the Painshill junction~~. As the A3 will be widened, the current direct accesses to it from side roads and private properties will be closed and alternative arrangements will be put in place to provide access to the road network for the roads and properties affected.

1.1.5 Highways England expects to start construction in Winter 2020.

1.1.6 The Scheme will comprise of two NSIPs by virtue of section 22 in the Planning Act 2008, sections 14(1)(h) and 22(1)(b). Further detail concerning the Scheme's qualification as an NSIP can be found in the prescribed form within the Application Form (TR010030/APP/1.3) and in the Explanatory Memorandum to the Draft Development Consent Order (DCO) (TR010030/APP/3.2), which is the planning consent for a NSIP.

1.2 Purpose of the Environmental Statement

1.2.1 The purpose of the Environmental Statement (ES) is to support the DCO application by Highways England for the Scheme and to set out the description of the Scheme, the likely significant environmental effects of the Scheme, the measures to avoid or reduce such effects and the alternatives considered. The ES has been produced in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the "IP (EIA) Regulations 2017").

1.2.2 The IP (EIA) Regulations 2017 impose procedural requirements for carrying out EIA for NSIPs which are considered as 'EIA development'. The ES is the document that reports on the likely significant environmental effects resulting from the proposed development. The ES comply with Regulation 14(2) of the IP (EIA) Regulations 2017. Advice published by the Planning Inspectorate states that the ES should clearly explain the processes followed, the forecasting methods used and the measures envisaged to prevent, reduce and where possible offset any likely significant environmental effects.

1.3 Need for Environmental Impact Assessment

1.3.1 The requirement for certain projects to report their effects on the environment is derived from European Union (EU) legislation initially in Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment. This legislation has been amended three times, in 1997, in 2003 and in 2009 with the amendments codified by Directive 2011/92/EU of 13 December 2011. The 2011 Directive was then itself amended in 2014 by Directive 2014/52/EU. The most recent changes were adopted in UK legislation by the IP (EIA) Regulations 2017. which transposes changes made to EU Directive 2011/92/EU1 ("the EIA Directive 2011") by EU Directive 2014/52/EU2. The related Town & Country Planning (Environmental Impact Assessment) Regulations 2017 ("the TCP (EIA) Regulations 2017") govern development given planning consent under the Town & Country Planning Act.

1.3.2 Under the IP (EIA) Regulations 2017, the Scheme is considered to be an EIA development which requires an Environmental Statement to be prepared because of the likelihood of significant environmental effects the Scheme will cause. Highways England notified the Planning Inspectorate on 8 December 2017, that in accordance with regulation 8(1)(b) of the IP (EIA 2017) that it proposed to provide an Environmental Statement in respect of the Scheme.

1.3.3 The Scheme includes an alteration of highways lying wholly in England, for which Highways England, being a strategic highways company, is the highway authority. The Scheme comprises the alteration of two highways, namely the M25 motorway and the A3 trunk road. For each road the area of development exceeds the relevant area threshold for highway-related development to amount to a nationally significant infrastructure project (NSIP) as prescribed in Section 22(4) of the Planning Act 2008, the relevant thresholds being 15 hectares in relation to the alteration of motorways and 12.5 hectares in relation to the alteration of the A3 (the A3 being a road where the speed limit for any class of vehicle is and will be in excess of 50 miles per hour). Accordingly the Scheme comprises two NSIPs, one in relation to the M25 and the other in relation to the A3. This means that a DCO application will need to be made to the Secretary of

State under Section 37 of the Planning Act 2008 to seek authorisation to build the Scheme.

1.3.4 The aim of EIA is to protect the environment by ensuring that the Examining Authority, when deciding whether to recommend consent for a project which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision-making process. The aim of EIA is also to ensure that the public are given early and effective opportunities to participate in the decision-making procedures.

1.4 Overseeing organisation

1.4.1 Highways England is the strategic highways company as defined in the Infrastructure Act 2015 and is charged with modernising and maintaining England's strategic road network, as well as running the network and keeping traffic moving. Highways England is the applicant under the Planning Act 2008.

1.5 The designer

1.5.1 The designer is Atkins Ltd. We have appointed Atkins under our collaborative design framework to undertake the preliminary design of the Scheme for the M25 junction 10/A3 Wisley interchange which includes EIA and the preparation of this ES for the Scheme.

1.6 Legislative and policy framework

Policy overview

1.6.1 A summary of the key implications of national, regional and local policy documents for the Scheme is provided in Table 1.1.

1.6.2 Both Elmbridge Borough Council (EBC) and Guildford Borough Council (GBC) have emerging local plans which, subject to an Examinations in Public expected to be adopted within the next couple of years. The Guildford local plan was adopted 25 April 2019, whilst the date for adoption of the Elmbridge Plan is early 2021.

Table 1.1: Policy overview

Policy Document	Key Implications for the Scheme
National	
National Policy Statement for National Networks (NPSNN) (2014)	Sets out the Government's policies to deliver NSIPs on the national road and rail networks in England. The Secretary of State uses the NPSNN as the primary basis for making decisions on development consent application for NSIPs in England.
National Planning Policy Framework (NPPF) (2019)	The NPPF sets out the Government's planning policies for England and requirements for the planning system. It provides a framework within which locally-prepared plans for housing and other development can be produced. The NPPF advises that local authorities should take account of the need for strategic infrastructure, including nationally significant infrastructure within their areas.

Policy Document	Key Implications for the Scheme
Road Investment Strategy: 2015 to 2020 (2014)	Promote safe movement, satisfy users of the network, support efficient movement, can be delivered and operated within environmental constraints, support local access and well-being and be demonstrably cost effective.
Highways England: Strategic Business Plan 2015 to 2020 (2014)	Support short-term targets as well as long-term aspirations and not significantly impact on network availability.
Regional	
Surrey County Council, Surrey Transport Plan (2011)	To help people to meet their transport and travel needs effectively, reliably, safely and sustainably within Surrey; in order to promote economic vibrancy, protect and enhance the environment and improve the quality of life. In the 2017 Problems and Challenges update to the Surrey Transport Plan, the Council identified that due to Surrey's location next to London, and the proximity of both Heathrow and Gatwick Airports, there is considerable demand for movement within, to, from, and through the county and the strategic network has evolved to principally serve London, with nationally important routes passing through. The non-strategic network serves to link the settlements. The Wisley interchange is where these networks meet and cause congestion.
Local	
Elmbridge Borough Council Core Strategy (2011)	To deliver additional development and infrastructure which provides benefits across the Borough to a changing population, in a way that does not compromise peoples' quality of life or have a detrimental impact on the environment. Policy CS25 (Travel and Accessibility) states that it will support improvements to transport infrastructure by working in partnership with transport providers and Surrey County Council as the Highway Authority.
Guildford Borough Council Local Plan (2003)	Promote development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The Local Plan identifies that responsibility for transport issues lie mainly with Surrey County Council, but land use and transportation planning are directly linked and the Local Plan has an important role to play.

1.7 Competent experts

1.7.1 In accordance with the IP (EIA) Regulations 2017 and Highways England guidance, the coordination of the environmental assessment process and specialist assessments have been undertaken by a team of competent and qualified consultants, who are registered with the relevant institutions and/or Chartered.

1.7.2 Atkins is EIA quality mark registered through the Institute of Environmental Management and Assessment (IEMA). Accreditation is based around compliance with a series of EIA commitments, which IEMA regularly independently monitors through an annual review process. The EIA quality mark therefore provides registrants with a benchmark for their EIA activities and

demonstrates of a commitment to effective practice. Continued registration requires all of Atkins EIA coordinators and practitioners to be aware of the commitments and deliver EIA to a high standard. It also requires volunteers to write short articles, present at IEMA events or webinars and produce case studies as part of the commitment to improve EIA practice and share knowledge across the industry.

1.7.3 These specialists work in close collaboration with designers and engineers, as part of an iterative design, consultation and assessment process. This process maximises the opportunity to avoid or reduce adverse environmental effects early in the design process and to identify mitigation measures to address those effects that cannot be avoided or reduced at source.

1.7.4 Each environmental topic chapter sets out the details of the competent experts leading the environmental assessments (Chapters 5-16). The overall lead on the ES is a landscape architect with over 30 years experience in the assessment of highways schemes.

1.8 Consultation overview

Consultation undertaken to date

Option Selection Stage consultation

1.8.1 The initial Scheme options and a formal public consultation were announced in October 2016 via a DfT press release which covered several South East RIS schemes.

1.8.2 The option selection stage non-statutory consultation period ran from 5 December 2016 to 6 February 2017, a period of 9 weeks. During this time, seven exhibitions open to the public were held across the M25 junction 10 area in addition to an event directed at local authorities, parishes and key stakeholders.

1.8.3 The two options which the option selection stage consultation sought views on were:

- Option 9 - a new flyover to link right-turning movements between the A3 and the M25; and
- Option 14 - enlarging the existing roundabout to add more capacity.

1.8.4 Views were also sought on the decision to reject Option 16 (which was a large circulatory) and on the proposal to widen the A3 between Ockham and Painshill to 4 lanes (currently 3 lanes), creating an extra lane for vehicles turning left onto the A245 at the Painshill roundabout, and changing local accesses to make these safer and cause fewer delays on the A3.

1.8.5 Of the two options presented during the public consultation, Option 9 gained the most support (64% vs. 29% for Option 14). However, concerns were raised about its scale and the impact it would have on the land around the junction.

1.8.6 Stakeholders had a more mixed view, with the majority (26 of 39) preferring to offer no preference at that stage.

1.8.7 During the option selection stage non-statutory consultation engagement took place with the following key statutory and non-statutory environmental bodies:

- Environment Agency;

- Historic England;
- Natural England;
- Royal Society for the Protection of Birds (RSPB);
- Open Spaces Society;
- Surrey County Council (SCC);
- Surrey Wildlife Trust (SWT);
- GBC;
- EBC;
- Woking Borough Council (WBC);
- Connect Plus (the organisation that operates the M25 on behalf of Highways England);
- Forestry Commission;
- Painshill Park; and
- Royal Horticultural Society (RHS).

1.8.8 A Preferred Route Announcement was made on the 29 November 2017, outlining that Option 14 was the preferred option that Highways England would be taking forward to preliminary design.

Preliminary Design Stage consultation

Scoping Report consultation and Scoping Opinion

1.8.9 A Scoping Report[1] was submitted to the Secretary of State on 8 December 2017 which set out how the environmental effects of the Scheme were to be assessed. Consultation bodies were notified to reply within the statutory timeframe and were invited to make comments on the Scoping Report. The Planning Inspectorate coordinated the responses to the Scoping Report from statutory consultees and others.

1.8.10 A Scoping Opinion was provided by the Planning Inspectorate on behalf of the Secretary of State in respect of the Scoping Report on 22 January 2018. The Scoping Opinion took into account the requirements of the IP (EIA) Regulations 2017 as well as current best practice towards preparation of the ES.

1.8.11 The Scoping Opinion[2] recommended that a table be provided in the ES summarising the scoping responses from the consultation bodies and how they are or are not addressed in this ES. This summary table is provided in Appendix 1.1.

1.8.12 Under Section 47 of the Planning Act 2008, Highways England are required to consult with the local community before submitting an application for a DCO so that the public can give their views and help shape the Scheme. Highways

[1] Atkins (2017). Regional Investment Programme M25 Junction 10/A3 Wisley Interchange, document reference HE551522-ATK-EAC-XX-RP-LM-000001 available on the Planning Inspectorate website

[2] The Planning Inspectorate (2017), Scoping Opinion for M25 Junction 10/A3 Wisley Interchange Improvement, case reference TR010030

England is also required to consult with the relevant local authorities (SCC, EBC, GBC) and about the consultation approach.

1.8.13 Statutory public consultation on the Scheme was held between 12 February and 26 March 2018. Two further, non-statutory consultations were held later in the schemes development in November/December 2018 and April/May 2019 as a result of design changes during the preliminary design stage.

1.8.14 Other consultation events that occurred during the preliminary design stage consultation included:

- Holding environmental stakeholder workshops; and
- Holding meetings with key stakeholders as necessary.

1.8.15 Following the statutory consultation period, a consultation report (M25 junction 10/A3 Wisley interchange Consultation Report TR010030/APP/5.1) was produced to summarise the views and comments received and outline how they have been taken into consideration in refining the Scheme. The Consultation Report forms part of the package of DCO application documents and is available on the Planning Inspectorate website under reference number TR010030.

Ad-hoc consultation

1.8.16 A number of other non-statutory consultation meetings have been held during the preliminary design stage to discuss issues with stakeholders and to share information on the Scheme. The meetings that have occurred are outlined in Table 1.2 below.

Table 1.2: Non-Statutory Consultation meetings

Date	Stakeholder	Team involved - Issue discussed
17/12/2017	• Surrey Wildlife Trust • Surrey County Council	Project and environment team - post Preferred Route Announcement and pre-consultation meeting.
18/12/2017	Natural England	Project and biodiversity team - post Preferred Route Announcement and pre-consultation meeting.
19/12/2017	Environment Agency	Project and environment team - post Preferred Route Announcement and pre-consultation meeting.
22/01/2018	Historic England	Project and cultural heritage team - post Preferred Route Announcement and pre-consultation meeting.
07/02/2018	Forestry Commission	Project and biodiversity team - post Preferred Route Announcement and pre-consultation meeting.
02/03/2018	Natural England	Road drainage and the water environment team - compliance with Water Framework Directive and Sites of Special Scientific Interest (SSSI) Conservation Objectives / Favourable Condition.
08/03/2018	• Surrey County Council • Guildford Borough Council	Materials and Waste and Geology and Soils Scoping Opinion comments.
09/03/2018	Environment Agency	Road drainage and the water environment team - Water Framework Directive.

Date	Stakeholder	Team involved - Issue discussed
16/03/2018	• Surrey Wildlife Trust • Natural England • Forestry Commission • RSPB • Surrey County Council	Biodiversity team - mitigation, compensation and land.
26/03/2018	Non-motorised user (NMU) Forum	Local NMUs, Highways Design, Comms, NMU specialist and People and Communities team - non-motorised user forum.
27/03/2018	Natural England	Air quality team - air quality.
29/03/2018	Environment Agency	Road drainage and the water environment team - compliance with Water Framework Directive.
29/03/2018	Environment Agency	Road drainage and the water environment team - compliance with Water Framework Directive.
13/04/2018	Environment Agency	Road drainage and the water environment team - Flood Risk Assessment.

Part 2

2. The Scheme

2.1 Need for the Scheme

2.1.1 The M25 junction 10/A3 interchange is positioned on a critical section of the Strategic Road Network (SRN). The M25 forms part of the 'Ten-T' Trans-European Transport Network and is therefore a nationally important link providing access to global markets and connections to the channel ports for much of the UK as well as for the south east region. The A3 is also an important strategic route, linking London with the international port of Portsmouth, as well as Guildford, which is the largest centre of employment in Surrey.

2.1.2 This section of the SRN, approximately 270,000 vehicles per day pass through or use M25 junction 10, making it one of the busiest in the country. About one third of all traffic approaching M25 junction 10 on both the A3 or the M25 use the roundabout to interchange between the two roads. Given the limited capacity of the existing roundabout to accommodate these large flows, significant delays and congestion occur in most peak periods. The junction is therefore a major impediment to the smooth flow of traffic on the SRN at this point. Journey time reliability is poor, with some journeys taking more than 2.5 times longer than expected in the peak periods.

2.1.3 In 2013 Highways England's National Intelligence Unit undertook analysis on accident data across the SRN for the period 2009 to 2011. M25 junction 10 was found to have the highest number of casualties at any junction on the SRN for that period. Whilst this analysis has not been updated by Highways England for a more current study period, accident and casualty statistics around the M25 network for the five-year period between 2012 and 2016 has been reviewed and M25 junction 10 had the highest number of casualties (22 per year) on the entire M25.

2.1.4 With forecast traffic growth and significant planned housing and economic development in the area, the problems at the junction are expected to deteriorate further, with delays being likely to increase by approximately 40% by 2037 unless an improvement scheme is undertaken. Further detail on the problems at M25 junction 10 and the need for the Scheme are included in the Introduction to the Application (TR010030/APP/1.2) and other Scheme reports that are available on the Planning Inspectorate website.

2.2 Scheme objectives

2.2.1 The improvements to M25 junction 10 (as originally stated in the Road Investment Strategy) should deliver: "free-flowing movement in all directions, together with improvements to the neighbouring Painshill interchange on the A3 to improve safety and congestion across the two sites". The reference to 'free flowing movement in all directions' was subsequently removed when it became clear that the objectives of the scheme could be met without it in all directions. For the purposes of this report, this is referred to as the aim of the Scheme.

2.2.2 The current challenges at the M25 junction 10/A3 Wisley interchange as noted above and described in the Transport Assessment Report (TR010030/APP/7.4) include:

- Congestion and delay disrupting journeys on the SRN;
- Poor resilience resulting in frequent disruption and unreliable journey times;
- Safety concerns; and
- Congestion causing a barrier to growth. Enterprise M3 Local Enterprise Partnership has highlighted the M25 junction 10/A3 Wisley interchange as a part of the transport network where projected increases in traffic would cause further congestion and delays and hinder growth in the area unless addressed.

2.2.3 The Scheme objectives as set out in the Client Scheme Requirements (the requirements for a project, covering a high-level definition of the transport challenges and issues, objectives, project outputs and costs) issued by the Department for Transport (DfT) are set out in Table 2.1.

Table 2.1: Client Scheme Requirements

Requirement	Actions
Route Operation	Support any projected traffic increases from other committed schemes on the SRN and avoid or mitigate against causing adverse effects elsewhere on the Local Road Network.
Capacity	Reduce the average delay (time lost per vehicle per mile) on the mainline A3 and on M25 through junction running.
	Smooth the flow of traffic by improving journey time reliability (Planning Time Index) on the mainline A3.
Safety	Reduce annual collision frequency and severity ratio on the mainline A3, slip roads and M25 junction 10 gyratory.
Social	Support the projected population and economic growth in the area.
	Support walking and cycling by incorporating safe, convenient, accessible and attractive routes for pedestrians, cyclists and equestrians and improving crossing facilities.
	Take account of the concerns of local communities and other key stakeholders raised during consultations.
Environment	Support compliance with the UK's legally binding limits and targets on air quality and water quality status and support targets to cut greenhouse gas emissions and objectives for local air quality management areas.
	Avoid, mitigate and compensate for adverse effects on the integrity of the Thames Basin Heaths Special Protection Area (SPA) and other statutory designated nature conservation sites and promote opportunities.
	Recognise the significance of designated heritage assets close to the route of the Scheme, including at Painshill Park and at Wisley Gardens through incorporating suitable mitigation and/or design measures to avoid or reduce significant harm.
	Improve the quality of life for nearby residents, through addressing the effects of noise on people in the declared noise important area's (NIA's) and ensuring that significant noise effects are mitigated.
	Ensure through good design, that an appropriate balance is achieved between functionality and the Scheme's contribution to the quality of the surrounding environment, addressing existing problems wherever feasible, avoiding, mitigating or compensating for significant adverse impacts and promoting opportunities to deliver positive environmental outcomes.

2.2.4 Traffic modelling carried out for the project predicts that traffic flows on the M25, A3 and other roads around the Scheme will alter due to expected traffic growth and due to the Scheme and other developments in the area. The year the Scheme was assessed to be open to traffic predicted changes in traffic flows in 2022 and 15 years later (the design year) compared with the current situation are set out in Table 2.2 below. Full details of the expected changes in traffic flow are set out in the M25 junction 10/A3 Wisley interchange Transport Assessment Report (Application Ref: TR010030/APP/7.4) The assessments in this ES are based on the information contained within the Transport Assessment Report.

Table 2.2: Predicted traffic flows

Link	Annual Average Daily Traffic (AADT)				AADT % change from Base scenario	
	Observed	Base	2022	2037	2022	2037
M25 between J10 and J11 (two-way)	177,500	186,969	194,962	225,185	4.3%	20.4%
M25 between J10 and J9 (two-way) (before Cobham services)	158,000	164,368	166,413	192,804	1.2%	17.3%
A3 between M25 J10 and Ockham interchange (two-way) (north of Wisley Gardens)	112,000	127,154	132,471	159,316	4.2%	25.3%
A3 between M25 J10 and the Painshill interchange (two-way)	90,000	105,728	109,799	131,555	3.9%	24.4%
Vehicles entering J10 from the A3	48,000	52,520	54,762	67,065	4.3%	27.7%
Vehicles entering J10 from the M25	48,000	51,680	55,640	63,955	7.7%	23.8%
A245 Byfleet Road	n/a	49,347	50,610	57,245	2.6%	16.0%
A245 Portsmouth Road	n/a	31,398	33,257	38,125	5.9%	21.4%
Old Lane (two way) (between Hatch Lane and Martyr's Green)	n/a	1743	2,404	5602	37.9%	221.4%
Wisley Lane (two way)	n/a	3878	5944	7418	53.3%	91.3%
B2215 Portsmouth Road (two way)	n/a	17,037	22,536	30,460	32.3%	78.8%
B2039 Ockham Road North (two way)	n/a	5402	7858	8931	45.5%	65.3%

2.3 Scheme location

2.3.1 The M25 junction 10/A3 Wisley interchange lies in the south west quadrant of the M25 London Orbital Motorway. At M25 junction 10, the A3, a key radial route from London to Portsmouth, crosses the M25 motorway. Just to the north of M25 junction 10 on the A3 is the Painshill junction with the A245. To the south of M25 junction 10 on the A3 is the Ockham Park junction with the B2039 and B2215.

The location of the M25 junction 10 and the A3 junctions is shown in Figure 1.1. The Scheme is located within the county of Surrey and within the boroughs of Guildford and Elmbridge.

2.4 Key environmental constraints

2.4.1 An overview of the key environmental constraints on the Scheme are outlined below with further detail in the following topic chapters. The environmental constraints are shown in Figure 2.2 with other detailed environmental information drawings in Volume 3 Figures.

- The M25 junction 10 is set within the London metropolitan green belt in an area of woodland and heath to the south of Cobham and Byfleet. It is an attractive area despite the presence of the A3 and M25. Much of the area around the junction forms part of the internationally designated Thames Basin Heaths Special Protection Area (SPA) and nationally designated Ockham and Wisley Commons Site of Special Scientific Interest (SSSI), as well as areas designated as a Local Nature Reserve (LNR) and Site of Nature Conservation Interest (SNCI). There is some ancient woodland adjacent to the Scheme and other ancient woodlands in the local area;
- The Royal Horticultural Society's (RHS) principal visitor attraction is at Wisley Garden to the south west of the junction and Painshill Park lies to the north east of M25 junction 10; both are designated as registered parks and gardens of historic interest. The area immediately around the junction is designated as common land or open space and these areas, along with RHS Wisley and Painshill Park, are well used by the public. There are some facilities for walkers/cyclists along the A3 alongside the southbound carriageway but they are in a poor state. There are at-grade, controlled pedestrian and equestrian crossings at M25 junction 10 and several Public Rights of Way (PRoW) in the surrounding area;
- There are several noise important areas along the M25 near junction 10. No Air Quality Management Areas (AQMA) have been declared by the local authorities for the area immediately around the junction and there are few human health receptors nearby. The nearest AQMA is in Cobham to the north east of M25 junction 10;
- There are four Scheduled Monuments in the area immediately around the junction and 49 Listed Buildings in the 500m study area around the Scheme;
- There are no water Source Protection Zones or groundwater abstractions near the junction and, although the River Mole, River Wey and Guileshill Brook are nearby, and the Stratford Brook crosses under the A3 at the Ockham Park junction, flooding is not an important issue as the Scheme lies predominantly outside the flood zones of these watercourses. Bolder Mere, a Water Framework Directive (WFD) waterbody is adjacent to the A3 between M25 junction 10 and the Ockham Park junction. Manor Pond, not a WFD waterbody in its own right, lies next to the A245 near the Painshill junction; and
- There are several disused landfill sites that accepted inert waste in the study area and the sand and gravel geology means that the area is sensitive to pollution incidents.

2.5 Scheme description

Scheme overview

2.5.1 The Scheme is shown on the Scheme Layout Plans (Application Ref: TR010030/APP/2.10). The Scheme has been developed over previous Scheme stages and is the result of analysis and assessment of traffic, engineering, buildability and environmental factors as well as consultation with stakeholders and members of the public. Although the layout of the Scheme has been developed to a level of detail sufficient to show the size and location of the various elements that comprise it, further, detailed design and assessment will take place during later stages to refine it and provide more certainty on the layout of the Scheme. As there is some level of uncertainty in the design of the Scheme at this point in the process, the boundary of the works has, therefore, been drawn with reference to the 'Rochdale Envelope'[3] to allow for design development and the uncertainties that are inevitable at this stage.

2.5.2 The principal components of the Scheme include:

- A larger, signalised gyratory for M25 junction 10, including free-flow left turn slip roads that bypass the traffic signals;
- Amended and extended slip roads onto and off the M25 and the A3;
- Widening of the A3 to dual-four lanes between Ockham Park junction and M25 junction 10 and between Painshill junction and M25 junction 10;
- Provision of four running lanes on the M25 through junction 10; and
- A comprehensive package of local road, private access and PRoW changes and additions.

2.5.3 Overall, the Scheme extends over 5.5 km of the A3 and 6.1 km of the M25.

Motorway and trunk road

2.5.4 The proposed M25 junction 10 layout entails elongating the roundabout from circular to oval, using the existing bridges under the A3 and new bridges over the M25. This will provide an additional lane and extended queueing lengths, which will increase capacity for right-turning traffic between and through the traffic signals. There will be dedicated left-turn free-flow lanes that enable this traffic to bypass the junction signals rather than using roundabout capacity. The existing bridges over the M25 will be demolished.

2.5.5 The A3 will be widened from dual-three lane to dual-four lane between slip roads from Ockham Park junction to M25 junction 10 and from Painshill junction to M25 junction 10, to cater appropriately for the volumes of merging and diverging traffic. There will be a two-lane carriageway drop and gain at M25 junction 10, through which the A3 remains as dual-two lane passing over the roundabout.

2.5.6 The M25 carriageway will not be widened, but the hard shoulder will be used to provide a fourth running lane through M25 junction 10, between the slip road

[3] The approach known as the 'Rochdale Envelope' was developed during onshore planning applications to provide flexibility in design options where details of the whole project are not available when the application is submitted, while ensuring the impacts of the final development are fully assessed during the Environmental Impact Assessment (EIA). Consents granted on the basis of the Rochdale Envelope are conditional on providing the final details for agreement prior to construction.

merges and diverges. Emergency refuges will be provided for broken down vehicles.

2.5.7 All slip roads leading to and from M25 junction 10 will be amended to increase junction capacity and to suit the A3 carriageway widening, the M25 amendments and the junction 10 free-flow left turn lanes, with two lanes diverging or merging in all cases and ghost islands provided between the slip road lanes where appropriate.

2.5.8 The slip roads leading to and from Ockham Park junction and the south side of Painshill junction will be amended to suit the A3 widening, with ghost islands provided between the slip road lanes where appropriate. The A3 northbound on and off slips between Painshill junction and Seven Hills junction will be free flowing.

2.5.9 Retaining walls will be provided to minimise the land requirements and adverse impacts in the many sensitive locations, with the largest walls needed alongside RHS Wisley, Bolder Mere, Hut Hill, Painshill Park Gothic Tower, Clearmount and the base of Telegraph Hill cutting.

2.5.10 The free-flow left turns at M25 junction 10 would prevent replacement of the current arrangements for Non-Motorised Users (NMUs) to make their way around the junction and/or across the M25 and A3. NMUs will be prohibited from using the A3 carriageways between Ockham Park and Painshill junctions.

2.5.11 Almost all existing accesses to property or land direct from the A3 carriageways will be closed between Painshill and Ockham Park junctions.

2.5.12 The new and amended road links will be close to the existing M25, A3 and slip roads and will not segregate any areas of open land, but much of the space needed to provide and construct the Scheme is special category land and designated as SPA and/or SSSI.

2.5.13 New LED lighting will be provided along the new verges of the widened A3 and A245 carriageways and all the amended junction slip roads; the existing central reserve lighting on the A3 across junction 10 and along the M25 will remain. An existing intermediate pressure gas main runs alongside the A3 for much of its length between the Ockham Park and Painshill junctions. To enable the widening of the A3 this will be diverted to a location further away from the carriageways. To minimise disturbance to the surrounding area and facilitate future maintenance the alignment will be coincident with existing roads or tracks and with proposed local access routes for vehicles and pedestrians, cyclists and horse riders where possible.

2.5.14 The increased area of road carriageway will lead to increased rates of surface water runoff, which need to be attenuated to ensure that the existing rates of outfall into the receiving watercourses are not exceeded. Space has been allowed for the provision of drainage attenuation measures, with the aim of minimising the space required, as most of these are within the special category land and SPA/SSSI.

2.5.15 To accommodate these changes to the strategic highways, the Scheme also includes comprehensive amendments to the network of local roads, access tracks and PRoW, as outlined below, which will influence public access to local facilities and the existing pattern of registered commons and open space, as well as the proposed areas of replacement land.

Local roads

2.5.16 There will be several changes to the local road network, summarised broadly from west to east along the Scheme:

- A diversion of Wisley Lane will be provided from the southeast side of the Ockham Park junction roundabout across Stratford Brook and along the north-western edge of the Wisley Airfield site, before turning northwest through the registered common to rise and cross over the A3 on a new bridge just south of the entrance to Elm Lane, to tie into the existing level of Wisley Lane and an amended RHS Wisley entrance. The existing A3 direct links to and from Wisley Lane and Elm Lane will not be re-provided. Elm Lane will not be connected as a public road to the new Wisley Lane, but there will be a bridleway connection;
- The Byway section of Elm Lane will be upgraded across Ockham Common to provide access suitable for all vehicles between Old Lane and Elm Corner, as a substitute for the closure of the A3 connection to Elm Lane;
- The connection to Old Lane from the M25 junction 10 A3 southbound on-slip will remain, amended to improve safety and to suit the on-slip being widened to two lanes along its full length. New toad underpasses will also be provided under Old Lane near its junction with Elm Lane; and
- The A245 between Painshill junction roundabout and the B365 Seven Hills Road junction will be widened from dual-two lane to dual-three lane carriageway westbound, with retaining walls used to minimise land requirements. The existing access into Old Byfleet Road will be closed and a new access provide via Seven Hills Road (South), including a left-turn lane with a short deceleration taper. Restrictions would be put in place so that there would be no right hand turn from the Byfleet Road to Seven Hills Road South or from Seven Hills Road North towards Byfleet.

Private means of access

2.5.17 There are two accommodation bridges to be replaced that are used for private means of access (PMA), both of which also function as parts of the PRoW network:

- Reinstatement of Clearmount Bridge over the amended M25 as an accommodation/bridleway bridge, linking to Bridleway 8 and the farm access tracks used by Surrey Wildlife Trust (SWT); and
- Reinstatement of Cockcrow Bridge over the widened A3 as an accommodation/bridleway bridge, includes the potential to provide a 25 m wide green margin (subject to separate funding) to provide habitat linkage between the two parts of the SPA. There will be a new access to this bridge from Old Lane to provide (gated) access to Hut Hill Cottage, Pond Farm and Birchmere camp site; the current PMA from the A3 northbound off-slip slip at M25 junction 10 will not be re-provided. Entry to the car parks at Ockham Bites will also be taken from this new access from Old Lane and existing car park entrances closed.

2.5.18 Most existing PMA direct from the A3 carriageways will be closed and substituted by:

- A new PMA running from the end of Redhill Road, along the remnant piece of old A3 carriageway and a new road parallel along the west side of the A3 and then up Seven Hills Road (South), providing access from the end of Redhill Road to the Long Orchard properties and the Starbucks site; the existing road surface south of the entrance to the Cobham Hilton Hotel will be cleared and refurbished. Access control gates will be provided near Redhill Road and the entrance to the Cobham Hilton Hotel to prevent this route becoming a rat-run for A245 traffic;
- A new PMA running from the A3 southbound on-slip from Painshill junction, along which access will be provided along the east side of the A3 to New Farm, the gas valve compound, Heyswood Guide camp site and Close Court Farm. The existing direct accesses from the A3 will be closed, although occasional access to the gas valve compound will still be possible for major maintenance, under traffic management; and
- A new gated PMA from Seven Hills Road (South) into the eastern end of Old Byfleet Road, to be used by Feltonfleet School; the existing access in from the A245 will be closed.

Public Rights of Way

2.5.19 The following new PRoW works will re-provide and/or enhance existing NMU routes and connectivity, reduce severance caused by the A3 and provide suitable access to the existing areas of existing registered common and public open space, as well as to the proposed Replacement Land areas:

- A new exit for cyclists off the A3 northbound carriageway for any that have not left at Burnt Common junction;
- Improved NMU crossings and new NMU links at Ockham Park junction for safe access under the A3 between the B2215 / Mill Lane and Ockham Road North / Wisley Lane;
- A bridleway alongside Wisley Lane diversion over the A3 to Ockham Park junction, with links to Elm Lane, Bridleways 8 and 544 and Footpaths 7, 13, 13a and 14;
- Diverting Footpath 14 along a maintenance track south from Bolder Mere to connect with Elm Lane;
- A bridleway along the west side of the A3 between Wisley Lane and Cockcrow bridge, with links to Bridleway 8 and Footpaths 7, 9 and 10;
- The new Sandpit Hill bridleway bridge across the M25 to the southeast of M25 junction 10, with bridleway links to Pointers Road and across the corner of Ockham Common to Footpath 17, Cockcrow bridge and Old Lane;
- The new Red Hill bridleway bridge spanning the widened A3 south of the end of Redhill Road, with bridleway links to Pointers Road and Redhill Road and the existing PRoW on either side and providing a substitute for the closure of bridleway 12;
- A bridleway from Redhill Road along the PMA to Seven Hills Road (South);

- A new bridleway between the junction of Seven Hills Road and Byfleet Road alongside the westbound A245 to replace the current route along Old Byfleet Road, which would be stopped up; and
- New NMU crossing facilities provided at the A3 northbound off-slip to Painshill junction, to retain connectivity between Cobham and Feltonfleet School and the above bridleway.

2.5.20 Where appropriate, these new NMU routes will also enable maintenance access to Highways England infrastructure, such as sign gantries, balancing ponds and traffic signals, as well as to any utilities that follow the NMU alignment. This minimises the need to identify additional land take to create specific maintenance accesses.

2.5.21 The PRoW proposals will connect the new and replacement NMU and local road bridges to the existing network of permissive horse rides and other tracks across the land managed by SWT. There will be an upgrade in status (but no physical change) of some of these permissive horse rides to bridleway, so that they appear on maps and provide an appropriate right of access to and between the areas of registered common. The routes that will be upgraded are:

- In the north-western quadrant between the new Red Hill bridge over the A3 and Clearmount bridge over the M25, mostly along the line of Footpath 11;
- In the western quadrant between Clearmount bridge over the M25 and Cockcrow Bridge over the A3, mostly along the line of Footpath 10 past Pond Farm;
- In the south-eastern quadrant between Sandpit Hill bridleway bridge over the M25 and Bridleway 69, along the north-eastern edge of the open heathland on Telegraph Hill; and
- In the north-eastern quadrant a bridleway will be designated along Pointers Road, between the existing traffic control gate and the junction with the proposed bridleway.

2.5.22 Three new PRoW will be provided across the proposed areas of Replacement Land:

- A bridleway between the junction of Bridleway 8 and Footpath 7 through Park Barn Farm replacement land to the proposed bridleway along Footpath 11;
- A bridleway between the proposed restricted byway near Red Hill bridge through Chatley Wood replacement land to the proposed bridleway along Pointers Road; and
- A footpath between Bridleway 18 through the Hatchford End replacement land to Footpath 71.

2.5.23 The various NMU and PRoW works will also contribute towards achieving the aims of the Scheme which include supporting walking and cycling by incorporating safe, convenient, accessible and attractive routes for pedestrians, cyclists and equestrians and improving crossing facilities.

Replacement, compensation and enhancement land proposals

2.5.24 The Scheme is located within an area of land designated as common land or open space. Land take from these areas is required to accommodate the

Scheme and suitable replacement land has been provided to compensate for the loss of this land. The Scheme also takes land designated as a Special Protection Area (SPA) and because of the effect on the SPA a suite of compensatory measures is proposed which includes new land to be designated as SPA and the enhancement of land within the existing SPA.

Replacement land

2.5.25 Replacement land is a requirement of the process for compulsory acquisition of land in a DCO under the Planning Act 2008 (sections 122. 131 and 132), if any of the land to be compulsorily acquired is classed as 'special category land', which includes registered common land, open space, village greens, burial grounds and statutory allotments. In such cases, the scheme must also provide replacement land in exchange that is *"…not less in area than the order land and which is no less advantageous to the persons, if any, entitled to rights of common or other rights, and to the public."*

2.5.26 M25 junction 10 is set within an area of special category land and, therefore, any scheme to improve this junction that entails compulsory land acquisition will lead to a requirement for replacement land. There are four elements of special category land that will be affected by the Scheme:

- Wisley Common is common land and extends across much of the south-western quadrant and part of the north-western quadrant, but also has small areas in the other two quadrants;
- Chatley Heath is common land and extends from Red Hill in the north-eastern quadrant southwards onto Telegraph hill in the south-eastern quadrant;
- Ockham Common extends across much of the south-eastern quadrant with small areas in the other three quadrants, but, despite its name, it is open space and not common land; and
- Other areas of land owned by SCC that have open public access.

2.5.27 Most of the special category land required for the Scheme is woodland alongside the strategic roads, with some areas of grazing meadow. Most of this woodland is Scots pine plantation, with some small areas of mixed or deciduous woodland.

2.5.28 Because areas of replacement land are not always as well suited to the purposes of public access and recreation as the special category land they replace, or are not as well connected to the main areas of remaining special category land, this equality of advantage is usually achieved by providing a greater area of replacement land; precedent from previous projects provides some guidance as to what may be appropriate.

2.5.29 Based on previous practice, including the original M25 scheme through the Wisley Common area, broad ratios have been derived for the Scheme of approximately 2.5:1 for replacement of common land acquired, 2:1 for replacement of open space acquired and 1:1 for acquisition of permanent rights where the right can be said to be a burden on the land. Locations for replacement land have been sought that have some similarity with the special category land affected by the Scheme and will be contiguous with the remaining areas of special category land, if possible.

2.5.30 On this basis, areas of replacement land have been included in the Scheme in three locations:

- In the north-western quadrant at Park Barn Farm (see Scheme Layout Plans sheet 6);
- In the north-eastern quadrant in the former Chatley Farm land (see Scheme Layout Plans sheet 7); and
- In the south-eastern quadrant near Hatchford End (see Scheme Layout Plans sheet 8).

2.5.31 The areas proposed as replacement land vary in character and condition and in their similarity to the respective Order land; hence all will need management work and, in many cases, some planting to bring them into a suitable condition. Most of the proposed areas are less affected by road traffic noise than the respective Order land. Effective connections to PRoW and the existing commons and open space can be provided into all the proposed areas, but not through all of them onto another route. These factors have influenced the ratios of provision adopted.

2.5.32 The Replacement Land provided will also provide scope for the provision of mitigation or compensatory habitats for land lost from the various ecological designations, where this is compatible with the works required to make the land equally advantageous to the public. Construction activities to improve access to the replacement land areas and enhance their scenic quality and biodiversity are included in the Scheme..

2.5.33 Once construction of the Scheme has been completed, all temporary works would be cleared from the special category land and these areas of temporary possession will be restored sufficiently to be handed back to the respective owner (SCC) with public access reinstated. This could be between 2.5 and 4 years after the start of construction, depending on the degree of reinstatement and revegetation required. The resulting approximate ratios of provision of replacement land permanent loss of special category land would then be:

- Wisley Common – 22.9 ha to 6.9 ha – 3.3:1;
- Chatley Heath – 2.1 ha to 0.50 ha – 4.2:1; and
- Public open space (including Ockham Common) – 22.9 ha to 7.8 ha – 2.9:1.

2.5.34 This represents an approximate net increase of 17.6 ha or 8.9 % in the extent of registered common land at the Wisley site and an approximate net increase of 15.1 ha or 9.4% in the extent of public open space at the Wisley site.

2.5.35 More detail on the replacement land process, the special category land to be acquired and the replacement land areas proposed can be found in Appendix C to the Statement of Reasons (Application Ref: TR010030/APP/4.1).

SPA compensation and enhancement

Compensation land

2.5.36 The Scheme will lead to the permanent loss of 5.9 ha of SPA habitat. To compensate for this loss, two parcels of land contiguous with the Ockham and Wisley Commons SSSI component of the SPA have been identified to be included in the SPA boundary. These are:

- Old Lane SPA compensation land; and
- Wisley SPA compensation land.

2.5.37 The sum of these areas of land will add up to 8.1 ha, providing over 1:1 compensation for permanent land take from the SPA. The compensation land will contribute towards offsetting some of the adverse effects of the Scheme, namely:

- The permanent loss of 5.9 ha of SPA habitat; and
- The potential reduction in invertebrate resource.

2.5.38 However, the compensation land areas will take some time to be fully effective in their value as an invertebrate resource. In addition, the provision of the compensation land will not offset the temporary loss of 8.6 ha of habitat or the invertebrate resource associated with that temporary loss.

2.5.39 Therefore, additional enhancement areas as set out below are provided as part of the compensation package, to ensure that the overall coherence of the Natura 2000 Network is maintained.

Enhancement areas

2.5.40 Enhancement areas at a ratio of 3:1 for the temporary and permanent land take are provided as part of the compensation package, to ensure that the overall coherence of the Natura 2000 Network is maintained.

2.5.41 As explained in section 1.4.3 of the European Commission Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC, under the Birds Directive4 compensation could include:

> *'work to improve the biological value of an area, which is either designated or will be designated, so that the carrying capacity or food potential are increased by a quantity corresponding to the loss on site affected by the project'.*

2.5.42 The enhancement areas will support habitat management works that will improve the existing Scots pine dominated mixed woodland habitats within the SPA to benefit the qualifying species in the following ways:

- Total clearance of wooded areas to create open habitat and enable heathland regeneration. This will provide more nesting and foraging habitat for the qualifying species, thus increasing their carrying capacity. The heathland regeneration will provide a much more diverse habitat type for invertebrates, thus increasing the food potential for the qualifying species.
- The thinning of woodland will create open glades to support foraging qualifying species (particularly nightjar) and enable increased diversity (both of species and structure) of the mixed woodland, providing a much more diverse habitat type for invertebrates, thus increasing the food potential for the qualifying species.

2.5.43 Enhancement areas are proposed on either side of the A3 at:

[4] Directive 2009/147/EC

- Sandpit Hill;
- Near Old Lane;
- Between Elm Lane and the A3;
- West of the A3 at Cockcrow Hill;
- To the south of Pond Farm;
- To the west of Pond Farm;
- South of Hut Hill; and
- West of Hut Hill.

2.5.44 The Scheme Layout Plans show the proposed enhancement works locations.

2.5.45 The enhancement works will lead to the clearance of 22.5 ha of mixed woodland, allowing heathland habitats to regenerate.

2.5.46 In addition, the long -term management plan for the cleared enhancement areas will ensure that they are maintained as diverse heathland habitat containing a mixture of heather, bracken, open patches, isolated trees, water bodies and scrubby edges. This will provide an excellent invertebrate resource[5].

2.5.47 The enhancement works will also include the thinning of 24.9 ha of mixed woodland, creating some open areas and rides, as well as improving the diversity of the woodland (much of which is currently dominated by Scots pine of a similar age) by allowing other tree species to grow, as well as planting some deciduous tree species.

2.5.48 The 8.6 ha of temporary land take will be reinstated with a mixture of woodland edge and scrub habitats to provide a protective buffer for the retained areas of mixed woodland against wind fall, as well as providing a layered canopy that will provide a visual barrier between the footpaths and the roads. This will also contribute to the invertebrate resource of the SPA.

Order limits

2.5.49 The proposed draft Order limits have been established and include all works proposed by the Order including both the Nationally Significant Infrastructure Project (NSIP) and any of the associated development.

Landtake

2.5.50 The Scheme will require the acquisition of land outside the existing Highways England land ownership boundary to enable it to be built and operated. This land take is split into three categories:

- permanent acquisition where the land taken will be retained in the ownership of Highways England after the works are complete. 139.17 ha of land will be taken permanently to build and operate the Scheme;
- temporary possession where the land will be used to build the scheme but returned to its original owners after construction is complete. 27.93 ha of land will be taken temporarily; and

[5] Buglife (2013) Promoting habitat mosaics for invertebrates: lowland heathland (https://www.buglife.org.uk/sites/default/files/HM%20Heathland%20mosaic%20proof%20FINAL_1.pdf; accessed 04/10/18)

- temporary possession with acquisition of permanent rights where the land will be used to build the scheme and returned to its original owners after construction is complete but where rights of access will remain over it for future maintenance operations. 73.47 ha of land will fall into this category.

2.5.51 The land used temporarily will be restored and released back to its original landowners after construction has been completed. As far as possible the land will be returned in the same condition as it was before the works commenced. Where this is not possible, measures will be put in place to achieve this including management operations over a long period of time. In some cases, it may be possible to return the land in an enhanced condition in agreement with the original landowner. Further detail is given in the Chapter 8 Biodiversity and Chapter 13 People and Communities.

2.6 Environmental proposals

2.6.1 Specific environmental works have been incorporated in the Scheme in various ways:

- Proposals for control of traffic noise;
- Environmental proposals in highway land;
- Environmental proposals in land used for construction;
- Environmental proposals in replacement land;
- Environmental proposals in SPA compensation land;
- Environmental proposals in SPA enhancement areas; and
- Environmental proposals for Bolder Mere.

2.6.2 These proposals are indicated in broad terms on the Scheme Layout Plans, these proposals will be refined during detailed design and, if necessary, refined again during construction to accommodate site conditions.

Proposals for control of traffic noise

2.6.3 To limit the potential for increases in traffic noise arising from the Scheme, most of the new and amended sections of highway will be finished with a Thin Surface Course System (TSCS). This means that the noise level emanating from the tyres should be 3.5 dB(A) less than that for a traditional hot-rolled asphalt surface, which is the approach to be used in very noise-sensitive locations.

2.6.4 The road surfaces that will not be finished with a TSCS are:

- The road carriageways on the decks of Wisley Lane overbridge, Cockcrow overbridge and Clearmount overbridge;
- The A3 carriageways on the M25 junction 10 north and south bridges and the A3 overbridge across the M25;
- The gyratory carriageway on the M25 junction 10 east and west bridges;
- Widening of the M25 existing concrete carriageway for the extended merges and diverges to the east-facing and west-facing slip roads for junction 10; and
- The amended access into RHS Wisley Garden car park.

2.6.5 Environmental barrier fences are also proposed, as described in section 2.3.10.

Environmental proposals in highway land

2.6.6 The existing M25 and A3 highway land within the Scheme includes native species tree and shrub planting where space allows, creating a visual screen to the movement of traffic and integrating the highway earthworks into the largely wooded context of the adjacent land. Along the M25, the lower parts of cutting slopes are usually retaining walls or steepened earthworks resulting from previous carriageway widening work; these steep slopes do not have woody vegetation and, therefore, long stretches of the motorway, particularly west of junction 10, have little or no woody vegetation between the carriageway and the environmental barrier fence.

2.6.7 Where the existing highway planting will be lost during construction of the changes to the M25 and A3, the intention is to reinstate native tree and shrub species planting on the new highway earthworks, where practicable within the constraints imposed by current maintenance requirements and subject to any applicable detailed approvals under DCO requirements. This will, in time, restore the character of the roadside vegetation and should reduce the extent of environmental barrier fence that remains open to view from the carriageways.

2.6.8 The new highway verges will be seeded to grass; during detailed design, consideration will be given to which of the larger areas of verge could have some wild flower species included within the grass seed mix, where this would be compatible with the sightline requirements and the maintenance regime.

2.6.9 Steepened earthworks slopes will be seeded to grass, plus other wild flower species compatible with the difficult growing conditions presented by the construction method and the aspect.

2.6.10 The drainage balancing ponds and associated facilities that remain within the highway land will have their earthworks grassed and/or planted to integrate with their surroundings, plus aquatic marginal planting as appropriate within the constraints imposed by current maintenance requirements.

Environmental proposals in land used for construction

2.6.11 The current expectation is that the existing vegetation within the areas indicated for temporary possession and temporary possession plus permanent rights will be cleared of woody vegetation, except for locations specifically indicated for retention. Within the SPA and SSSI, this vegetation is mostly plantation woodland. Detailed design and construction planning will aim to reduce the extents of land needed and vegetation clearance where practicable, particularly within the designated habitats and special category land.

2.6.12 Once the engineering construction works are complete, there will be substantial areas of the site that will have their soil conditions restored and become available for environmental reinstatement, subject to any applicable detailed approvals under DCO requirements. These areas include compounds, soil and materials storage areas, haul roads, temporary slip roads, space for construction activities (including utilities diversions and PRoW) and sites of demolished overbridges.

2.6.13 Where these areas fall within the extents of special category land and environmental designations, the intention is that these areas will have public

access reinstated and will, in due course, become an effective part of the adjacent habitats. To achieve this, the environmental proposals include:

- Native tree and shrub planting to create a wooded screen to the highways and traffic beyond; this will be entirely or largely deciduous species, with a high proportion of species that will maintain an effective screen at eye level and without the high proportion of Scots pine seen in the existing woodland close to the M25 and A3;
- Larger blocks of tree and shrub planting will include areas of grassland and species-rich grassland with a proportion of native species tree and shrub species, to create glades within the woodland and to provide a graduation between woodland and open heathland or grassland areas;
- Species-rich grassland as appropriate for the ground conditions, with suitable areas managed to encourage heathland species to establish; and
- Sandy banks and other open soil areas within the glades and grassland to provide habitats for reptiles and invertebrate species.

2.6.14 For the private properties beside the A3 that will be affected by temporary possession of land, including Painshill Park, the areas of land to be handed back will have ground conditions reinstated and planting provided, reflecting landowners' wishes and subject to any applicable detailed approvals under DCO requirements.

Environmental proposals in replacement land

2.6.15 The environmental proposals within the replacement land area vary according to the level of work needed to facilitate public access, the existing vegetation types and the underlying ground conditions. Native tree and shrub planting in these land parcels will also provide compensation for the small loss of existing ancient woodland required for the construction of the Scheme and will be a major contributor to the overall outcome of limited woodland loss for the Scheme.

2.6.16 For the three parcels at Park Barn Farm (see Scheme Layout Plans sheet 6):

- The damp meadow west of the farm and close to the River Wey will be developed into an informal pattern of native species woodland planting and glades, to enhance the visual interest and variety within the parcel and create habitat links with the adjacent Buxton Wood;
- The large dry meadow to the south of the farm will have some native species tree and shrub planting to create visual and habitat connection to and between the adjacent areas of wooded common land, to the planting in the meadow parcel above and to the ancient woodland in the parcel below. The grassland will be managed to reduce the nutrient levels in the soil and encourage dry grassland and, in time, heathland species to become established; and
- The deciduous woodland parcel east of the farm is covered by a TPO, but will have some selective thinning (subject to consent) of a dense stand of birch in the southern part to create openings to link the existing grassland glade through the potential Scots pine clearance areas in the adjacent common land. There is some ancient woodland in the northern part that will be managed carefully to enhance its biodiversity. There will be native species

tree and shrub planting in part of the grassy area within the parcel to enhance habitat and visual links and the remainder of the grassland will be managed as in the parcel above.

2.6.17 For the four parcels at Chatley Farm (see Scheme Layout Plans sheet 7):

- Chatley Wood Scots pine plantation will have considerable selective tree thinning and some replanting with deciduous woodland species, to create an informal patchwork of woodland with dry and damp glades, whilst being mindful not to disturb the existing badger population and to maintain the remnants of the former dam within the wood. Openings will be created to allow views out across the Mole valley from the higher parts of the wood;
- The Breach Hill Wood parcel will be completely cleared in its western part because of being used for a construction compound; the rest will have considerable selective tree thinning and the whole parcel will have some replanting with deciduous woodland species, to create an informal patchwork of woodland with glades;
- The parcel north of Pointers Road will be managed carefully to enhance the condition of the ancient woodland; this will include substantial clearance of rhododendron and other non-native species. Some deciduous tree and shrub planting may be needed to maintain the health of the woodland; and
- The parcel south of Pointers Road will have considerable selective thinning of the mature mixed woodland alongside the M25, including removal of rhododendron and other non-native species and some replanting with deciduous woodland species, to create an informal patchwork of woodland with glades.

2.6.18 For the two parcels at Hatchford End (see Scheme Layout Plans sheet 8):

- The overgrown meadow with dense hedgerows will have selective thinning of the overgrown areas to create habitat variety and connections to the adjacent Hatchford Wood, along with some native species woodland planting; and
- The grazing field alongside Old Lane will have new interest provided by areas of native species woodland and hedgerow planting to define the boundary and create glades with a range of habitat types.

Environmental proposals in SPA compensation land

2.6.19 There are two locations identified as providing new SPA land as compensation for land that will be permanently lost from the SPA. These have been chosen on the basis that they are contiguous with the existing SPA, would contribute to the habitat and/or food sources supporting the SPA qualifying bird species and would not extend the restriction on potential development created by the SPA buffer zone:

- A field by Old Lane opposite Hatchford End, which will be planted with a low density of native tree species to create a wood pasture habitat managed by grazing, to provide a rich invertebrate resource for the SPA. Some of the scrub and young trees in the adjacent edge of the SPA may be thinned to improve habitat connectivity to the heathland beyond; and
- Near Wisley, beside the M25 Buxton Wood overbridge. This includes grazed meadow, scrub and the southern remnant of Buxton Wood. The meadow will

continue to be managed by grazing, adjusted to optimise the conditions for insects that provide food sources for the SPA bird species. A hedgerow and areas of wood pasture will be planted to connect the woodland with the larger wooded area to the south. SPA enhancement works in an adjacent part of this woodland (see Pond Farm West below) will improve connectivity between the open grassland habitat of the meadow and open heathland to the south.

2.6.20 More detail on the SPA compensation land and the design process can be found in the M25 junction 10 Habitats Regulations Assessment Report (Application Ref: TR010030/APP/5.3).

Environmental proposals in SPA enhancement areas

2.6.21 There are eight locations identified for enhancement work within the SPA as part of the compensation for impacts on the SPA:

- Elm Lane. This area will entail about 1.8 ha of woodland clearance to open up parts of the southern edge of Bolder Mere and enable heathland to re-establish, plus about 9.5 ha of intense selective thinning of mostly Scots pine and birch to create a network of glades and rides in a more open woodland that supports SPA species better;
- Ockham Common / Old Lane. This area will entail about 3.8 ha of woodland clearance to extend the main heathland of Ockham Common, plus about 1.1 ha of selective thinning of mostly Scots pine and birch to create a network of glades in a more open woodland around Pond car park that supports SPA species better;
- Ockham Common / Sandpit Hill. This area will entail about 9.4 ha of woodland clearance to extend the main heathland of Ockham Common northwards and provide connection to the green habitat link across Cockcrow bridge (see 2.3.6), plus about 7.9 ha of intense selective thinning of mostly Scots pine, sycamore and birch to create a network of glades and rides in a more open woodland around Curries Clump and near the M25 that supports SPA species better;
- Cockcrow Hill. This area will entail about 1.9 ha of woodland clearance to extend the main heathland of Wisley Common southwards and provide connection to the green habitat link across Cockcrow bridge (see 2.3.6);
- Wisley Common. This area will entail about 4.5 ha of woodland clearance (mostly young birch) to extend the main heathland of Wisley Common;
- Hut Hill South. This area will entail about 1.2 ha of woodland clearance (mostly Scots pine) to extend the main heathland of Wisley Common;
- Pond Farm South. This area will entail about 2.4 ha of intense selective thinning of mostly Scots pine, sycamore and birch to create a network of glades and rides in a more open woodland to improve linkage between two areas of open heathland habitat and support SPA species better; and
- Pond Farm West. This area will entail about 4.2 ha of intense selective thinning of mostly young Scots pine, sycamore and birch to create a network of glades and rides in a more open woodland to improve linkage between an area of open heathland habitat and a meadow in the SPA compensation land and support SPA species better.

2.6.22 These enhancement works will be phased over several years, so that:

- The adverse effect of the Scheme's construction activities on the amenity of Wisley and Ockham Commons is not substantially increased;
- Woodland clearance adjacent to areas of engineering construction does not take place until that work is complete; and
- Reinstatement of vegetation of areas of temporary possession can have some time to get established before adjacent woodland is removed or opened up.

2.6.23 The construction work will affect a substantial badger sett within the SPA and a replacement sett will be provided in an appropriate location.

2.6.24 More detail on the SPA enhancement areas and the design process can be found in the M25 junction 10 Habitats Regulations Assessment Report (Application Ref: TR010030/APP/5.3).

Environmental proposals for Bolder Mere

2.6.25 The widening works for the A3 southbound carriageway will require construction extending into the north-western edge of Bolder Mere and the removal of the existing wet woodland and marginal reed bed habitats along that edge of the mere. As part of the environmental design and to comply with the requirements of the WFD, two activities are proposed:

- Substantial thinning of about 4 ha of the dense Scots pine plantation around the edges of the mere, followed by management of the scrub layer and tree regrowth to enhance the biodiversity of the ground flora and to encourage heathland re-establishment and a more diverse marginal aquatic habitat. This will be coordinated with the detail of the SPA enhancement proposals in the adjacent Elm Lane enhancement area; and
- Placement of suitable fill in the new north-western edge of Bolder Mere alongside the retaining structure to create a sloping margin to the water on which the marginal reed bed and wet woodland habitats can be re-provided.

2.7 Construction

2.7.1 The arrangements for construction of the Scheme have been developed in a level of detail sufficient to provide certainty on the land take required to build to the works, to inform an outline construction programme and to provide detail of construction methods and equipment sufficient to inform the environmental assessment. The assessments of construction effects will assume best practice, based on industry guidance and professional experience. Construction of the Scheme is planned to commence in Winter 2020/21, with the Scheme planned to be open for traffic in September 2023.

Land required temporarily to build the Scheme

2.7.2 The contractor will require parcels of land around the permanent scheme to use for offices, storage, for temporary works, to work in and to move materials, vehicles and personnel around the site. This land will be taken temporarily and returned to its original owners after agreed restoration works have been carried

out. The areas that would be affected by temporary works are shown on the Temporary Works Plans (Application Ref: TR010030/APP/2.12).

Compounds

2.7.3 The contractor will require several compounds to operate construction activities from. These will house offices, welfare facilities and vehicle and materials storage. There will be no planned overnight staff accommodation facilities.

2.7.4 The main compound for the works will be located at the Nutberry Farm adjacent to the Ockham Park junction at the southern end of the scheme and will operate for the duration of the works. This will occupy an area of 5.5ha of agricultural land that is currently used as a fruit farm and occasional car boot sale site. It will be accessed from the Ockham Park junction with egress onto the B2215 Portsmouth Road. The compound will be set back approximately 10m from the Stratford Brook which runs along the northern boundary of the compound to avoid detrimental impacts on the watercourse. The detailed internal layout of this compound and other noted below will be developed later in the project programme.

2.7.5 A second compound will be required at the northern end of the scheme and will be located on the site of the former San Domenico restaurant off the A3 northbound carriageway near the Painshill junction. This will also operate throughout the duration of the works. The existing partly derelict San Domenico building will be demolished to enable the compound to be laid out efficiently but the current Starbucks coffee shop buildings on this site might be retained and be used during the works by the contractor. The coffee shop would be closed to the public and would not operate during the course of the works.

2.7.6 Other compounds will be required for periods during the course of the works where structures are to be built. There will be two at junction 10 – one adjacent to the Cockcrow Bridge on the northbound A3 and another between Pointers Road and the M25 eastbound carriageway east of junction 10. At the end of the works the Pointers Road compound will be used as part of the replacement land package rather than being returned to its original owners.

2.7.7 Similar compounds will be required for the Replacement Clearmount overbridge which will be located adjacent to the M25 eastbound carriageway at Buxton Wood and on the former Wisley Airfield near Elm Lane. Both of these compounds would also be used for storage of soils removed from the site of the works to enable it to be reused over the earthworks to support new planting and grass seeding. Other areas will be taken for soil storage on land within the Hilton Hotel site, on the land at New Farm (both at the northern end of the scheme) and adjacent to the M25 westbound carriageway between the existing Buxton Wood Overbridge and the Replacement Clearmount overbridge. The topsoil storage would be at a maximum height of 3m and the locations have been selected because they would not require significant vegetation clearance.

Haul Routes and traffic management

2.7.8 Because of the sensitive nature of the land surrounding the junction haul routes for materials and staff would, as far as possible use the existing A3 and M25. Where widening will create an extra lane or extended slip road the contractor will use this area and the adjacent working space included in the DCO boundary as a haul route. This will be protected from traffic by a temporary crash barrier whilst

the passing traffic on the A3 and M25 would run in narrow lanes and under a reduced speed limit for safety reasons. On the A245 Byfleet Road the speed limit would be 30mph. This traffic management would extend over the length of the areas where works were taking place and would be removed as soon as it would be safe and practicable to do so.

Ockham Park to M25 junction 10

2.7.9 Works for the Wisley lane overbridge and Wisley Lane realignment west of the A3 would be accessed via the existing junction with the A3 until the New Wisley Lane overbridge is built when the structure would be used as a haul route. Access to and from the compound at Cockcrow would initially be via the existing access to Pond Farm from the A3 northbound slip road at M25 junction 10. When the M25 junction 10 slip road works in this quadrant begin access would be from the haul road/working space area and egress via the Replacement Cockcrow overbridge when completed.

M25 junction 10 and M25 west of junction 10

2.7.10 For works immediately to the west of M25 junction 10 the contractor is expected to use the Clearmount bridge as an access route to enable construction vehicles to turn around without having to travel to M25 junction 11. This route will also be used to access the works on the M25 eastbound carriageway east and west of the Clearmount bridge. Vehicles will either return via the Clearmount overbridge, access the junction when the temporary slip roads are in operation or access the A3 further north of M25 junction 10 when the permanent slip roads have been built. Contractors vehicles used for the works along the M25 westbound carriageway, west of the Clearmount bridge will need to travel on the M25 mainline and turn around at junction 11.

M25 junction 10 to Painshill junction

2.7.11 Access to the works north of junction 10 would be off the A3 just to the north of the New Red Hill overbridge site. Early construction of the new Long Orchard private access road and New Seven Hills Road South extension would enable this route to be used for construction vehicles who would exit on to the existing Seven Hills Road South or Redhill Road.

Painshill junction to M25 junction 10

2.7.12 Works for the new Heyswood private access would be built before the widening of the A3 in this section. This would enable these properties to continue to have safe access to the A3 once the widening works begin with limited contact with contractors vehicles which would be generally restricted to the widened carriageway and adjacent working space accessed of the existing A3 southbound carriageway. At M25 junction 10 the works to the east of the A3 and the compound off Pointers Road would be via the A3 to M25 southbound off slip where it joins the M25.

M25 junction 10 and M25 east of junction 10

2.7.13 For works on the M25 eastbound east of junction 10 the contractor will access the works area close to junction 10 and exit onto the M25 mainline and then turn around at the Cobham Services. For works on the westbound carriageway the contractor will access the works area just to the west of Cobham services.

Egress from the works would be via the restricted byway works site through to Old Lane by the Ockham Bites car park whilst the temporary slip roads are in operation. Once the permanent slip roads are in place access to works to the south west of junction 10 would be via the restricted byway route from Old Lane/Ockham Bites.

M25 junction 10 to Ockham Park junction

2.7.14 Access to the works on the A3 south bound just to the south of Old Lane will be off the A3 southbound carriageway. Access to the A3 southbound works would also be possible via the new Wisley Lane diversion, construction compound and Elm Lane. The Wisley Lane diversion works and New Wisley Lane overbridge would be accessed off the Ockham Park junction once the new Stratford Brook overbridge was completed.

Road and other rights of way closures and diversions

2.7.15 The construction of the scheme will require periodic closures of the A3 and M25 for operations such as bridge demolition and installation of new bridge and gantry structures. These will be kept to a minimum and will take place overnight or, if unavoidable at weekends. These would be coordinated with the Highways England, local authorities and the operators of the M25 and the diversions would follow established routes that have been used for previous closures. Short term closures of local roads will also be required to enable the works to be built and these are outlined below.

Wisley Lane

2.7.16 Wisley Lane will be kept open at all times apart from overnight closures necessary to complete the tie in works for the Wisley Lane realignment close to the entrance to RHS Wisley. During these closures access would be via Pyrford Lock bridge (recognising the traffic restrictions places on this bridge). When the Wisley Lane works are complete traffic will be diverted onto the new route via the Ockham Park junction and the existing access from the A3 northbound carriageway will be closed. The existing Wisley footbridge will be retained in place until the new bridge is ready for use when it will be demolished.

Elm Lane and the Bridleway Open to All Traffic (BOAT)

2.7.17 The BOAT will be resurfaced early in the construction programme to enable residents of Elm Corner to access the road network via Old Lane. This will enable the section of Elm Lane south of Elm Corner through to the A3 to be stopped up. This section will be kept in place to allow the redundant carriageway to be used to access the drainage attenuation ponds adjacent to the A3 either side of the Wisley Lane diversion but no access to or from the A3 will be possible here.

Access to Pond Farm, Birchmere Scout Camp and Hut Hill Cottage

2.7.18 The existing access to and from these properties via the A3 northbound off slip to junction 10 will be kept open until the New Cockcrow overbridge and approach routes is complete when access will be available over the new bridge.

Access to properties to the east of the A3 north of junction 10

2.7.19 Several properties to the east of the A3 gain access to the road network directly onto the A3 southbound carriageway. These will be closed off by the scheme and a new PMA will be provided which will provide access via the A3 southbound on slip at the Painshill junction. This access will be put in place before the existing accesses are closed.

Access to properties west of the A3 north of junction 10

2.7.20 Several properties gain access to the road network along the old A3 west of the current A3 and this access would be maintained throughout the works. The access to the Starbucks drive through from the A3 would be closed off and the site acquired to provide a works compound for the contractor. At the end of the works the remaining part of the site would be returned to its original owners but a new access would be provided onto the gated PMA that connects to Redhill Road and Seven Hills Road (South).

Clearmount bridge

2.7.21 The existing Clearmount bridge will be demolished to accommodate the new slip roads between the A3 and M25. It will be replaced by a new bridge adjacent to the existing bridge with demolition only taking place when the new bridge is open for use.

A3 Painshill junction to Ockham junction non-motorised user (NMU) route

2.7.22 The existing route for pedestrians, cyclists and horse riders (known as non-motorised users or NMU's) along the A3 south bound carriageway between Ockham and Painshill junctions would be removed by the widening of the A3. This would happen south of junction 10 at the start of the works and north of junction 10 later in the programme. The existing NMU routes around junction 10 would be closed at the start of the highway works which would require diversions for the users of these crossings. Cyclists would be signed to follow a route between Ockham Park and Painshill junctions via Ockham, Martyrs Green, Hatchford Park, Downside and Cobham. Pedestrians and horse riders would have to use non-surfaced paths within the commons away from the junction crossing the A3 and M25 via the existing Clearmount, Cockcrow and Hatchford bridges. The existing A3 crossing for bridleway 12 would be closed early in the construction and there would be severance of this route until the new Red Hill overbridge is completed.

2.7.23 A new bridleway would be provided a short distance from and parallel to the A3 to replace the existing NMU route alongside the A3 south of the M25. As this will run largely along the line of the gas main diversion much of the route would be constructed in the enabling works period, which would allow NMUs to use a hard-surfaced north–south route early in the construction period.

2.7.24 The existing NMU route section from Ockham Park junction to the New Wisley Lane overbridge would remain open until the Wisley Lane diversion was completed when the route would be diverted on to it. The section from Wisley Lane to the Cockrow overbridge would be built in the enabling works period and would be open for use before the existing route would be closed. Although there would be a crossing over the A3 at Cockrow the section from the bridge to and over the M25 would not be available for use until the New Sandpit Hill overbridge

was constructed later in the construction programme. NMUs would therefore be required to use existing unsurfaced paths to the existing Hatchford overbridge then back along Pointers Road to the M25. The section from Pointers Road up to Redhill Road and through to the Seven Hills Road junction would be built before the existing NMU route alongside the A3 southbound was closed for the widening so there would be no interruption to this route. However, it would not be possible for NMUs to cross over the A3 until the New Red Hill overbridge was built, see below.

Bridleway 12

2.7.25 The Bridleway 12 crossing of the A3 north of junction 10 would be closed early in the construction period when the temporary slip roads would be built. A crossing over the A3 north of the junction would not be reinstated until the New Red Hill overbridge was built. For this period there would be no means of crossing the A3 between Cockcrow bridge and Painshill junction.

Construction sequence

2.7.26 The dates in this section reflect the assumed construction sequence for the assessment of impacts.

Enabling Works – December 2020 to August 2021

2.7.27 The first works to be undertaken would be the setting up of Contractor's compounds at Nutberry Farm by the Ockham Park junction and at the site of the former San Domenico restaurant west of the A3 just to the south of the Painshill junction. Other compounds for storing stripped topsoil and construction materials would be set up on the former Wisley Airfield, near Buxton Wood bridge, at New Farm east of the A3, south of the Painshill junction and in the grounds of the Hilton Hotel near Painshill. The whole of the works area would be fenced off to prevent members of the public gaining access to sites where construction is taking place. During the winter, clearance of vegetation would take place and then, when weather conditions allow topsoil would be stripped from the site and stored as necessary to be reused when the construction works are complete for tree planting and seeding.

2.7.28 Several gas mains and other utilities run along or cross the site of the works and these would be realigned during the enabling works period to allow the construction of the highway works to go ahead unhindered. Trenches to accommodate these diverted utilities would be dug, new pipework and cables would be laid, and the trenches filled in in sequence to avoid leaving excavations open. Because of the lead in time to procure the new lengths of gas pipe this element of the work would extend through to October 2021. The route of the diversions has been aligned with the new restricted byway running between the Wisley Lane realignment and the gas valve compound south of the Painshill junction to reduce land take and facilitate future maintenance access arrangements. The Hut Hill retaining wall will be constructed in the enabling works period prior to allow the gas main diversion to be carried out without being affected by subsequent works. The new Stratford Brook bridge would also be built during the enabling works period to enable the Wisley Lane diversion to be built early in the construction programme allowing better access to the materials storage compound on the former Wisley Airfield.

2.7.29 The common land and open space replacement land parcels and the SPA compensation land parcels would be established at the start of the enabling works period, with habitat creation and planting works taking place during the first suitable season for these works. Works to replacement land to clear existing vegetation and create new rights of way or improve existing ones would also be carried out during the enabling works period, where practicable, to maximise early access to the replacement land parcels.

June to August 2021

2.7.30 During this period the construction of the main highway works will commence.

M25 Works

2.7.31 The construction of the temporary slip roads needed at junction 10 will be started, beginning with those to the north east and north west of the junction. This will include remaining site clearance, fencing to secure the site and drainage works. A site compound for works on the replacement Cockcrow overbridge will be established just to the south west of junction 10 adjacent to the A3.

A3 Works

2.7.32 The route for the Wisley Lane diversion and realignment will be cleared and the earthworks needed for it will be started. The foundations for the New Wisley Lane overbridge will be started and the culvert under the A3 slip roads at the Ockham Park junction will be strengthened to accommodate the widening works. Initial works to begin widening the A3 from the Ockham Park junction up to the Cockcrow overbridge will be undertaken. This will include the installation of a retaining wall along the boundary with RHS Wisley. At Bolder Mere works to install a new retaining wall to accommodate the widened A3 will start, along with a replacement culvert to carry the outfall from the waterbody under the A3. At Elm Corner the surface of the existing BOAT 525 will be removed in preparation for this route to be upgraded to enable residents of Elm Corner to access Old Lane.

September to November 2021

M25 Works

2.7.33 Further work on the north east and north west temporary slip roads will take place and earthworks to accommodate the permanent slip roads on the M25 eastbound will begin.

A3 Works

2.7.34 Work will start on the Wisley Lane diversion and New Wisley Lane overbridge. Along the A3 between the Ockham Park junction and the Cockcrow overbridge the widening works, including those for the Wisley retaining wall will continue. The works for the Bolder Mere retaining wall will be completed during this period and work will start on the Replacement Cockrow overbridge. The resurfacing of the BOAT from Elm Corner will be completed and the Elm Lane access to the A3 for residents will be stopped up. To the north of junction 10 work will start on the New Red Hill overbridge on the A3.

December 2021 to February 2022

M25 Works

2.7.35 During this period the north east and north west temporary slip roads will be completed, and traffic will be diverted onto them. Work to construct the Replacement Clearmount overbridge will also be started.

A3 Works

2.7.36 The Wisley Lane diversion, New Wisley Lane overbridge and Wisley retaining wall would all be completed and the new Stratford Brook bridge would be progressed with the bridge deck being installed. Work on the A3 widening (excluding earthworks), south of junction 10 would continue along with work on the Replacement Cockcrow overbridge and Red Hill overbridge.

March to May 2022

M25 Works

2.7.37 Works to build the temporary slip roads to the south east and south west of junction 10 would begin and work at the Replacement Clearmount overbridge would continue. Retaining walls and earthworks to accommodate the altered slip roads between the M25 and A3 would also be worked on during this period.

A3 Works

2.7.38 The widening works on the A3 northbound, south of junction 10 would be completed but would not be opened to traffic as the temporary slip roads would not be complete. The New Stratford Brook bridge would be completed allowing traffic to use the Wisley Lane diversion and Wisley Lane realignment and for the current access from and to the A3 northbound here to be closed. The earthworks for the Replacement Cockcrow overbridge would be built and the bridge finished. The New Red Hill overbridge would be completed and the associated works to access it would continue. To the northern end of the Scheme works for the retaining walls to accommodate the A245 Byfleet Road widening would commence as would those for the new Heyswood private access at its junction with the A3.

June to August 2022

M25 Works

2.7.39 The south east temporary slip road would be completed and, with the other temporary slip roads in operation works will begin on the permanent slip roads and on the elongated roundabout itself. The Replacement Clearmount overbridge will be completed and the existing Clearmount overbridge would be demolished.

A3 Works

2.7.40 The widening works on the A3 southbound, south of junction 10 would be completed and works at the existing Wisley Lane access and existing Old Lane access would be carried out. At the end of this period there would be no further works on the A3 south of junction 10 until June to August 2023 when it both carriageways would be resurfaced. Works to widen the A3 north of junction 10 to

the Painshill junction would start, including the construction of the new Heyswood access and those on the A245 Byfleet Road would continue.

September to November 2022

M25 Works

2.7.41 The north east, north west and south west slip roads will be finished and the north east temporary slip road will be removed and traffic transferred to the permanent A3 southbound to M25 eastbound slip road. Work on the new south east slip road would continue as would works to elongate the roundabout and build the new junction 10 east and west bridges.

A3 Works

2.7.42 The retaining walls and earthworks on the A3 between junction 10 and the Painshill junction will be completed during this period as will the works to widen the A245 Byfleet Road.

December 2022 to February 2023

M25 Works

2.7.43 The north west and south west slip roads will be opened to traffic and works to finish the permanent south east slip road would take place. Works to elongate the roundabout and build the new junction 10 east and west bridges would continue. A start would be made on the New Sandpit Hill overbridge.

A3 Works

2.7.44 Works to widen the A3 between junction 10 and the Painshill junction would continue.

March to May 2023

M25 Works

2.7.45 During this period traffic would be transferred to the permanent slip roads and the north west and south west temporary slip roads would be removed. The carriageways on the south east and north east slip roads would be removed but the earthworks would be retained and shaped to be reused for the restricted byway route here. Work on the New Sandpit Hill overbridge would continue.

A3 Works

2.7.46 The widening works on the A3 between junction 10 and the Painshill junction would be completed.

June to August 2023

M25 Works

2.7.47 The works to elongate the roundabout and build the New junction 10 east and west bridges would be completed and work on the New Sandpit Hill overbridge would continue.

A3 Works

2.7.48 All the A3 between Ockham Park junction and the Painshill junction would be resurfaced.

September to November 2023

M25 Works

2.7.49 The New Sandpit Hill overbridge would be completed and the existing Clearmount and the existing junction 10 east and west bridges would be demolished and removed. Commissioning to test the Scheme. Landscape works would be undertaken.

A3 Works

2.7.50 Commissioning operations to test the Scheme. Landscape works would be undertaken.

Operation and long-term management

2.7.51 Once the Scheme was completed and commissioning activities had taken place it would be open to traffic. The contractor would be responsible for any construction defects that arise for a period of 12 months after opening. After this period the scheme would be handed over to Connect Plus who operate the M25 and this section of the A3 on behalf of Highways England. Highways England propose that side roads and other rights of way would be handed over to SCC who would be responsible for ongoing maintenance.

2.7.52 Environmental works would be maintained by the contractor after completion of those works to ensure establishment with further periods of management after that. Environmental works within the new highway boundary would be maintained by Connect Plus whilst those outside the boundary would be maintained by SWT on behalf of SCC. Details of maintenance and management operations are set out in Appendix 7.19 and Appendix 7.20

Decommissioning

2.7.53 In view of the indefinite design life of the Scheme, it is not considered appropriate for demolition to form part of each environmental topic assessment, rather the focus is on seeking to minimise disruption and to re-use materials as the Scheme is upgraded, that will also form part of the materials assessment. Demolition of the Scheme has therefore not been included in this Environmental Statement.

Part 3

3. Assessment of Alternatives

3.1 Background

3.1.1 In December 2014, following studies investigating modal alternatives, a scheme for the M25 junction 10/A3 Wisley interchange 'to allow free-flowing movement in all directions, together with improvements to the neighbouring Painshill interchange on the A3 to improve safety and congestion across the two sites' was included in the Government's RIS. This was subsequently amended to remove 'in all directions' when it was found the Scheme could work without it. The process by which the alternative proposals were developed, assessed and either discarded or chosen for further consideration is summarised in this section. Further detail on this process is provided in M25 junction 10/A3 Wisley interchange Planning Statement (Application Ref: TR010030/APP/7.1)

3.2 Strategic alternatives

3.2.1 A two-stage approach was undertaken in developing options for the Scheme. Firstly, a number of high-level, strategic solutions were developed which considered ways to solve the problems identified. Secondly, once the strategic option was selected, a more detailed Scheme option appraisal was undertaken.

Strategy, Shaping and Prioritisation Stage

3.2.2 A range of strategic options to address the key problems at M25 junction 10 were identified in the Strategy, Shaping and Prioritisation Stage. These strategic options gave high level consideration to a range of alternatives dealing with transport supply and demand and included options for different modes of travel as well as different scales of highway intervention. At this stage it was apparent that a do nothing approach would not be a viable option to solve the problems at junction 10. Based on assessments undertaken by the project team a strategic option focussing on localised highway improvements at M25 junction 10 and Painshill interchange was confirmed as the preferred solution and taken forward to the Option Identification Stage.

Option Identification Stage

3.2.3 At the start of the Option Identification Stage, Atkins undertook a high-level modelling exercise to identify a range of options and determine whether they would provide sufficient capacity for a design life of ten to fifteen years. The testing considered the scale of intervention required to ensure that the interchange would operate below capacity in ten and fifteen years' time. It was found that either the existing roundabout would need to be significantly enlarged or at least all left turns and two busy right turns would need to be removed from the M25 junction 10 roundabout. A long list of twenty-one options that fulfilled these criteria was developed and assessed and which was reduced down to the most suitable ten options. These ten options were subject to further assessment and testing to examine their viability to achieve the objectives for the Scheme.

3.2.4 Of the ten options considered the following options were selected for further assessment:

- Option 16 - a large, cyclic arrangement similar to M25 junction 12 with the M3. This obtained the highest overall assessment score despite being one of the highest cost options and having the greatest environmental impact;
- Options 9 - which had dedicated left turns plus two free flow right turns from the A3 to M25 anti-clockwise and from the A3 to M25 clockwise. This option achieved the next highest assessment score and was thus selected for further consideration; and
- Option 14 - this option featured an elongated roundabout and dedicated left filters which scored marginally less than the other chosen options. However, it was the most affordable of all options and had the least environmental impact so for that reason it was agreed that it should be taken forward for further evaluation.

3.2.5 Predicted traffic flows on the A3 for the design year of 2037 would require the widening of the A3 carriageway from D3AP to dual four lane all purpose (D4AP) between Ockham junction and Painshill junction. All three options therefore included widening of the A3 as well as improvements at the Painshill junction. Similar changes to side roads required as a result of the A3 widening were included for all three options.

3.2.6 At the end of the Option Identification Stage, Option 16 was excluded from further consideration and the public consultation due to its high cost and environmental impact.

3.2.7 It was recognised that the statement in the 2015 RIS for the Scheme 'to allow free-flowing movement in all directions' was not compatible with the environmentally sensitive nature of the area. For this reason, the Options that did not necessarily provide free flowing movement were also considered suitable to be taken forward to the next stage of the Scheme.

3.3 Alternative development options

3.3.1 Following Scheme Option Identification, Options 9 and 14 were taken forward for further design and assessment in the option selection stage.

3.3.2 Both Options 9 and 14 also required alterations to the side roads currently joining the A3 including Wisley Lane as well as private accesses, bus stops and lay-bys. The side roads options common to both Options 9 and 14 were developed further during the Option Selection Stage and are described in the table below.

Table 3.1: Options development

Option	Description
Option 9 - Dedicated left turns plus two free flow right turns A3 to M25 junction 9 and A3 to M25 junction 11, Painshill and A3 D4AP	Option 9 consisted of free flow right turns from the A3 northbound to the M25 anti-clockwise and from the A3 southbound to the M25 clockwise. Free flow left turns from the A3 northbound to the M25 clockwise and the A3 southbound to the M25 anti-clockwise were also provided. Right turns were provided on a large long span viaduct passing close to the centre of the existing junction with intermediate supports to fit within the constraints of the existing layout. All other vehicle movements would be carried out on the existing roundabout. New segregated Non-Motorised User (NMU) routes would be required with the widened A3 carriageway to four lanes in each direction.

Option	Description
	The A245 would be widened symmetrically on the existing line of the A245, from two to three lanes between the Painshill interchange and the junction with Seven Hills Road. The Painshill improvements would also reduce congestion on the A3 northbound. Although less environmentally damaging than Option 16 this option would have significant adverse effects. The land required to build this option within an area designated for its internationally and nationally important ecological value made it difficult to support. Similarly, a large area of common land or access land would be taken which would need to be replaced. The slip roads necessary to carry the right turning traffic would need to be elevated over the existing three level junction leading to increased visual impacts as well as increased noise effects on local people and bird species in the Thames Basin Heaths Special Protection Area (SPA). There would also be very large adverse effects on the setting of the scheduled monuments close to the junction and possible direct effects on the remains as well.
Option 14 - Elongated + dedicated left filters, Painshill and A3 D4AP	Option 14 included widening the circulatory carriageway under the A3 to four lanes, five lanes of circulatory carriageway would be provided where unconstrained by the existing structures. Right turns would be carried out on the modified roundabout and left turns would use dedicated left filter lanes. Slip roads would be realigned to aid construction sequencing. NMU facilities would remain largely unchanged but minor upgrades would be required. The widening to four lanes would aid weaving and merging on the A3 as well as providing an opportunity to address side road access, lay-by provision and walking and cycling routes. The A3 improvements would also include symmetrically widening the A245 on the existing line of the A245, from two to three lanes between the Painshill interchange and the junction with Seven Hills Road. The Painshill improvements would also improve conditions on the A3 northbound. This option would have a much smaller footprint than Option 9 and hence would have a smaller effect on the designated land and habitats around the junction and require less replacement land. As the elongated roundabout would be at the same elevation as the existing gyratory the adverse visual and noise effects associated with Option 9 would also be avoided. The enlarged roundabout would bring the road infrastructure closer to the scheduled monument to the south west of M25 junction 10 but it would not have as large an effect as Option 9.
Access to Birchmere Scout Campsite and Pond Farm	A two-way access road connecting Deers Farm Close to Birchmere Scout Campsite and Pond Farm was proposed with the existing access to M25 junction 10 slip road to be closed off. The existing track along Deers Farm Close and past Pond Farm would be refurbished to a single-track road with passing places. A variation of the access to Birchmere Scout Camp option which provided access via a replacement Cockrow bridge over the A3. The same standard of replacement bridge over the A3 is required for either option as this is the route to Pond Farm. This bridge will provide for vehicles and bridleway users, as does the present bridge, and could be provided as a multi-function ‘green’ bridge for either option subject to funding being available. The main difference is that it replaced the long vehicular route created from Pond Farm to Wisley Lane with a short vehicular link from Old Lane to the new bridge and then to the existing track. This option would have less overall effect on the Thames Basin Heaths SPA and the common land.

Option	Description
	The alternative to these options was to retain the existing access to the slip road at the junction but this was not feasible with the free flow left turns proposed for Option 14.
Elm Lane/Access to Elm Corner	Access and egress to Elm Lane and the A3 to be closed and diverted to Old Lane. The existing unsurfaced byway open to all traffic (BOAT) on Elm Lane would be reconstructed to a single-track road providing access to M25 junction 10 to A3 southbound slip road and the A3 via Old Lane. The alternative to this arrangement was to maintain the link to Elm Lane and then on to the Ockham interchange via a new road link between the Ockham M25 junction and Wisley Lane but the residents of properties in Elm Corner served by Elm Lane expressed a preference for access to Old Lane via the BOAT.
Access to Long Orchard Farm and Long Orchard House	A two-way local access road with passing bays from Redhill Road to Seven Hills Road, providing access to Long Orchard Farm, Long Orchard House and the former San Domenico site (Euro Garages). There was no alternative to this arrangement except for providing access to the road network via Redhill Road instead of Seven Hills Road but this was not favoured by the residents affected.
A245/Painshill junction	Widening the A245 from Painshill junction to Seven Hills Road junction to three lanes in each direction and a two-way access road between Old Byfleet Road to Seven Hills Road South for Feltonfleet School. The existing right turn from Old Byfleet Road to the A245 would be closed. No alternative was proposed for this option.
Wisley Lane Options	Two main options for the re-provision of access to Wisley Lane were proposed. One option consisted of a two-way local access road between Ockham junction and Wisley Lane parallel and north west of the A3 located partly within RHS Wisley. The existing access from Mill Lane to the A3 Portsmouth Road would be closed and diverted on to the new access road. This option would have a direct effect on the registered park and garden at RHS Wisley, the loss of screening trees along the boundary and heritage impacts. The second option consisted of a two-way link road from Ockham junction to Wisley Lane, with an overbridge over the A3 carriageways linking Elm Lane to Wisley Lane. This option would affect woodland in the common land adjacent to the Wisley Airfield site. The existing Wisley Lane footbridge would be removed with NMU access being provided over the new bridge. Elm Lane running parallel to the A3 would be stopped up. This option was seen to be narrowly preferable to the option to the west of the A3 as it could be partly built on brownfield land on the disused Wisley Airfield, amongst other considerations.
Painshill Options	Two main options were developed to provide access to properties in Painshill Park that gained access directly off the A3 southbound carriageway. One option consisted of the conversion of the service road to the south east and parallel to the A3 to a two-way road with passing bays from the Gothic Tower within Painshill Park to the gas compound north of Heyswood campsite. An overbridge over the A3 carriageways was required to link this road to Redhill Road (and Seven Hills Road South). This option was on the periphery of the Grade I registered park and garden with limited effect on the key features of the Park. A variation of the Painshill option which had a bridge over the A3 is being progressed as the preferred option, making it as compact as possible to reduce land take, but with vehicles being routed via Seven Hills Road south to reach it rather than Redhill Road. Bridleway links will be added on both sides. The

Option	Description
	bridge would make provision for NMU's and do away with the need for a separate bridge to link Rights of Way on either side of the A3. By keeping this option as close to the A3 as possible loss of screening vegetation will be kept to a minimum and reduce the effect on the Gothic Tower. The alternative option consisted of the conversion of the service road to the south east and parallel to the A3 to a two-way road with passing bays from the Gothic Tower to the A245 in Cobham using the existing roundabout near the Sainsbury's superstore. An overbridge over the River Mole was required to connect this road to the A245. This option would pass through the operational sections of the Grade I registered park and garden and affect the setting of the listed bridge over the River Mole as well as other listed buildings within the Park. It was strongly opposed by the residents of the listed buildings affected and would adversely affect the aquatic ecology of the River Mole.

3.3.3 The alternatives chosen to be taken forward have been developed further during the option selection stage to improve their performance and reduce their environmental impact following the statutory consultation. For example, the access to Painshill properties has undergone several iterations to reduce land take from the ancient woodland and reduce the impact on the Gothic Tower. The Scheme is described in detail in Chapter 2 above.

Legal and Policy Tests

3.3.4 Having established options that were viable and could satisfy the Scheme objectives, during the option selection stage the Scheme options were also considered further in relation to the legal and policy tests set out in the NPSNN. The Scheme was thought likely to be a highway-related NSIP on the basis that either of the options currently under consideration would be of a scale large enough to exceed the qualifying area thresholds stipulated in the Planning Act 2008.

3.3.5 At the option selection stage, the focus was to identify those tests that could potentially preclude the Secretary of State from being able to grant development consent, if a particular Scheme option could result in a breach of the UK's international obligations or any duty imposed under UK legislation. The tests of most relevance to the consideration of options for the Scheme are as follows:

- The European Directive 2008/50/EC, Ambient Air Quality and Cleaner Air for Europe, transposed in to UK legislation by the Air Quality Standards Regulations 2010, which would prevent consent from being granted for any scheme that would result in non-compliance with legally binding limit values for prescribed pollutants, including nitrogen dioxide (NO_2) and particulates of less than 10 microns (PM_{10}). The annual limit values for both are 40 µg/m^3;
- The European Directive 2000/60/EC, Establishing a Framework for the Community Action in the Field of Water Policy, transposed in to UK legislation by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 and the Water Industry Act 1991 (Amendment) (England) Regulations 2009. This legislation would prevent consent being granted for any scheme likely to cause deterioration in water quality status; or prevent a waterbody from achieving good ecological status; or compromise the achievement of WFD objectives in other classified water bodies within the same catchment;

- The European Directives 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna and 2009/147/EC on the Conservation of Wild Birds, which are transposed in to UK legislation by the Conservation of Habitats and Species Regulations 2010 (as amended by the Conservation of Habitats and Species (Amendment) Regulations 2012). These directives would prevent development consent from being granted for any scheme that would give rise to an adverse effect on the integrity of a European site (a SPA or a Special Area of Conservation (SAC)), either individually or cumulatively, unless there was no less damaging, feasible alternative; that there were Imperative Reasons of Overriding Public Interest and that suitable compensation could be secured;
- The European Habitats Directive 92/43/EEC and Habitats Regulations 2010 as amended would also prevent consent and/or a mitigation licence from being granted for any scheme that would harm or disturb a European Protected Species, unless there were no satisfactory alternatives; that the favourable conservation status of the species would be maintained and that the development would be in the public interest; and
- The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000, which would prevent development consent from being granted for any scheme that would disturb or harm nationally protected species, unless there were no satisfactory alternative solution.

3.3.6 Where the proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, the Secretary of State should refuse consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm.

3.3.7 In addition, under Section 104 (7) of the Planning Act 2008, development consent cannot be granted for any scheme if the benefits of that scheme do not outweigh its adverse impacts overall.

3.3.8 The difference in operational performance between Option 9 and Option 14 was found to be relatively modest, whilst the difference in environmental impact was significant. When the legal tests were also factored in, given the potential for adverse effects on the integrity of the Thames Basin Heaths SPA, there were very real risks attached to Option 9 and the ability to meet the tests required for any derogation from compliance with the Habitats and Wild Birds Directives. On this basis, the assessments pointed towards Option 14 as being the option most likely to gain consent at examination.

3.3.9 It was recognised that it would be important to demonstrate that the benefits of Option 14 would outweigh its impacts and further work would be required to identify mitigation opportunities and design improvements if this option were taken forward as the preferred route.

3.3.10 The options for local access roads at both Painshill and at Wisley also presented significant challenges. Whilst the assessments appeared to point towards the Painshill - Redhill Road option and the Wisley Lane east of the A3 option, the appraisals were finely balanced and furthermore detailed assessments were necessary before a final decision could be made.

3.3.11 Although the case for Option 14 over Option 9 became clear during the Option Selection Stage, a number of side road options were investigated that took into

account the environmental and engineering constraints of the Scheme. The different options for the side roads included those for Wisley Lane, the access to Pond Farm and access to the properties in Painshill Park with access off the A3. Further design, assessment and consultation was undertaken for these side roads and variations on the options for these were developed. Following the option selection stage, the preferred option for the M25 junction 10/A3 Wisley interchange was announced by Highways England on 29 November 2017. The preferred option is described above in section 2.4 with the revised side road options that were chosen as noted below. The Scheme layout is shown in Volume 3 Figures of this report.

Part 4

4. Environmental Assessment Methodology

4.1 Environmental Impact Assessment (EIA) process

4.1.1 EIA is a process for identifying the likely environmental effects (positive and negative) of proposed developments, and their significance, before development consent is granted. The aim of EIA is to ensure that the following are undertaken:

- a thorough assessment of likely effects of a proposed developmental activity on the environment; and
- consideration of mitigation measures and alternatives in light of potential environmental effects.

4.1.2 Through this process, the development should include measures to prevent, reduce or offset any significant, adverse environmental effects of the proposals, and enhance the positive impacts. The findings of the assessment are presented in this Environmental Statement (ES).

4.1.3 The IP (EIA) Regulations 2017 impose procedural requirements for carrying out EIA for Nationally Significant Infrastructure Projects (NSIPs) which are considered as 'EIA development'. The ES is the document that reports on the likely significant effects on the environment resulting from the proposed development. The ES must as a minimum comply with Regulation 14(2) of the IP (EIA) Regulations 2017. Advice published by the Planning Inspectorate states that the ES should clearly explain the processes followed, the forecasting methods used and the measures envisaged to prevent, reduce and where possible offset any likely significant effects. This has been undertaken in respect of the ES and throughout the EIA process.

4.2 Structure of this Environmental Statement

4.2.1 The IP (EIA) regulations 2017 set out the information that is required for an ES. The ES also aligns with Highways England's Design Manual for Roads and Bridges (DMRB) Volume 11 (and associated documents) which sets out the structure for ESs' and the topics to be covered for a highways project. The earlier chapters of this ES have included an introduction, information on the Scheme and details of alternatives considered. The environmental chapters in the ES cover the topics that are required to be assessed under Regulation 5(2) of the IP (EIA) regulations 2017 and include: air quality, noise and vibration, biodiversity, road drainage and the water environment, landscape, geology and soils, cultural heritage, materials and waste, people and communities, health, climate and cumulative effects.

Structure of each environmental topic chapters

4.2.2 Each environmental topic is considered in this ES as far as possible, on a consistent basis, with each chapter being structured as follows:

- Executive summary;
- Introduction;
- Competent expert evidence;

- Legislative and policy framework;
- Study area;
- Assessment methodology;
- Assumption and limitations;
- Baseline conditions;
- Potential impacts;
- Design, mitigation and enhancement measures;
- Assessment of effects;
- Vulnerability to major accidents and disasters;
- Cumulative effects;
- National Policy Statement for National Networks (NPSNN) compliance;
- Monitoring; and
- Summary.

4.3 Competent expert evidence

4.3.1 This section sets out the competence of the people who are leading the topic assessment, their experience in their field, their qualifications and memberships of professional institutes.

4.4 Legislative and policy framework

4.4.1 This section sets out the key pieces of legislation and policies that are relevant to the topic and which the scheme may be subject to or the assessment guided by.

4.5 Study area

4.5.1 Study areas are defined individually for each environmental topic, according to the geographic scope of the potential impacts relevant to that topic or of the information required to assess those impacts. It draws on guidance in Highways England's Design Manual for Roads and Bridges (DMRB) Volume 11 and associated documents where this specifies the extent of study areas and other guidance where appropriate. The study areas are defined within each relevant topic chapter of this report.

4.6 Assessment methodology

4.6.1 The assessment methodology describes the guidance used for the assessment of each environmental topic, together with the criteria to determine the magnitude of effects and the sensitivity of receptors. For this Scheme, the assessment methodology has generally been adopted from DMRB Volume 11, Section 3 Environmental Assessment Techniques. Where there is no standard guidance, this is stated, together with the methodology used to undertake the assessment.

Assessment years and scenarios - Temporal scope

Scheme phases

4.6.2 The ES includes consideration of effects arising from the construction and operation of the Scheme in the opening and design (usually 15 years after opening) years. Decommissioning is not relevant for the Scheme as it does not have a finite life and there are no proposals to remove it.

Do-minimum and Do-something scenarios

4.6.3 The assessment of effects involves comparing a scenario with the Scheme against one without the Scheme over time. The absence and presence of the Scheme are referred to as the 'Do-Minimum' (DM) and 'Do-Something' (DS) scenarios respectively. Dependent upon the topic, the scenarios are assessed in the baseline year and a future assessment year or a series of future assessment years (for example 15 years after opening, or the worst year in the first 15 years of operation).

4.6.4 The DM scenario is defined by DMRB as "the conditions that would persist in the absence of the implementation of a construction or improvement project, but given that maintenance is ongoing" (DMRB HA 218/08). Identification of the baseline therefore requires first the identification of the existing situation, and then the prediction of how it is likely to change between now and implementation of the Scheme.

Dealing with uncertainty

4.6.5 The Rochdale Envelope principle has been applied in accordance with the Planning Inspectorate Advice Note 9 Using the 'Rochdale Envelope'. The ES clearly explains all elements of the Scheme yet to be finalised, with justification. Where flexibility is sought in the Scheme design, the maximum potential adverse impacts of the Scheme has been assessed. The ES confirms the maximum and other dimensions of the Scheme, and that any changes to the development within such parameters will not result in any likely significant effects not previously identified and assessed.

4.6.6 Limits of deviation have been set as + or – 0.5m vertically and as shown on the Works Plans for horizontal deviation.

4.7 Assumptions and limitations

4.7.1 Assumptions and limitations that have been identified in undertaking the EIA are listed in each chapter. These include, for example limits on available design information at the time of writing the ES and assumptions on the type and methods of construction.

4.8 Baseline conditions

4.8.1 The existing baseline conditions are defined to provide a benchmark for the assessment of changes that would result from the Scheme. The identification of the baseline requires the description of the existing situation and then a prediction of how it is likely to change in the absence of the Scheme – the 'future baseline'.

4.8.2 The description of the baseline conditions identifies receptors that may be affected by the Scheme and also their 'value' or 'sensitivity' to potential change.

4.9 Identification of potential impacts

4.9.1 Schedule 4 Regulation 5, of the IP (EIA) Regulations 2017 requires:

4.9.2 "A description of the likely significant effects of the development on the environment resulting from, inter alia—

(a) the construction and existence of the development, including, where relevant, demolition works;

(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;

(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);

(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; and

(g) the technologies and the substances used.

The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC(a) and Directive 2009/147/EC(b)."

4.9.3 A range of environmental topics may be affected by the Scheme. Effects may be negative or positive, temporary or permanent. They may also be described as:

- **Direct or Primary Impacts**: caused by activities which are an integral part of the proposals resulting in a change in environmental conditions, such as construction works causing an increase in dust concentrations in the air;
- **Indirect or Secondary Impacts**: due to activities that affect environmental conditions or the receptors, which in turn affects other aspects of the environment or receptors;
- **Cumulative**: comprising multiple effects from different sources within the proposals (synergistic or interrelationships), or cumulatively with other developments (additive), on the same receptors; and
- **Residual**: effects that remain after the positive influence of mitigation measures are taken into account.

4.9.4 Each of these effects can persist over a period of time and can be considered as:

- **Short term**: temporary effects that would last for a limited duration, for example, noise generated during construction of the Scheme;
- **Medium term**: permanent effects that will arise during the intial operational phase but will be reduced or eliminated once mitigation becomes effective; and
- **Long term:** permanent effects from the operational activities on the Scheme that will continue.

4.10 Assessment of significance

4.10.1 The significance of an environmental effect is typically a function of the 'value' or 'sensitivity' of the receptor and the 'magnitude' or 'scale' of the impact. Combining the environmental value of the resource or receptor with the magnitude of change produces a significance of effect category. In arriving at the significance of effect, the assessor also considers whether the effect is direct, indirect, secondary, cumulative, short or long-term, permanent or temporary, beneficial or adverse.

4.10.2 Methods and requirements specific to each assessment topic are set out in the relevant topic chapters (Chapters 5 to 16), however, the proposed general approach will be adopted in accordance with relevant guidance and best practice.

4.10.3 With the receptors identified and their sensitivity classified, the potential impacts of the proposed works to these aspects, for construction and operation where appropriate, will be established and the magnitude of the impact determined.

4.10.4 In accordance with guidance in DMRB Volume 11, Part 5, for each topic the assessment will combine the magnitude of the impacts and the sensitivity of the resources/receptors that could be affected in order to classify the effect (see Table 4.1) to establish their significance (from very large to neutral). General descriptors for the significance of effect are provided in Table 4.2.

Table 4.1: Significance of effects

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

Table Source: DMRB Volume 11, Section 2, Part 5, HA 205/08, Table 2.4

Table 4.2: Descriptors of the Significance of Effect Categories

Significance Category	Typical descriptors of effect
Very Large	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
Large	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Table Source: DMRB Volume 11, Section 2, Part 5, HA 205/08, Table 2.3

4.10.5 The classification of effects also includes the following descriptors:

- Adverse, neutral or beneficial;
- Permanent or temporary;
- Duration/frequency or likelihood;
- Direct or indirect;
- Secondary; or
- Cumulative.

4.10.6 The duration of the effect will be assessed to be either temporary or permanent where:

- Temporary (e.g. demolition and construction phase):
  - Short term (< 5 years);
  - Medium term (5-10 years); or
  - Long term (> 10 years); and
- Permanent (e.g. once the proposed works are completed and operational).

4.10.7 Whilst the criteria derived vary between disciplines (from a very formal set of criteria based on nationally recognised standards for air quality, to more qualitative criteria derived to assess landscape impact or heritage) each specialist will have used the common terminology set out above alongside their topic-specific guidance and their professional judgement to assess the significance of effects. Where an alternative basis of assessment applies, this is explained in the appropriate chapter.

4.11 Design, mitigation and enhancement process

4.11.1 Proposals for mitigation follow the mitigation hierarchy of avoid, reduce, remedy and compensate. Embedded mitigation includes Best Practicable Measures, construction environmental management procedures identified in a Construction Environmental Management Plan (CEMP) and will also describe design features that have been adapted to reduce or prevent impacts, such as noise attenuation measures. Incorporated mitigation is included within the assessment.

4.11.2 Mitigation is defined as “measures intended to avoid, reduce and, where possible, remedy significant adverse environmental effects” (DMRB Volume 11, Section 2, Part 7 HA 218/08). Enhancement measures are defined as “measures over and above normal mitigation” (Interim Advice Note (IAN) 125/15).

4.11.3 Consideration has been given to reducing or avoiding adverse environmental impacts and these will be developed further during the Scheme development as an iterative process. Mitigation measures have been informed by survey data being collected for the purposes of the Preliminary Design Stage and developed in consultation with statutory bodies as set out in the Statements of Common Ground with Historic England, Natural England and the Environment Agency. The Scheme includes all mitigation considered necessary to reduce effects to an acceptable level and the assessment will report on this basis. As well as mitigation, the Scheme will also include compensation for adverse effects where necessary and again the assessment will be based on the Scheme with this included.

4.11.4 During construction, the responsibility for further environmental mitigation and the adherence to environmentally responsible working practices will fall to the Principal Contractor. An Outline Construction Environment Management Plan (CEMP) (document reference TR010030/APP/7.2) has been prepared by the designer (Atkins) during this Preliminary Design Stage and will be refined as the Scheme progresses from development to construction and handover. The Outline CEMP will detail practices that the Principal Contractor is to apply on-site that will demonstrate commitments to environmental management. It details both generic and specifically targeted practices to enable construction to be undertaken to minimise impact on the environment and will also enable monitoring requirements to be set up. A register of Environmental Actions and Commitments (REAC) identifying the environmental commitments to address potential environmental effects of the Scheme has been prepared (TR010030/APP/7.3).

4.12 Residual effects

4.12.1 Residual effects refer to those environmental effects predicted to remain after the application of mitigation and enhancement measures outlined in each environmental topic. The predicted residual effects are considered for each phase of the Scheme (construction and operation). As per the criteria established in section 4.10, the significance has been determined for each residual adverse effect, with no significance rating established for positive residual effects.

4.13 Vulnerability to major accidents and disasters

4.13.1 The IP (EIA) Regulations 2017 introduced a requirement to consider significant adverse effects of the Scheme on the environment deriving from the vulnerability of the Scheme to risks of major accidents and/or disasters relevant to the Scheme.

4.13.2 The general scope of the assessment covers:

- Vulnerability of the Scheme to risks of major accidents and/or disasters that are relevant to the Scheme (subsequently referred to as major events);
- Identification of any consequential significant adverse environmental effects from those major events; and
- Measures to prevent or mitigate the significant adverse environmental effects of those major events and details of the preparedness for and response to such major events.

4.13.3 The assessment of major events:

- Applied professional judgement in consultation with Highways England to develop Scheme specific definitions of major events;
- Identified any major events that are relevant to and can affect the Scheme;
- Where major events are identified, described the expected consequences arising from the vulnerability of the Scheme to the events;
- Reported the conclusions of this assessment within this section; and
- Clearly described any assumed mitigation measures and details of the preparedness for and proposed response to such emergencies, to provide an evidence base to support the conclusions and demonstrate that likely effects have been mitigated/managed to an acceptable level.

4.13.4 The definition of a major accident used in this assessment is contained in the Control of Major Hazards Accident Regulations 2015 (COMAH) which define a ”major accident” as an occurrence such as a major emission, fire, or explosion resulting from uncontrolled developments in the course of the operation of any establishment, and leading to serious danger to human health or the environment (whether immediate or delayed) inside or outside the establishment, and involving one or more dangerous substances[6]. The terms which define a major accident are as follows[7]:

- Injury to persons and damage to property:
  - A death;
  - Six persons injured within the establishment and hospitalised for at least 24 hours;
  - One person outside the establishment hospitalised for at least 24 hours;
  - A dwelling outside the establishment damaged and unusable as a result of the accident;

[6] Regulation 2 of the Control of Major Hazards Accident Regulations 2015
[7] Paragraph 2 of Schedule 5 of the Control of Major Hazards Accident Regulations 2015

- The evacuation or confinement of persons for more than 2 hours where the value (persons × hours) is at least 500; or
- The interruption of drinking water, electricity, gas or telephone services for more than 2 hours where the value (persons × hours) is at least 1,000.

- Immediate damage to the environment:
  - Permanent or long-term damage to terrestrial habitats:
    - 0.5 hectares or more of a habitat of environmental or conservation importance protected by legislation; or
    - 10 or more hectares of more widespread habitat, including agricultural land.
  - Significant or long-term damage to freshwater and marine habitats:
    - 10 km or more of river or canal;
    - 1 hectare or more of a lake or pond;
    - 2 hectares or more of delta; or
    - 2 hectares or more of a coastline or open sea; or
    - Significant damage to an aquifer or underground water: 1 hectare or more.
- Damage to property:
  - Damage to property in the establishment, to the value of at least EUR 2,000,000; or
  - Damage to property outside the establishment, to the value of at least EUR 500,000.

4.13.5 Key terms used in the assessment have been developed by the project team and are listed below.

Table 4.3: Assessment Terminology

Term	Definition
Major accident	The COMAH 2015 regulations define a 'major accident' as an occurrence such as a major emission, fire, or explosion resulting from uncontrolled developments in the course of the operation of any establishment, and leading to serious danger to human health or the environment (whether immediate or delayed) inside or outside the establishment, and involving one or more dangerous substances[6].
Natural disaster	A naturally occurring event such as extreme weather (storm, flooding) or a ground-related hazard event (subsidence, landslide, earthquake) with the potential to cause an event or situation that meets the definition of a major accident.
Risk	The likelihood of an impact occurring combined with the effect or consequence(s) of the impact on a receptor(s) if it does occur.
Major event	An identified unplanned event which is considered relevant to the Scheme and has the potential to be a major accident or natural disaster subject to the identification of its potential to result in a significant adverse effect on an environmental receptor.

Term	Definition
Serious damage	Serious damage includes the loss of life, permanent injury and temporary or permanent damage/destruction of an environmental receptor.
Vulnerability	In the context of environmental risk assessment, the term refers to the 'exposure and resilience' of the Scheme to the risk of a major accident or natural disaster.

4.13.6 By the above definitions, a significant adverse effect is considered to mean the loss of life or permanent injury, and/or permanent or long-lasting damage to an environmental receptor. The significance of this effect takes into account the extent, severity and duration of harm and the importance and sensitivity of the receptor.

4.13.7 Relevant major events and any consequences for receptors are reported in this section.

Methodology

4.13.8 The methodology adopted includes three main stages, as follows:

- Stage 1: a long list of all possible major events was developed. This list drew upon a variety of sources, including the UK Government's Risk Register of Civil Emergencies. Major events with little relevance in the UK were not included. Stage 1 also included an initial review of potential receptors to identify any groups that it was not considered necessary to include in the assessment;
- Stage 2: a screening exercise was undertaken to review the long list of major events and to give consideration to their relevance to the Scheme, and therefore whether they should be included on the Scheme specific short list of major events requiring further consideration. The study area for relevant major events was identified to be within 2 km of the Scheme. The screening exercise also considered current climate change predictions; and
- Stage 3: where further design mitigation is unable to remove the potential interaction between a major event and a particular topic, the potential consequence for receptors is identified.

Assessment findings

Stage 1

4.13.9 The long list of major events is provided in Appendix 4.1.

Stage 2

4.13.10 In general, major events, as they relate to the Scheme, fall into three categories:

- Events that could not realistically occur, due to the type of Scheme or its location;
- Events that could realistically occur, but for which the Scheme and associated receptors, are no more vulnerable than any other development; and
- Events that could occur, and to which the Scheme is particularly vulnerable, or which the Scheme has a particular capacity to exacerbate.

4.13.11 A screening stage was undertaken to try to identify this third group of major events, which then formed the shortlist of events to be taken forward for further consideration.

Stage 3

4.13.12 Stage 2 of the assessment resulted in a short list of major events that are considered to need further consideration at Stage 3, though this may only mean that the risk needs to remain on the design risk register until it is closed out through design. Specific major events that have been included on the short list and are considered in more detail are presented in Table 4.4.

4.13.13 It is confirmed that all major events included on the shortlist are either already considered in the relevant topic chapter (where there is a potential related environmental effect) or else it has been concluded that there is no need for further consideration. It is concluded that with the mitigation measures already included in the design of the Scheme, no significant adverse effects from major events would be expected.

Table 4.4: Major Events Shortlisted for Further Consideration

Major Event	Reason for consideration	Potential Receptors	Consequence	Addressed in the ES	Mitigation and further consideration required
Geological disasters					
Ground instability	Instable ground from geological units or Made Ground/Fill causing instability of the ground surrounding the Scheme.	Road users, infrastructure and property, surrounding environment.	Casualties, damage to infrastructure and property, disruption to services.	Yes - Geology and Soils chapter (Chapter 10).	Mitigation is within the Ground Investigation and Scheme design. The risk can be removed through design. There is a risk that the cost of construction will be increased with the increased design.
Engineering Accidents/Failures					
Utilities failure (gas, electricity, water, sewage, oil, communications)	Numerous utility routes cross the M25 and A3 could fail and cause damage to the Scheme. The required diversion of some utility routes due to the Scheme increases the risk of failure during diversion.	Road users, local residents, property, surrounding environment.	Potential for fire/explosion, pollution incident, injury.	No	All utilities companies have plans and arrangements in place to deal with supply disruptions and failures. It is therefore not considered necessary to consider utilities failure any further to the assessment of major events.
Terrorism/Crime/Civil unrest					
Cyber attack	The increasing reliance on roadside technology could render the Scheme more vulnerable to a cyber-attack.	Road users	Accidents due to information boards displaying incorrect information, fatalities.	No	The roadside technology is designed to Highways England security arrangements to mitigate the effects of cyber-attacks. It is therefore not considered necessary to consider cyber attacks any further to the assessment of major events.

4.14 Cumulative effects

4.14.1 Cumulative effects are the result of multiple actions on environmental receptors. There are principally two types of cumulative impact:

- The combined action of a number of different environmental topic specific impacts upon a single resource/receptor (synergistic or interrelationships); and
- The combined action of a number of different projects, in combination with the project being assessed, on a single resource/receptor (additive).

4.14.2 Schedule 4, Regulation 5, of the IP (EIA) Regulations 2017 requires an ES to include the assessment of cumulative effects. Schedule 3 Paragraph 3(g) of the IP (EIA) Regulations 2017 refers to the cumulation of impacts with other development, when listing possible significant effects of development that must be taken into account. Therefore, the environmental effects of the Scheme will also be assessed in combination with the effects of other projects as part of the EIA process, where relevant information is available. What projects that should be considered as part of a 'cumulative' assessment for these purposes is not defined in the EIA Directive or Regulations and there is no standard approach to the assessment of cumulative effects, with different projects adopting different approaches. However, potential cumulative impacts with other major developments need to be identified, as required by the Directive. The Planning Inspectorate's Advice Note 17 (PINS, 2015) provides suitable guidance on the categories of developments that should be included in such cumulative assessments.

4.14.3 The cumulative assessment for the Scheme therefore includes developments which fall into the following categories but are not necessarily limited to:

- Projects on the Infrastructure Planning Inspectorate's Programme of Projects;
- Trunk road and motorway projects which have completed the statutory planning processes, including those under construction;
- Other development projects under construction or with valid planning permissions, and for which formal EIA is a requirement or for which non-statutory EIA has been undertaken;
- Applications for consent which have been made, but which have not yet been determined;
- Projects identified in the relevant emerging or adopted Development Plans, with appropriate weight given as they move closer to adoption, recognising that information on these proposals may be limited at present; and
- Project identified in other plans and programmes which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

4.14.4 Using these categories, developments have been identified with reference to local knowledge, published information and consultation with LPAs in the area.

4.14.5 Further details on the scope of the cumulative effects assessment is provided in Chapter 16 Assessment of Cumulative Effects.

4.15 Monitoring

4.15.1 Monitoring requirements and procedures for the construction and operation of the Scheme are recommended, based on the requirement to maintain the current standard of the surrounding environment and to ensure the Scheme does not contribute to the degradation of the surrounding environment. The objectives of carrying out monitoring include:

- Providing a database against which any short or long term environmental impacts of the Scheme can be determined;
- Providing an early indication should any of the environmental control measures or practices fail to achieve acceptable standards;
- Monitoring the performance of the Scheme and the effectiveness of mitigation measures;
- Verifying the environmental impacts predicted in the ES;
- Determining the Scheme's compliance with regulatory requirements, standards and government policies;
- Taking remedial action if unexpected problems or unacceptable impacts arise; and
- Providing data to enable an environmental audit.

4.16 Transboundary impacts

4.16.1 Regulation 32 of the IP (EIA) Regulations 2017 requires PINS to notify other European Economic Area (EEA) States and publicise an application for development consent if it is of the view that the proposed development is likely to have significant effects on the environment of another EEA Member State, and where relevant to consult with the EEA State affected. The Scheme is approximately 120 km from France, the closest EEA State.

4.16.2 The study areas for the various environmental topics define the extent of effects anticipated and are described fully in chapters 5 to 16 and are summarised below as follows:

- Air Quality: 200 m around the affected road network (ARN);
- Noise and Vibration: 600 m from affected routes;
- Biodiversity: 2 km for statutory and non-statutory designated sites and 30 km for SACs where bats are a qualifying species;
- Road Drainage and the Water Environment: 1 km from the boundary of the Scheme;
- Landscape: 1.5 km from the boundary of the Scheme;
- Geology and Soils: 250 m from the boundary of the Scheme;
- Cultural heritage: 500 m from the boundary of the Scheme;
- Materials and Waste: waste arisings within the county of Surrey;
- People and Communities: 500 m from the DCO boundary;

- Health Impacts: 1km from the boundary of the Scheme;
- Effects on Climate: within the boundary of the Scheme plus the supply chain area; and
- Vulnerability to Climate: Met Office UK Climate Projections 25 km gridded data (grid ID: 1666).

4.16.3 The study areas will cover the area where direct effects of the Scheme will be experienced as well as the area where effects on the setting of an asset might be felt, for example the setting of a listed building where the surroundings contribute to its historic value. The works include alterations to signs and signals on existing gantries that would be retained on the M25 to the east and west of the highway improvement works around junction 10.

4.16.4 For some topics the effects of the Scheme would extend beyond the immediate area of the works. For example, the noise and air quality effects would be experienced in the surrounding area where there would be changes in traffic flows as a result of the Scheme. The method for establishing the extent of study areas in this situation is set out in the topic chapters below.

4.16.5 As none of these distances reach other EEA Member States, no transboundary effects are anticipated for the Scheme.

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