Queensway Gateway

Volume 1 - Environmental Statement

October 2014

Version v.2

Contents

1 Introduction

1.1 The Proposed Development

1.1.1 This Environmental Statement (ES) has been prepared in respect of a full planning application by Sea Change Sussex for Queensway Gateway (QGW). Sea Change Sussex *is not-for-profit* economic development company for the county.

1.1.2 QGW will be a single carriageway road of approximately 650m, connecting Sedlescombe Road North with the B2092 Queensway. QGW will provide a footway for pedestrians and cyclists, along with junctions for forthcoming employment development.

1.1.3 The route of the proposed QGW comprises mainly dense scrub and woodland with patches of open grassland.

1.2 Local Planning Policy Area

1.2.1 The Hastings Local Plan adopted in 2004 included Policy E2 which set out the development parameters for an allocated site known as Ridge West. The policy related to 'Industrial and Commercial development (Use Classes B1, B2 and B8…..within the established industrial estates at Ponswood, Ivyhouse Lane, Castleham, Churchfields and Ridge West/Ashdown'.

1.2.2 In the new Hastings Planning Strategy, adopted on 19th February 2014, policy E2 is stated as having been superceded by Policy E1 which covers existing Employment sites.

1.2.3 Thus, the 2014 Planning Strategy maintains the principle of the E2 allocation and also extends it by including the undeveloped land to the west of the present allocation. The new areas have been given the designations LRA 7 and LRA 8.

1.2.4 The proposed road places the majority of the LR7 and 8 land to the north of QGW with the exception of a small located to the south east of the new road.

1.2.5 Policy E1 of both the superceded Local Plan 2004 and the newly adopted Planning Strategy therefore provides the key policy context for development at the northern end of Queensway. It can also be seen that the need for the QGW to be open prior to development of the wider allocation is fundamental. Further information on the planning documents and the wider policy context is provided in **Chapter 6**.

1.2.6 For completeness, this Environmental Statement addresses impacts from the provision of the development areas and an indicative but realistic level of new employment floorspace that may be provided at the site. This is estimated to be in the order off up to 12,000 square metres of B1 (Business) although in certain instances the EIA has tested development to a level of 23,000 square metres. Where appropriate this is discussed in the relevant chapter of this Environmental Statement. Consideration has also been given to the likely significant environmental effects of QGW in the context of the wider allocation.

1.2.7 At present it is unknown how the employment areas will be developed but it can be assumed at this stage that the future uses on each individual plot would be the subject of subsequent and separate planning applications and the timing of any development will depend on the individual companies involved. This ES does not preclude the need for further environmental assessment if required on future detail planning applications on the site.

1.3 The Site

1.3.1 The site is located on the northern urban periphery of Hastings between Queensway (B2092) and Sedlescombe Rd North (A21).

1.3.2 Currently the site is a mixture of overgrown scrub, small trees and patches of open grassland. There are no buildings on the site and it is understood that the site has not been previously developed. At the eastern end the road follows the alignment of Whitworth Rd, partially overlapping. As the route moves through the woodland and scrub at the western the land forms a valley known as the Hollington Valley.

1.3.3 The nearest other uses to the site are the Ridge West Industrial Estate, Sainsbury's and residential properties to the south and west of the site. The Industrial site lies to the north and is accessed from the Ridge and Whitworth Rd. Sainsburys is to the south of the eastern leg of the road.

1.3.4 The western side of the site is partly in the Hollington Valley Site of Nature Conservation Interest (SNCI), a local designation identifying the ecological diversity of the Valley; SNCI's are now covered by Policy EN3 of the Planning Strategy.

1.3.5 The site location and planning boundary plan is shown in **Figures 1 and 2, Appendix A.1**.

1.4 Terms and Definitions

1.4.1 For ease of reference the following terms have been used in the Environmental Statement:

- Queensway Gateway (QGW): the name of the development site, for which planning consent is being sought;
- Superceded Local Plan: the Hastings Local Plan (adopted 2004)
- Hastings Planning Strategy adopted 19th February 2014 : Planning Strategy
- The Site: the area within the planning application boundary as shown in Figure 1 (Appendix A.1)
- The proposed development: QGW (including junction works, drainage, lighting, earthworks, etc. as appropriate).
- The proposed employment development: Proposed employment development within the allocated land adjacent to QGW, and which is subject to a cumulative assessment within the EIA (as indicated in **Figure 1, Appendix A.3**).
- The proposed employment site: The site of the proposed employment development (as indicated in **Figure 1, Appendix A.3**).

1.5 The EIA, ES and Related Documents

1.5.1 This Environmental Statement presents the findings of an Environmental Impact Assessment undertaken in accordance with The Town and Country Planning (Environmental Impact Assessment) Regulations 2011, referred to as the 'Environmental Impact Assessment Regulations'.

1.5.2 Running concurrently with the design process, the Environmental Impact Assessment has sought to identify appropriate design and construction measures and good practice to mitigate potential adverse environmental effects. The Environmental Impact Assessment also seeks to maximise environmental opportunities which might arise as a consequence of the construction and operation of the proposed development. The Environmental Statement records any residual environmental effects that remain after mitigation.

1.5.3 The Environmental Statement comprises the following separate volumes:

1.5.4 Volume 1: Main Report;

1.5.5 Volume 2: Appendices; and

1.5.6 Non-Technical Summary (this document).

1.5.7 The other principal documents submitted as part of the planning application include:

- Planning, Design and Access Statement;
- Transport Assessment and
- Statement of Community Involvement.

1.6 Stakeholder Consultation

1.6.1 In developing proposals for the site consultation has taken place with the local residents and stakeholders. The stages of public consultation completed to date are:

- A public consultation event facilitated by Hastings Borough Council was held on the 24th September 2014
- A limited consultation event was held with residents of Maplehurst Rd on the 15th September 2014.
- A small number of one to ones have been held with residents and Councillors who were unable to attend the planning forum event
- A briefing was held for local councillors in the area of the planning application.

1.6.2 Feedback was collected by way of recording people's comments and concerns at the consultation events and through subsequent direct correspondence.

1.6.3 The local paper was briefed on the road proposals and the consultation exercise.

1.6.4 Approximately 35No residents, business people, councillors and council officers attended the Planning Forum meeting to discuss the proposals and provide comments;

1.6.5 Approximately 30 residents attended the Maplehurst Rd meeting to discuss the specific proposal for the closure by way of Traffic Regulation Order of Maplehurst Rd and provide comments generally in relation to the QGW project.;

1.6.6 The feedback is documented in a Community Engagement Report submitted with the planning application. The input of all consultees is gratefully acknowledged.

1.6.7 The consultation event allowed concerns of local residents to be expressed and recorded. The main concerns related to the delay between the completion of the BHLR and the opening of Queensway Gateway. This concern is noted but it is unlikely that this gap can be reduced and in case the primary purpose of the road is to access the employment land. Other concerns included:

- the implications of the closure of Junction Rd which will be considered further with ESCC as part of the development of the detailed design;
- Pedestrian routes from the Ridge to Sainsburys which will also be addressed during design development are dependent on the proposed closure of Junction Rd;
- Lighting of the road: there is little scope for change as the road lighting requirements are dictated by Highway design standards which relate to safety. However, Sea Change will seek to provide lighting which minimises light spill and recognises the need to respect local wildlife.

1.6.8 In addition to a programme of public consultation a programme of consultation has been undertaken to inform the design of the development of the EIA with statutory and non-statutory consultees (including HBC, ESCC, Highways Agency, Environment Agency and Natural England) to discuss and agree the details of the proposals and the assessment work.

1.6.9 Further information on the consultation process is provided in the Statement of Community Involvement, attached as a standalone document to this planning application.

1.7 Project Team

- Masterplanners: Influence CLA
- Ecology: Applied Ecology Ltd;
- Water and Drainage: Campbell Reith
- Landscape and Visual: Influence CLA
- Ground Conditions: Campbell Reith

- Transport and Access: Ramboll
- Noise: Peter Brett Associates
- Air Quality: Peter Brett Associates
- Public consultation: TK Associates
- EIA Co-ordination: Sea Change Sussex

1.8 Structure of the Environment Statement

1.8.1 The ES is structured as follows:

- Chapter 2: description of the site and the surrounding area;
- Chapter 3: summarises the proposed development, including sustainability, utilities and the consideration of alternatives;
- Chapter 4: outlines the construction works;
- Chapter 5: provides the methodology adopted to undertake the EIA;
- Chapter 6: summarises the planning and policy context to the proposed development;
- Chapters 7 to 14: comprise the technical assessment Chapters;
- Chapter 15: assesses impact interactions and cumulative effects; and
- Chapter 16: provides a glossary of terms.

2 Site and Surrounding Area

2.1 The Site & Surroundings

2.1.1 The following description of the site and surroundings should be read in conjunction with the Site and Surroundings Area Plan and Photographs in **Figures 3 and 4, Appendix A.1.**

2.1.2 The site is located on the north western urban periphery of Hastings. It lies to the south of the Ridge (A2100) and between the A21 (Sedlescombe Road North) and the B2092 Queensway (Approximate National Grid reference 579400E, 113100N). The western end of the site is within an area identified in the adopted Planning Strategy for employment use. The eastern end is unallocated. The site area within the planning application red-line boundary is 5.7Ha although the permanent works themselves will not require the whole area.

2.1.3 The nearest other uses to the site are the Sainsbury's supermarket which is to the south east of the site and the Ridge West industrial estate which lies to the north east.

2.1.4 Immediately to the north and south of the western end of the site is an area of open space part of which has a local ecological designation as a Site of Nature Conservation Importance and is accessible by public rights of way.

2.1.5 Further to the south of the western leg is a residential cul-de-sac accessed from Beaufort Home Park Close. There are also residential properties to the west of Queensway. These properties are generally two storey height and a mixture of detached and semi-detached character.

2.1.6 The site is on the urban periphery. The approach along Queensway from the north towards the western end of the location of the proposed development appears unspoilt with tall trees and shrubs screening all residential and employment development on either side of the road. At the eastern end the site approach is via the A21 (Sedlescombe Road North) the main arterial access for traffic into Hastings and to the Sainsbury's supermarket. The character of this area is industrial with low quality urban development in the form of warehouses and workshops as well as the supermarket bordering the land corridor which will accommodate the eastern leg of the road.

2.1.7 Further to the west is the High Weald AONB, (around 200m from the site boundary) and the Marline Valley SSSI and Local Nature Reserve (around 900m from the site boundary).

2.1.8 The site itself is a mixture of overgrown scrub, small trees and patches of open grassland. There are no buildings on the site at present and it is understood that the site has not been previously developed. The site is undulating in the west where it forms part of the Hollington Valley but relatively flat at the eastern end where the line of the new road is proposed to follow in part the line of the existing Whitworth Rd.

2.1.9 Ecological surveys of the site have shown it supports a range of unmanaged semi-natural habitats, notably broadleaved woodland, semi-improved neutral grassland and areas of mixed woody and bramble scrub.

2.1.10 A small area of trees identified and designated as semi natural woodland of ancient character lie just to the south of the site but outside the site boundary.

2.2 The Proposed Employment Sites

2.2.1 The proposed employment sites comprise approximately 2 hectares excluding any peripheral landscape mitigation or reinforcement. The proposed employment sites are comparable in nature to the QGW site (which cuts through the LRA 7 and 8 areas). Like the road site the employment areas are also comprised of a mixture of overgrown scrub, small trees and patches of open grassland.

2.3 History of the Site

2.3.1 The first cartographic source to illustrate the site area in sufficient detail is the Hollington Tithe Map of 1840. The area in which the site is located was at this time owned and occupied by

Charles Montolieu Lamb, and was part of the Beauport Park Estate. General Sir James Murray was noted as paying rates on woodlands in the area from 1763 onwards and he built the house at Beauport Park between 1763 and 1766. He named Beauport Park after the village of Beauport (near Quebec in Canada).

2.3.2 The proposed development site has remained principally as open land since the mid-19th century as arable and/or pasture land. Drainage channels illustrated on the Ordnance Survey mapping indicates that this area of land was liable to flooding.

2.4 Environmental Setting

2.4.1 The site is situated in an area of moderately high natural environment quality. Part of the site falls within an area allocated with the local designation of a Site of Nature Conservation Importance. This is a non-statutory designation and is partly coincident with LRA8 through which QGW passes.

2.4.2 A shallow stream (Hollington Stream) is located approximately a third of the way from the western end of the proposed alignment, which flows in a south westerly direction at the base of a shallow valley. To the immediate north of the source of the stream is an area of saturated, boggy ground with standing water.

2.4.3 There is an Air Quality Management Area (AQMA) designated in Hastings. However, this is located to the south of the town on the A259 Bexhill Road along the sea front some distance from the site.

2.4.4 The site is between two busy roads one of which is the main access route into Hastings and the other part of a ring-road to the west of Hastings; there are also large industrial developments in the area. However, the noise environment at the site is relatively quiet due to the buffering of noise by the tree belt and the edge of settlement location.

2.4.5 The site is mainly located in Flood Zone 1 although a small portion of the site is located within a Flood Zone 3 floodplain. This high risk area is confirmed to be the existing watercourse and is proposed to be mitigated by installing a culvert to allow the watercourse to continue to flow along its existing route.

2.4.6 The site is not within a designated Conservation Area.

2.4.7 Part of the site lies within an Archaeological Notification Area. However, there is a relatively low probability of below ground archaeology.

2.4.8 An archaeology desk-based assessment in April 2014 has established that there is evidence for activity from prehistory through to the post medieval period in the wider surrounding area of the site. There is some potential for below ground archaeological remains, especially from the Neolithic and Roman periods.

3 The Proposed Development

3.1 Description of the Proposed Development

3.1.1 The proposed development is the construction of the approximately 650m of single lane carriageway of a width suitable for traffic speeds of up to 60kph. QGW will connect the A21 (Sedlescombe Road North) to the B2092 Queensway.

3.1.2 The location of the site is to the north of Hastings as shown in **Figure 1**, **Appendix A.1 Figure 2, Appendix A.1** shows the planning application boundary (in red), which covers a wider area than the proposed alignment to ensure there is space for earthworks and construction works including drainage. Drawings of the road alignment are included as **Appendix A.2**.

- General Arrangement Plan;
- Highway Long Sections;
- Highway Cross sections;
- Street Lighting

Road alignment

3.1.3 The alignment of QGW is east-west. The road initially runs along the line of Whitworth Road before curving slightly south to an intermediate junction. At this stage the road is on a relatively level gradient. As it moves to cross the Hollington Valley the road has a downhill gradient until it reaches the new junction with Queensway.

3.1.4 The intermediate junction located around half way along the length of the new road serves to provide access to the employment sites on either side of the road. This roundabout provides a dividing point between two sections of the road, each with its own characteristics.

3.1.5 The western section (Queensway to the employment access junction) will generally be 7.3m wide with a 1m grass verge either side.

3.1.6 The eastern section of QGW (employment access junction to Sedlescombe Rd) will comprise two 3.65m carriageways with a 1m central reservation. This width will accommodate the larger vehicles that may need access to the proposed employment site and the existing industrial estate.

3.1.7 On the south side of this section of the road a 3m shared cycleway/ pedestrian footpath will be provided replacing the existing footpath that presently runs from the western side of the A21 to Beauharrow Lane. It will connect to the existing footpath on the west side of Sedlescombe Rd. The new cycleway/footpath runs to the intermediate roundabout and then follows the south exit to link back into the existing Beauharrow Lane footpath as well as providing an access to the south employment site.

3.1.8 On the north side a 2m footpath will link to the existing footpath on the western side of the A21 and run to the first access to the Ridge West Industrial estate. A second section of 2m footpath will connect to the existing footpath that comes through the industrial estate and will then run to the intermediate roundabout where it will follow the north arm creating a pedestrian route into the new employment area.

3.1.9 The road is designed to minimise gradients, using embankments rather than structure to raise the road across the Hollington Valley. Due to the short length of this section it is not possible to follow the existing contours as this would result in substandard gradients on the approaches to the roundabout junctions.

Junctions

3.1.10 The western end of QGW comprises a junction with the B2092 Queensway. The proposed junction design is a roundabout reflecting the anticipated flows established by the Traffic Assessment work. To facilitate this new junction arrangement Queensway will be realigned as it approaches QGW.

3.1.11 As noted above approximately half way along QGW a roundabout junction is proposed to give access to the proposed employment development to the north and south. The indicative form of the proposed employment development is set out in section 3.2 of this chapter.

3.1.12 The junction with Sedlescombe Rd (A21) at the eastern end of QGW will take the form of a new four arm roundabout located slightly off of the line of the present A21. This roundabout provides access onto north and south carriageway of the A21 and to the existing retail development to the east of Sedlescombe Rd. The chosen location for this junction allows the road to make best use of the existing topography, minimises impact on existing habitat and disruption to the access to the businesses on the east side of Sedlescombe Rd.

3.1.13 In addition to these three major junctions three other junctions are proposed all on the eastern arm of the new road. Their purpose on the north side is to provide access to the existing Ridge West Industrial Estate (due to Whitworth Rd being closed) and on the south side to the Sainsburys car park (subject to the outcome of discussions with Sainsburys). All are essentially simple uncontrolled T- junctions.

3.1.14 The location of the roundabout on Sedlescombe Rd will require the relocation of an existing bus stop. It is proposed to relocate the stop approximately 10m to the south although the precise location will need to be agreed with the local bus operator and the highway authority in due course.

3.1.15 It should also be stated here that in addition to the new junctions required for the new road extensive consultation has been undertaken with East Sussex County Council and the Highways Agency with regards the impact of the scheme on the broader road network. This has resulted in the following additional works being envisaged as part of the scheme:

- The closure of the Junction Rd junctions with Sedlescombe Rd (A21) and the Ridge West (A2100);
- The closure of Whitworth Rd;
- The closure of Maplehurst Rd at the northern end.

Items A) and B) will be included in the planning application. Item C) will not form part of the application but will be pursued separately under a Traffic Regulation Order.

3.1.16 These changes to the broader road network and the associated impact on traffic flows have been factored into the design of QGW.

3.1.17 Should the closure of Junction Rd proceed as part of these works then Sea Change would propose that Junction Rd and the redundant leg of Whitworth Rd be converted to a pedestrian route linking the Ridge to QGW.

Pedestrians and Cyclists

3.1.18 As set out above QGW will include a shared 3m pedestrian footway/cycleway on the eastern section to the intermediate roundabout junction. This will be separated from the road by a 2m verge. A further 2m footpath will be provided on the north side on the eastern section of QGW to the first junction access to the Industrial Estate; a further section of footpath is proposed connecting to the footpath coming from the north through the industrial estate and running to the intermediate roundabout.

3.1.19 These provisions will provide a safe segregated route for these users accessing the new employment areas, Sainsburys and the existing Industrial Estate.

3.1.20 There are no footpath/cycleways propose for the western section as there are no footpath or cycleways to connect to at Queensway.

3.1.21 Pedestrian crossing points are provided at several locations along the length of QGW. In particular, safe crossing places will be created to maintain the connectivity of all of the public rights of way that cross the site.

3.1.22 These crossing places include footways on both sides of the road and central pedestrian refuges to allow crossing of a carriageway at a time.

Planning application boundary

3.1.23 The planning application boundary for the site has been drawn to ensure that all space required for earthworks and construction works is included. The planning application boundary also includes the area required for drainage ponds. The drawings provided in **Appendix A.2** illustrates that the majority of the site covered by the planning application is included to allow for landscaping and earthworks, rather than the road itself.

Landscaping

3.1.24 The proposed development will include a comprehensive landscape scheme, comprising landscaping along the operational QGW, restoration of landscape lost as a result of construction activities and on-site planting. This design will consider various aspects of the impact of the scheme including visual impact, ecology and noise mitigation.

3.1.25 A detailed landscape scheme for QGW has not been prepared at this stage; however, the basic design concepts that are to be followed are indicated in the Illustrative Landscape Masterplan (see **Figure 1, Appendix A.3**).

3.1.26 A grassed verge would be created along the western section and part of the northern side of the eastern part of the QGW to create a safe road environment; planting within the visibility splays will be avoided.

3.1.27 Pedestrian crossings would be created for users of the Public Rights of Way crossing the proposed road. New hedgerows and trees would be planted along Queensway to compensate for the loss of existing vegetation as a result of the southern junction.

3.1.28 As a general principle, landscape within the site lost during the QGW construction phase would be reinstated to the existing uses, which comprise predominantly grassland, bramble scrub and woodland.

3.1.29 The landscape scheme proposes planted banks with infill planting with ANS trees as appropriate either side of the western arm of the road. At the eastern end on the south side the existing tree screening will be retained as far as possible. Infill planting comprising ANS trees will be created on the north side. (see **Figure 1, Appendix A.3**)

3.1.30 The landscape scheme would also contain an attenuation pond surrounded by aquatic planting located on the south side of the western arm of the road.

Tree protection order areas

3.1.31 At the western end of the project the road passes through two areas of trees protected by TPO 38 (Areas W5 and W7). TPO 38 was created in 1972 and area W7 appears to still be largely intact. Area W5 has largely been lost due to the construction of Queensway and the residential estate accessed from Beauport Gardens.

3.1.32 In addition to areas W5 and W7, as the road reaches the intermediate roundabout one further tree, T2, lies close to the line of the road and it is considered that to facilitate construction of the roundabout it will be necessary to remove this tree too. The affected trees/tree areas are shown in **Figure 2, Appendix A.3**.

3.1.33 The design of the road has been developed to minimise the loss of any habitat including trees covered by TPO's. However, to provide the most effective access to the employment areas the design process concluded that the alignment proposed was the optimum achievable when taking into account the constraints of site topography, a safe highway design that meets adoptable standards, minimisation of third party land take and ecology.

3.1.34 The new road will result in the loss of approximately 0.2Ha of areas W5 and W7 and tree T2. As far as possible the landscape scheme will seek to compensate for this loss.

Lighting

3.1.35 QGW will be lit along its length from the A21 junction to Queensway including the all three junctions. The lighting proposals will be agreed with ESCC and will be designed to be sympathetic to the ecological issues of the site.

3.2 Indicative Employment Development

3.2.1 QGW is being constructed with the purpose of allowing land to be released around the road for employment use in accordance with the Hastings Planning Strategy.

3.2.2 As QGW is enabling this development it has been agreed with HBC to provide an assessment of the cumulative effects of the road and the initial development within the emerging plan allocation. Therefore, for the purposes of the EIA and to ensure future effects of development are properly considered an indicative development scenario for the initial employment development has been established.

3.2.3 The indicative masterplan layout is included as **Figure 1, Appendix A.4**. The shows the possible locations of proposed employment sites. Three platforms (A,B and C) are shown which reflect and work with the sloping topography of the site

3.2.4 The proposed employment development is either side of QGW. The majority, divided into two discreet platforms (A and B) is to the north of the road with the balance located to the south east (platform C). In total there will be 12,000 s m of employment space although Sea Change considers that a higher level is achievable and has tested a capacity of 23,000 square metres in certain of the following ES chapters notable the Transport/Traffic section.

3.2.5 Access to the proposed employment site would be from the intermediate roundabout along QGW. As set out above the road through the proposed employment sites would be 7.3m wide, suitable to accommodate employment traffic accessing the area from the A21 and B2092. Pedestrian and cycle access would be provided to the site from dedicated routes running from both the south and north sides of the Sedlescombe Rd (A21).

3.2.6 The site will be protected as a landscape buffer, which will also incorporate environmental mitigation features.

3.2.7 One public footpaths currently cross the proposed employment site and this would be rerouted around the development platforms, with a crossing point provided over QGW.

3.3 Utilities

Introduction

3.3.1 This section summarises the current utility services at and in the vicinity of the site and the utility works proposed as part of the development.

Utility Provision

3.3.2 Services have been identified in Whitworth Rd and at the eastern end of QGW in the location of the new roundabout junction with Sedlescombe Rd (A21); these will require diversion and/or protection:

- Underground electrical supplies;
- Gas mains;
- Potable water supplies;
- Data and telecoms supplies;
- Sewers.

Anticipated Utility Works

3.3.3 The proposed employment development will increase demand on existing service infrastructure and require additional capacity to be introduced into some networks. The extent

of additional capacity required will be confirmed through further utility studies, including the requirements for re-routing, extension of existing supplies, the alignment of utilities corridors and any associated easements. The following outlines the utility works that are anticipated to be required and have been considered through the EIA.

3.3.4 Potential alterations to the existing utility networks to accommodate the QGW and associated highway realignment works are anticipated and preliminary work has identified various utility services that have the potential to impact on the works. These are being explored further and the design will be developed in conjunction with the affected Statutory Authorities to agree new routes to be incorporated as appropriate.

Utilities within QGW

3.3.5 A bank of ducts is to be laid within the footway/cycleway and below QGW for use by statutory undertakers to provide connections to the employment development that is proposed to be access from the road. The duct bank provides for new gas, water, electricity and telecommunications supplies.

3.4 Incorporated Mitigation

3.4.1 The iterative nature of the EIA process has resulted in the incorporation of a number of mitigation and enhancement measures during the design phase. These are explained in detail in the topic chapters of this ES. The following summarises some of the key mitigation measures incorporated into the proposed development to ameliorate potentially significant environmental effects and provide environmental enhancements:

- The junctions of QGW with the A21 and Queensway have been designed and located to minimise the requirements for earthworks and vegetation loss;
- The alignment of QGW responds (as far as possible within the technical constraints of the design) to the undulating topography of the site, minimising cut/fill requirements and reducing the visual prominence of the road;
- Comprehensive landscaping to ensure that QGW provides a green route gateway to the employment areas;
- Pedestrian crossings have been incorporated into the alignment to minimise disturbance to users of public rights of way.
- A comprehensive package of ecology measures is proposed to mitigate the effects of QGW, including the translocation of reptiles;
- Inclusion of a pond to attenuate surface water runoff from QGW to avoid increasing flood risk as a result of an increase in the impermeable area of the site. This pond has also been landscaped to provide new features for wildlife; and
- Careful construction management through the implementation of a Construction Environmental Management Plan, which will be agreed with HBC prior to the commencement of construction.

3.5 Consideration of Alternatives

3.5.1 The EIA Regulations require an ES to include an outline of the main alternatives studied by the applicant, indicating the main reasons for the choice made, taking into account the environmental effects.

3.5.2 This legal requirement is expressed in very general and high-level terms, requiring only the inclusion of an "outline" of "main" alternatives and an "indication" of "main" reasons.

3.5.3 It is a matter for the applicant to decide which alternatives it intends to consider. The EIA Regulations do not expressly require that an applicant studies alternatives, although it is widely encouraged at the policy level, both European and domestic, and is a feature of EIA best practice.

3.5.4 The consideration of alternatives in this ES goes beyond what is required, helping to explain how alternatives were identified and why the proposed development was chosen in preference to them.

3.5.5 Paragraph 83 of Circular 02/99 provides the following national policy guidance on the consideration of alternatives in EIA: "...*consideration of alternatives (including alternative sites, choice of process, and the phasing of construction) is widely regarded as good practice, and resulting in a more robust application for planning permission. Ideally, EIA should start at the stage of site and process selection, so that the environmental merits of practicable alternatives can be properly considered*." This policy guidance has been taken into account when preparing this ES.

3.5.6 Alternatives should only be considered where they are feasible, realistic and genuine. This may depend on various factors, including planning policy, land ownership, financial viability, technical feasibility and design quality. Options which are unlikely to be acceptable or deliverable are not realistic alternatives and so do not need to be considered.

3.5.7 Whilst environmental effects are relevant when choosing between alternatives, other factors are also relevant. The main selection criteria which the applicant has used when choosing between the alternatives which it has considered include: planning policy, viability, design quality, market requirements, site constraints and opportunities and environmental effects.

3.5.8 The following provides an outline of the main alternatives considered in relation to the proposed development and the main reasons for choosing the proposed development in preference to them.

No development

3.5.9 The site crosses an area identified in the emerging Hastings Planning Strategy for employment uses. Therefore, the principle of development has been aired through a process of public consultation and it is likely that when the Development Management Plan is submitted in due course the extended employment areas at Ridge West will be included. Consequently it is suggested that the principle of development has been established.

3.5.10 This means the site's use for employment purposes is set through planning policy. Although it is possible for the site not to be developed once allocated, this is unlikely. Furthermore, not developing the site for its proposed use would be of detriment to the economy of the wider Hastings area and contrary to planning objectives of supporting the economy.

Access from the east or the west only

3.5.11 An access from one point only would inevitably lead to an increase in traffic volumes using Ridge West, an already congested piece of local road infrastructure. An access from one end only would also increase delays at the Junction Rd junctions to unacceptable levels.

Access from both ends

3.5.12 An access from both Sedlescombe Rd and Queensway allows development of the site without creating an additional and unacceptable burden on the existing road network. In addition it allows an easing of traffic on Ridge West and facilitates the closure of Maplehurst Rd and the Junction Rd junctions. The former is anticipated to be achieved by way of a Traffic Regulation Order whilst the latter forms part of this planning application.

Alternatives: alignment and junction design based on access from both ends

3.5.13 The design of QGW has been progressed in consultation with HBC and ESCC and with the objective of meeting the requirements of planning policy.

3.5.14 The alignment of the road has been influenced by a number of factors such as topography, location of businesses on the east side of Sedlescombe Rd, minimising impact on existing tree screening, minimising impact on residential properties and achieving a viable access route the employment land.

3.5.15 If each arm of the road is looked at in turn:

Eastern end

A corridor exists between the Sainsburys supermarket and the Ridge West Industrial Estate. After consideration of locating the road on the south side of the corridor a more northerly alignment was chosen. The key factors affecting this decision were:

- The topography is flatter on the north side which reduces the need for substantial retaining walls;
- The southerly alignment creates significant difficulties in terms of access to the retail businesses on the east side of the Sedlescombe Rd. The northerly alignment has significantly less impact.in this regard;
- The existing tree screening to Sainsburys can largely be preserved;
- There is no duplication of an existing road (Whitworth Rd);

Although the northerly alignment requires the acquisition of the Bartletts garage and will involve some disruption to the present users of Whitworth Rd on balance these negatives are considered to be far outweighed by the positives.

Western arm

The alignment of the western arm is primarily driven by the constraints arising from the need to create a viable access into the northern employment land. To allow for a secondary road to be built without the need for further land acquisition from private landowners has meant that the intermediate roundabout needs to be located slightly to the south of Whitworth Rd. To go with the natural gradient of the Hollington Valley the road has been designed to follow an east/west alignment until it reaches Queensway. Taking an alignment curving in a more southerly direction brings the road closer to the residential properties of Beauport Home Farm Close. Taking the road north would mean working against the natural gradient creating technical difficulties in terms of achieving adoptable standards and with drainage of the road.

3.5.16 Substantial work has also been done on the alternative for junction designs and carriageway widths. Details of this work are set out in more detail in the Transport Assessment accompanying this Environmental Statement. However, based on the traffic flows generated by modelling the new road and the broader network modifications noted above.

Conclusion

3.5.17 The design of QGW has been based initially on the requirements of planning policy. Key design issues have then been worked through, drawing in the information from and opinions of consultees, to provide a scheme that responds to the various constraints and opportunities of the site. It is therefore considered that the proposed development provides the best possible response to the constraints and opportunities to meet the requirements of planning policy while minimising potential adverse environmental effects.

4 Construction and Site Management

4.1 Introduction

4.1.1 This chapter provides information on the construction of the proposed development and the management of the construction site.

4.1.2 An important element in the control of potential adverse environmental effects during the construction phase will be in the implementation of a Construction Environmental Management Plan (CEMP). This will outline the arrangements and management practices to be adopted to minimise the environmental effects of construction and which will be agreed with (RDC) prior to the commencement of construction.

4.1.3 Topic areas for the CEMP are presented in **Section 4.3** below.

4.2 Construction and Works Programme

4.2.1 It is anticipated that QGW will be constructed under one contract. Details of the construction sequence will only be known once the works are tendered.

4.2.2 The construction of QGW is sensitive to ecological issues. Close attention has been paid to ensure appropriate time periods have been allowed to complete these works in accordance with best practice guidance. This dictates that the Works will commence in Summer 2015 and will continue through to 2016.

4.2.3 A contractor has not yet been appointed for the construction of the QGW. As a result detailed construction practices are not yet known. It is, however, expected that the construction of QGW will entail the following, the likely significant environmental effects of which have been considered in this ES:

- Establishing construction compound;
- Initial enabling works (Final ecological works and service diversions);
- Earthworks and land profiling;
- Implementation of the highway (surface course, binder course and base course),footway/cycleway and lighting;
- Provision of pedestrian crossing facilities;
- Drainage works; and
- Installation of utilities.

4.3 Construction Management

4.3.1 All of the construction operations carry with them a range of issues to be dealt with in their design, preparation and execution. Best practice in construction management will be required to minimise the environmental effects and disruption that could be caused by the construction works. This will minimise disruption to the local community.

4.3.2 It is proposed to utilise a Construction Environmental Management Plan (CEMP) to manage the impacts of construction. The CEMP will identify a range of measures, in relation to aspects such as noise and vibration, dust and air pollution, contaminated land, ecology, water resources, archaeology, which will be utilised during the construction of the proposed development.

4.3.3 The construction compound is anticipated to be sited at the Eastern end of the site. The compound will be used for the storage of materials and machinery, as well as the location of site offices. It will be suitably screened and managed according to considerate constructors guidelines. Material will be moved through the site on a combination of Whitworth Rd and a proposed haul route suitably located to minimise visual, environmental and ecological impact.

4.3.4 The format of the CEMP will need to be reviewed once the construction techniques and methodologies to be employed in the various stages of the project are confirmed once a contractor has been appointed. The CEMP will identify the responsibilities of all parties involved in the design, management and construction of the development. It is anticipated that matters a CEMP would address include the following, as well as the construction mitigation and enhancement measures identified in each of the topic chapters of this ES:

Table 4.1

Site Constraints and Conditions	Key Duties and Deliverables
Health & safety	Contractors' competence and procurement Method statements and risk assessments Contractor communication and liaison Performance monitoring and measurement Personal Protective Equipment (PPE) standards Accident reporting
Contaminated Land	Compliance with Environment Agency Pollution Prevention Guidance Method statements for fuel storage and transfer Personal Protective Equipment (PPE) standards
Noise & vibration	Selection of appropriate plant Preventative & mitigation measures Hours of operation Monitoring Complaints procedure
Dust & air quality	Preventative & mitigation measures Monitoring Remediation Complaints procedure
Waste minimisation & management	Reduction Re-use Recovery Disposal (in accordance with the Duty of Care legislation)
Archaeology & Heritage	Archaeological investigation Preservation by record
Ecology	Appropriate surveys Obtaining licences where required Protection of key features Sensitive timing Implementing measures to protect badgers, including ramps in deep excavations and capping open pipes at night
Water Resources	Protection of resources Storage of materials away from water features Information to contractors on required mitigation
Emergency planning & incident control	Incident recognition Emergency planning Incident control and reporting
Site Logistics & Operations	Safety & security Site logistics Working hours Maintaining access General site layout, including: access, offices, routes, demarcation, lighting, deliveries, storage & setdown, welfare facilities. Security Plant & equipment Construction traffic Designated access route
Community liaison	Designated point of contact

4.3.5 It is proposed that the requirement for such a CEMP be secured through an appropriate planning condition.

4.3.6 In addition it is anticipated that the construction works will be signed up to the Considerate Constructor's Scheme, a recognised system to drive and judge the effectiveness of construction management.

4.4 Waste

4.4.1 The contractor will be required to implement a Site Waste Management Plan (SWMP; in accordance with the requirements of the Site Waste Management Plan Regulations 2008) to minimise and control the waste to be disposed of. The main aims of the SWMP will be to ensure compliance with waste legislation and to move waste up the hierarchy, diverting as much waste as possible from final disposal to more sustainable waste management option,

4.4.2 As part of detailed design stages a cut and fill budget will be prepared to help ensure that all cut material can be reused on site as part of the fill. At this stage the indications are that there will be a significant requirement for fill that won't be met from the site excavation. Sea Change intends to source this material from local sources. Bulk fill in the embankment for the western end will come from surplus material presently stockpiled in North East Bexhill. If possible and with the agreement of ESCC Sea Change will utilise the BHLR haul road to move the material to Queensway and then to the site. Other finer fill material will be obtained from the now demolished Stills site building where a substantial hardstanding remains that will form a useful source of crushed concrete to be used in the lower level of the road make up.

4.4.3 Topsoil strip can either be re-used on site, as part of the landscape mitigation works for the road or for the wider development. Final disposal to landfill should not be necessary.

5 Assessment Method

5.1 Introduction

5.1.1 This chapter describes the process by which the EIA was carried out. It includes a discussion of the relevant

5.2 EIA Regulations

5.2.1 Procedures relating to the assessment of the environmental effects of development are described in The Town and Country Planning (Environmental Impact Assessment) Regulations 2011. These implement EC Directive 85/337/EEC, as amended, into domestic legislation. The initial Directive and its three amendments have been codified by Directive 2011/92/EU. The Regulations set out the procedures for undertaking an EIA and the information which is required in an Environmental Statement (ES). Formal guidance on procedures under the EIA Regulations was issued in Circular 02/99 and the Government has also published a booklet entitled "Environmental Impact Assessment: A Guide to Procedures" (November 2000).

5.3 The EIA Process

5.3.1 In general terms the main stages in the EIA are as follows:

- Screening – determining the need for EIA;
- Scoping – identify significant issues, determining the scope of the EIA;
- Data Review – draw together and review available data;
- Baseline Surveys – undertake baseline surveys and monitoring;
- Assessment & iteration – assess likely significant effects of development, evaluate alternatives, provide feedback to design team on potential adverse impacts, modify development or impose parameters, incorporate mitigation (including monitoring and long-term management), assess effects of mitigated development; and
- Preparation of the ES.

5.3.2 It should also be noted that, as summarised in **section 5.5**, consultation with relevant stakeholders has been undertaken throughout the EIA process.

5.4 Screening and Scoping

5.4.1 Sea Change Sussex has undertaken extensive pre-application discussions with HBC with regards to QGW. This included consideration as to whether QGW constitutes EIA development. It was agreed that QGW was likely to constitute EIA development and that this needed to be confirmed through formal EIA screening.

5.4.2 An EIA screening and scoping exercise was then undertaken to identify the nature of the site, the characteristics of QGW, the potentially significant environmental issues relating to the proposed development and the likelihood of significant cumulative effects. Appropriate methods for the assessment of the likely significant environmental effects were also considered.

5.4.3 The screening and scoping exercise involved reviewing QGW in relation to existing site conditions, the team's experience of other projects of a similar nature, potentially significant issues, perceived by the team, the means by which they would be assessed and the potential for cumulative effects with other developments.

5.4.4 On the basis of this review, a combined EIA Screening and Scoping Opinion Request was submitted on 7th October 2013 (provided in **Appendix A.4**). This identified that an EIA was likely to be required and identified the proposed scope and approach of the EIA.

5.4.5 HBC provided their EIA Screening and Scoping Opinion on 21st November 2013; this is included in **Appendix A.5**.

5.4.6 This ES has been prepared to document the assessment undertaken in accordance with the EIA Screening and Scoping Opinion Request and the Screening and Scoping Opinion.

5.5 Consultations

5.5.1 A comprehensive programme of consultations has been undertaken with statutory and non-statutory organisations as well as a community engagement programme. Such consultations have been to undertaken to inform the emerging design and EIA.

5.5.2 As part of the EIA process the following consultees have been consulted to agree the scope of the assessment, to provide information, to discuss assessment methods and findings, and agree mitigation measures and design responses:

- Hastings Borough Council (HBC)
- East Sussex County Council (ESCC)
- Highways Agency
- Environment Agency
- Natural England
- English Heritage
- Southern Water

5.5.3 The EIA has been undertaken to fulfil the requirements of the consultees and the assistance of these consultees is gratefully acknowledged.

5.5.4 In addition a comprehensive programme of public consultation has been undertaken. This is summarised in **section 1.6** above drawing upon the Community Engagement Report submitted with the planning application.

5.6 Committed Developments

5.6.1 The development lies on the route of traffic travelling between the A21 and the Bexhill to Hastings Link Road (BHLR). The BHLR benefits from an extant planning permission and secured funding from the DfT. The BHLR is a single carriageway 5.6km long road that will link the outskirts of Bexhill and Hastings.

5.6.2 On the basis of the BHLR having an extant planning permission and secured funding, this ES has considered the BHLR to be committed development. The BHLR has therefore been considered to form part of the baseline against which QGW has been considered, while the potential for significant cumulative effects as result of the two roads has also been considered.

5.6.3 Other developments in the vicinity of QGW are the North and South Queensway Business Park sites. These are located approximately half a mile to the south of the proposed QGW western junction. South Queensway is a partially completed development providing 3No business units and a conference facility. There is planning permission for a further 4No units giving a total development capacity of 8,000 sm. North Queensway is in the process of development with a new access having recently been completed. The development also has consent for the construction of site infrastructure works which will allow the development of 14,000 sm of B1/B8 in due course. This development has therefore been considered to form part of the baseline against which QGW has been considered, while the potential for significant cumulative effects as result of the two roads has also been considered.

5.6.4 Consultation with HBC has established that there are no other extant local developments or developments for which a planning application has been submitted that have the potential to lead to significant cumulative effects when considered with QGW.

5.6.5 It is recognised however that QGW forms part of the employment allocation in the emerging local planning policy. Policies LRA 7 and 8 identifies that the allocation should provide approximately 12,000 square metres of employment space.

5.6.6 While it is not for the EIA process to assess the environmental effects of policy it has been agreed with HBC through the pre-application discussions that consideration needs to be given to the wider LRA 7 and 8 allocations in assessing effects. It is recognised, however, that detailed plans for the wider allocation are not available.

5.6.7 In accordance with the EIA Scoping Opinion Request and EIA Scoping Opinion, the EIA has assessed the likely significant environmental effects of:

- QGW in isolation (such that the environmental effects of the proposed development can be understood); and
- QGW and the employment development.

5.6.8 As final plans of the Employment Development are not yet available the effects of an indicative masterplan, provided by Sea Change Sussex, have been considered in the EIA. This is provided in **Figure 1, Appendix A.3** and relates to approximately 12,000 square metres of employment space within use classes B1 (a, b and/or c).

5.6.9 In addition, whilst it is not appropriate to undertake a detailed assessment of the wider LRA 7 and 8 allocations consideration has been given through the EIA to the allocation. For example, consideration has been given to sensitive receptors that may be introduced by the wider development, the cumulative effects of traffic generated by the allocations and ensuring that any mitigation measures proposed does not preclude the build out of the wider allocation.

5.6.10 Each of the topic chapters of this ES includes a section that documents the assessment of the cumulative effects of the proposed development as outlined above.

5.6.11 It should also be noted that the scope and approach of the Transport Assessment has been agreed with ESCC, as the local highways authority. This included agreeing the schedule of committed developments to be included in the modelling of transport effects and also consideration of the impact of development up to 23,000 square metres.

5.7 Assessment Assumptions

5.7.1 The following assumptions have been used to ensure that the EIA has undertaken an assessment of reasonable worst case effects (unless otherwise specified in each of the technical chapters) has been undertaken:

- The construction of the BHLR which commenced in early 2013 will be complete and open in 2015;
- Construction of QGW will commence in 2015 and will be complete and open in 2016. As a result baseline conditions for the operational phase of the QGW will include the operation BHLR;
- Baseline conditions are generally considered to be current conditions at the site and surrounding area, except as a result of the implementation of the BHLR. Such changes are identified as appropriate within each topic chapter;
- The wider LRA 7 and 8 allocations will be built out in accordance with the emerging Local Plan; and
- Traffic data used by the EIA has been based on the Transport Assessment, the scope of which was agreed with ESCC, specific details are shown in **Chapter 8**.

5.8 Assessing Effects

Introduction

5.8.1 The assessment of likely significant environmental effects assesses the likely effects of the proposed development against baseline conditions in the same year (i.e. providing an

assessment of ‘do something’ and ‘do nothing’). Cumulative effects have also been assessed that include proposed employment development, with consideration of the wider development to be delivered under local planning policies LRA 7 and 8.

Establishing Baseline Condition

5.8.2 A range of surveys and data collection exercises have been used to identify environmental conditions at the site. The surveys undertaken are reported in each of the topic chapters.

5.8.3 Baseline conditions are typically considered to be current conditions. However, to set a realistic baseline for assessing the effects of development the BHLR is included in the baseline conditions. As set out in **section 5.6** the BHLR is not yet built but it is a committed development, as it has planning permission, government funding, has commenced construction and is due to be completed in mid-2015. Therefore, it is reasonable and appropriate to consider the BHLR being part of the baseline to assess the construction, operational and cumulative effects of development against. The approach to how the BHLR has been considered within the identification of baseline conditions is included as appropriate within each topic chapter.

5.8.4 The identification of baseline conditions has been based on technical surveys and assessments, the reporting of which is frequently too detailed and lengthy for incorporation into **Volume 1** of this ES. In such instances the technical survey and assessment reports are provided in full as an appendix to this ES (**Volume 2),** with a relevant summary and the reference for the full survey or assessment provided in the ES.

Assessing Construction Effects

5.8.5 The EIA has assessed the likely significant environmental effects that could occur during the construction phase. These effects will vary substantially during the construction process therefore judgements have been made to ensure that reasonable worst case effects are identified through consideration of the processes most likely to lead to significant effects.

5.8.6 The EIA has considered the construction effects of the proposed development of QGW. The potentially significant cumulative construction effects of QGW and BHLR have been assessed as appropriate.

5.8.7 Most construction effects will be temporary, although site clearance could lead to permanent effects on the landscape or ecology. Construction effects could also be intermittent, i.e. they will not occur at one place throughout the duration of the construction works. The potential duration and intermittency of effects is identified as appropriate in the relevant topic chapters.

5.8.8 In judging the significance of construction effects it has been assumed that the construction mitigation measures identified and the proposed CEMP are fully implemented (as it is expected would be required by a suitable planning condition).

Assessing Operational Effects

5.8.9 To provide a robust assessment and one that is generally consistent between topic chapters, the EIA has focused on assessing the environmental effects of the full, completed development. Therefore, the assessment of operational effects only includes what is covered by this planning application, which is QGW. It does not include aspects of the proposed employment development as these are covered by consideration of cumulative impacts, unless otherwise explained in the relevant topic chapter as a result of specific methodological requirements.

5.8.10 Therefore the EIA has generally assessed the likely effects of QGW in the anticipated year of opening (2016). This approach ensures that maximum exposure is considered as well the full environmental effects of development itself.

5.8.11 The Transport and Access chapter of the ES has been based on the Transport Assessment (TA). The TA has been prepared in accordance with Department for Transport (Guidance on Transport Assessment, 2007) guidelines. This assessment has included a notional design year of 2028. Similarly, to fully assess the impacts on the landscape an operational year 1 (opening year) and operational year 15 are assessed, to allow for any landscape planting to become established, such that long term effect can be identified.

5.8.12 The assessment of transport related effects (i.e. transport and access, noise and air quality) has been based on based on traffic data generated for QGW. The approach to the utilisation of this data is set out as appropriate within the transport and access, noise and air quality chapters of this ES, but typically ensures that a worst case, cumulative assessment has been undertaken of QGW and the wider LRA 7 and 8 allocations in relation to the transport related effects.

Assessing Cumulative Impacts

5.8.13 To be able to satisfactorily identify and understand the impacts of the proposed development, it is essential that the assessment of effects take into consideration other nearby development that is committed or has relative certainty of delivery.

5.8.14 The purpose of QGW is to enable other developments that are part of policies LRA 7 and 8. This means that assessing the effects of QGW in isolation would only provide a partial picture if the impact of development on the receiving environment. Therefore, the assessment of cumulative impacts also takes into account the effects from QGW the Queensway Business Park developments and an indicative proposed employment development for the undeveloped Ridge West employment site. The parameters of this development are shown in **section 5.6**.

5.8.15 The cumulative effects of the development with the proposed employment development are included in each of the topic chapters, rather than a standalone ES chapter. This ensures that the consideration of cumulative effects is integrated into the technical work as part of EIA.

5.8.16 As referred to above the BHLR is not included in cumulative operational effects as it has been considered to form part of baseline conditions. No other committed development has been identified by HBC that needs to be included in the assessment.

5.9 Mitigation of Adverse Effects

5.9.1 The incorporation of mitigation measures; that is measures to avoid, minimise or compensate for adverse effects, is an integral part of the design and related EIA process. A description and the significance of any potential residual effect, namely that which remains after established mitigation has been incorporated, is presented in each topic chapter.

5.9.2 Key mitigation measures that have been incorporated into the proposals as a result of the EIA are identified in **Section 3.4**.

5.10 Residual Effects

5.10.1 Residual effects are the environmental effects that will remain after the incorporation of mitigation measures.

5.10.2 It is these residual effects which should be considered when assessing the significance of the proposed development, rather than the unmitigated effects as unmitigated effects will not occur. For example the development will increase the impermeable area of the site and therefore, without mitigation, would increase surface water drainage from the site. However mitigation is proposed to manage surface water drainage such that there would not be a significant residual effect.

5.10.3 To provide an objective assessment of residual effects the significance of residual effects has been determined and is identified in the ES. This allows for comparison of effects between topics and also strengthens the assessment of impact interactions.

5.11 Uncertainty

5.11.1 The prediction of future effects inevitably involves a degree of uncertainty. Where necessary, the topic chapters describe the principal factors giving rise to uncertainty in the prediction of environmental effects and the degree of the uncertainty.

5.11.2 Confidence in predictions has been engendered by employing accepted assessment methodologies, e.g. Design Manual for Roads and Bridges and the Guidelines for Ecological

Impact Assessment in the UK. Uncertainty inherent within the prediction has been described. As a general principle the ES has described credible, worst case foreseeable events and their effects.

5.11.3 Uncertainty also applies to the success or otherwise of measures to mitigate adverse environmental effects. Where the success of a mitigation measure is uncertain, where necessary the extent of the uncertainty has been identified in the ES and a suitable response identified.

5.12 Significance Criteria

5.12.1 The two principal criteria for determining significance of an environmental effect are the magnitude of the effect and the sensitivity of the receptor; in addition the likelihood of the effect occurring is also considered as appropriate. The approach to assessing and assigning significance to an environmental effect will rely upon such factors as; consideration of the EIA Regulations, guidelines, standards or codes of practice, the advice and views of statutory consultees and other interested parties, and expert judgment.

5.12.2 The following questions are relevant in evaluating the significance of potential environmental effects:

- Which risk groups are affected and in what way?
- Is the effect reversible or irreversible?
- Does the effect occur over the short, medium or long term?
- Is the effect permanent or temporary?
- Does the effect increase or decrease with time?
- Is the effect of local, regional, national or international importance?
- Is it a positive, neutral or adverse effect?
- Are health standards or environmental objectives threatened?
- Are mitigating measures available and is it reasonable to require these?

5.12.3 Specific significance criteria will be prepared for each specialist topic, based on the generic criteria, for adverse and beneficial effects, set out in **Table 5.1**.

Table 5.1: Generic Significance Criteria

Significance Level	Criteria
Severe	Only adverse effects are assigned this level of importance as they represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites and features of international, national or regional importance. A change at a regional or borough scale site or feature may also enter this category.
Major	These effects are likely to be important considerations at a local or borough scale but, if adverse, are potential concerns to the project and may become key factors in the decision-making process.
Moderate	These effects, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process.
Not Significant	No effect or effect which is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.

5.13 Impact interactions

5.13.1 **Chapter 16** of the ES provides the assessment of impact interactions, i.e. receptors being affected by more than one environmental effect and therefore potentially being subject to a more significant combined effect than the individual effects reported in each of the topic chapters.

5.13.2 The approach adopted to the assessment is in accordance with the methodology set out above, with further details provided in **Chapter 16**.

5.13.3 **Chapter 16** therefore provides an overall summary of the effects of the proposed development during construction and operation, and provides an overall judgement on the beneficial or adverse environmental effect of the development.

6 Planning and Policy Context

6.1 Introduction

6.1.1 This chapter provides the planning policy context against which the proposal should be determined.

The Development Plan

6.1.2 Section 38(6) of the Planning & Compulsory Purchase Act 2004 makes it clear that regard is to be had to the development plan for the purposes of any determination to be made under the Planning Acts, and that any the determination must be made in accordance with the plan unless material considerations indicate otherwise.

6.1.3 The Development Plan comprises both national and local planning policy.

6.2 National Planning Policy

6.2.1 At the national level the National Planning Policy Framework (NPPF - March 2012) provides the overarching framework within which planning proposals are to be determined. The NPPF is accompanied by Planning Practice Guidance (PPG) which provides greater detail with respect to certain areas of the NPPF. The NPPF requires that:

"The National Planning Policy Framework must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions." (paragraph 2).

6.2.2 Both applicants and the local authority must therefore have regard to the NPPF as a material consideration in the assessment of planning proposals.

6.2.3 The NPPF is clear that, *"proposed development that accords with an up-to-date Local Plan should be approved, and proposed development that conflicts should be refused unless other material considerations indicate otherwise"*. (paragraph 12).

6.2.4 The purpose of the planning system is to contribute to the achievement of sustainable development and the NPPF (Paragraph 14) contains a presumption in favour of sustainable development as the basis for every determination.

6.2.5 As far as making planning decisions is concerned this presumption means:

- *approving development proposals that accord with the development plan without delay; and*

- *where the development plan is absent, silent or relevant policies are out-of-date, granting permission unless:*

  - *any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or*
  - *specific policies in this Framework indicate development should be restricted.*

6.2.6 Whilst the NPPF must be read as a whole there are some sections more relevant to individual proposals than others. The following is relevant in this case:

Sustainable Development

6.2.7 There are three dimensions to sustainable development comprising:

- *an economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;*

- *a social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and*

- *an environmental role – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.*

6.2.8 To achieve sustainable development economic, social and environmental gains should be sought jointly and simultaneously through the planning system (paragraph 9). In particular pursuing sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment as well as peoples quality of life including, inter alia, making it easier for jobs to be created in cities, town and villages as well as improving the conditions in which people live, work, travel and take leisure.

6.2.9 The Government is committed to building a strong and competitive economy and significant weight is placed on the need to support economic growth, particularly through the encouragement of economic activity in town centres and appropriate edge of town locations. (Paragraph 19-23). Economic growth in rural areas is also a key element of the NPPF.

Sustainable Transport

6.2.10 The NPPF considers the promotion of sustainable transport and is clear that:

Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. Smarter use of technologies can reduce the need to travel. The transport system needs to be balanced in favour of sustainable transport modes, giving people a real choice about how they travel. However, the Government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas (Paragraph 29).

6.2.11 In facilitating sustainable development the NPPF recognizes the need to take account of opportunities for sustainable transport and to reduce the need to travel, however, such requirements do not supersede consideration of a proposal in the context of the other provisions the plan.

Climate Change and Flooding

6.2.12 The NPPF requires local authorities to plan for new development in locations and ways which reduce greenhouse gas emissions (paragraph 95), taking into account landform, layout, building orientation, massing and landscaping to minimize energy consumption.

6.2.13 Similarly Local Plans should take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change (paragraph 99).

6.2.14 Nevertheless when new development is brought forward in areas which are considered vulnerable, the NPPF makes it clear that even in such locations any risks can be managed through suitable adaptation measures, including through the planning of green infrastructure.

6.2.15 As far as flooding is concerned suitable flood prevention measures are required to ensure that flood risk is not increased elsewhere (paragraph 100). This is reinforced by paragraph 103 which states:

When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment following the Sequential Test, and if required the Exception Test, it can be demonstrated that:

- *within the site, the most vulnerable development is located in areas of lowest flood risk unless there are overriding reasons to prefer a different location; and*

- *development is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed, including by emergency planning; and it gives priority to the use of sustainable drainage systems.*

Conserving & Enhancing the Natural Environment

6.2.16 Paragraph 109 requires that:

The planning system should contribute to and enhance the natural and local environment by:
- *protecting and enhancing valued landscapes, geological conservation interests and soils;*
- *recognising the wider benefits of ecosystem services;*
- *minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

6.2.17 In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Plans should allocate land with the least environmental or amenity value, where consistent with other policies in this Framework (paragraph 110). When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity.

Historic Environment

6.2.18 Paragraph 128 notes that:

In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

6.2.19 Intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term.

6.2.20 The Framework goes on to require that local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal (Paragraph 129).

Decision Taking

6.2.21 Local authorities are obliged to approach decision taking in a positive and proactive manner working with applicants to deliver sustainable development that improves the economic, social and environmental conditions of the area.

6.3 Regional Planning Guidance

6.3.1 Under the Planning and Compulsory Purchase Act 2004, the East Sussex and Brighton & Hove Structure Plan 1991-2011 was abolished and replaced by the Regional Strategy for the South East. On 25th March 2013 The Regional Strategy for the South East (Partial Revocation) Order 2013 came into force. This removes all regional tier policies that relate to the Hastings area. The only regional policy left in place deals with residential development near the Thames Basin Heaths Special Area of Protection (NM6), as well the retention of certain saved policies of the Oxfordshire Structure Plan 2016.

6.4 Local Development Plans

6.4.1 At the local level the application site is wholly within the administrative boundary of Hastings Borough Council. Following the revocation of regional strategy the statutory development plan pertinent in this case now comprises:

- the 'saved' policies of the Hastings Local Plan 2004
- The Hastings Planning Strategy 2011-2028

6.4.2 The Hastings Local Plan was formally adopted by the Borough Council on 14 April 2004 and is the statutory local plan for Hastings Borough, replacing the 1993 Hastings Borough Plan and the Combe Haven Valley District Plan (adopted 1983). The Local Plan 2004 sets out a framework of policies to guide and encourage development in Hastings Borough, whilst safeguarding and enhancing the environment.

6.4.3 West Ridge and Ashdown Industrial Estate comprise one of the five established industrial estates in Hastings containing mainly light industrial and warehousing uses with some office accommodation and limited wholesale and retail activities.

6.4.4 The proposal is designed (inter alia) to afford improved access to the West Ridge, its associated industrial areas and adjoining land. This was a key locational reason underlying the Gateway Road providing the opportunity to improve and expand these existing sites.

6.4.5 Former Policy E2 Industrial Development – Established Estates indicated that:

'Industrial and commercial development (Use Classes B1, B2 and B8) will be granted planning permission within established industrial estates at Ponswood, Ivyhouse Lane, Castleham, Churchfields and West Ridge/Ashdown. Preference will be given to Class B1 uses on the Ashdown Estate. Retail uses (Use Class A1) will not be granted planning permission in these estates.'

6.4.6 This policy is now superseded by Policy E1 of the Hastings Planning Strategy.

6.4.7 In accordance with the requirements of the Planning & Compulsory Purchase Act 2004 certain policies within the Local Plan were 'saved' by the Secretary of State for the purposes of development control until such time as they were replaced policies brought forward through the new Local Development Framework process (now renamed the Local Plan). A schedule of 'saved' policies was confirmed by Government Office in 2007. These policies remain in force at this time.

6.4.8 The Hastings Planning Strategy was formally adopted on 19 February 2014 and sets out the overall strategy for shaping the future of the town. The Planning Strategy now forms part of the statutory Development Plan for the Borough. The adoption of this document further modified the list of 'saved' policies by removing 29 extant policies.

6.4.9 Progress is also well advanced toward the Development Management Plan which will show in more detail where the housing, offices, shops and other development will go; and will provide specific policies to be used in the determination of planning applications. The Council submitted its Development Management Plan for independent examination on 31 July 2014.

6.4.10 Pending production and adoption of the Development Management Plan the remaining saved policies in the 2004 Local Plan still form part of the statutory development plan; subject to continuing conformity with the NPPF.

Hastings Local Plan 2004 - Saved Policies

6.4.11 The following 'saved' policies have some relevance to this proposal.

6.4.12 Paragraph 6.19 of the Local Plan 2004 notes that:

The Council will seek to secure highway improvements and new roads where this would lead to improved safety and better environmental conditions. Such improvements may also be justified to serve new development or improve conditions for non-car users. The design of any new road should make appropriate provision for public transport, cyclists and pedestrians (including people with disabilities) and minimise any adverse environmental and community impacts.

6.4.13 The Local Plan indicates that the heart of any sustainable strategy should be the aim of reducing the need to travel - and, particularly, reducing the need to travel by car. In Hastings, any development is likely to be within the envelope of the town and not far from most areas of population. However, good access by public transport and other non-car means is equally important.

6.4.14 Whilst the primary objective is to locate new development in the town close to public transport and other non-car means of travel, where this is not possible development proposals will need to be accompanied by specific proposals for non-car travel to and from the site.

POLICY TR6 - Location of New Development states: *Planning permission for retail, industrial, commercial and community development will not be granted unless the land is close to a frequent bus or other bus or public transport service and/or is conveniently accessible by cycle or foot. Alternatively, or additionally, the Council may seek to enter into a Section 106 Agreement with the developer for, or to ensure by condition, the preparation of a Green Travel Plan.*

POLICY TR7 –Accessibility goes on to require that; *All major new development or development generating significant trips should make appropriate provision in its design and facilities for pedestrians (including mobility impaired), cyclists and public transport - and provide for the mitigation of any adverse impact the development may have on the transport network.*

6.4.15 The Borough Council prepared a Nature Conservation Strategy which appraises the nature conservation resource of the Borough, and includes detailed policies which the Council will seek to implement in order to effectively protect and manage this resource.

6.4.16 The Council has identified some 30 Sites of Nature Conservation Importance. These are local sites which although they do not have a statutory designation, are considered important areas for wildlife and people. The Hollington Valley is one such SNCI.

Policy NC6 – Sites of Nature Conservation Importance notes that *Development proposals within or adjacent to Sites of Nature Conservation Importance will not be permitted unless there is a local need which outweighs any harm to the nature conservation interest. The Council may attach conditions to any planning permission and/or may seek to enter into agreement(s) to minimise the harm and/or secure the protection, enhancement and management of the nature conservation interest.*

6.4.17 The Local Plan indicates that a number of SNCIs overlap with or are adjacent to land which is allocated for development in this Plan. In such cases, the Borough Council will require that any development proposal is accompanied by a detailed ecological survey, which will be used as a basis for establishing the balance to be achieved between development and nature conservation interests. The Council will generally apply planning conditions and/or seek legal agreement(s) with the developer to ensure that any harmful effects are mitigated or compensated for.

Policy NC7 - The Green Network; *A Green Network is indicated on the Proposals Map. Planning permission will not be granted for any development that would sever or intrude into it, or otherwise cause harm to its nature or purpose.*

6.4.18 Paragraph 8.39 notes however that *it is inevitable that parts of the green network will be lost to development. Indeed, the Hastings Local Plan identifies and allocates areas for specific development. Whilst these allocations fulfil a statutory obligation, it is recognised that many of these sites may possess or develop an intrinsic nature conservation interest. It is therefore important to integrate this nature conservation interest with potential development plans for these sites and recognise opportunities for strengthening the green network to protect the overall integrity of the natural environment.*

Policy NC8 – General Planning Requirements will be used to ensure that development proposals take full account of any nature conservation impacts. Where necessary, the Borough Council will apply planning conditions and/or seek to enter into legal agreements to achieve necessary measures.

Policy NC10 – Ancient Woodland provides that Planning permission will not be granted for development that would adversely affect areas of ancient woodland shown on the Proposals Map. The layout of any development encroaching into, or close to, such woodland must take account of the designation and be designed so as to minimise the impact upon it. The Council may impose conditions on any planning permission and/or seek to enter into legal agreement(s) to secure the protection, enhancement and management of ancient woodland affected, directly or indirectly, by development proposals

6.4.19 Policy L1 - Landscape Character notes that:

Planning permission will not be granted for development which would substantially compromise the distinctive landscape setting of the town, particularly the landscape structure of gills, woods and open spaces, and the relationship and clear division between the unspoilt coastline of the Country Park and surrounding countryside and the built-up area.

6.4.20 The proposal does not fall within the High Weald Area of Outstanding Natural Beauty.

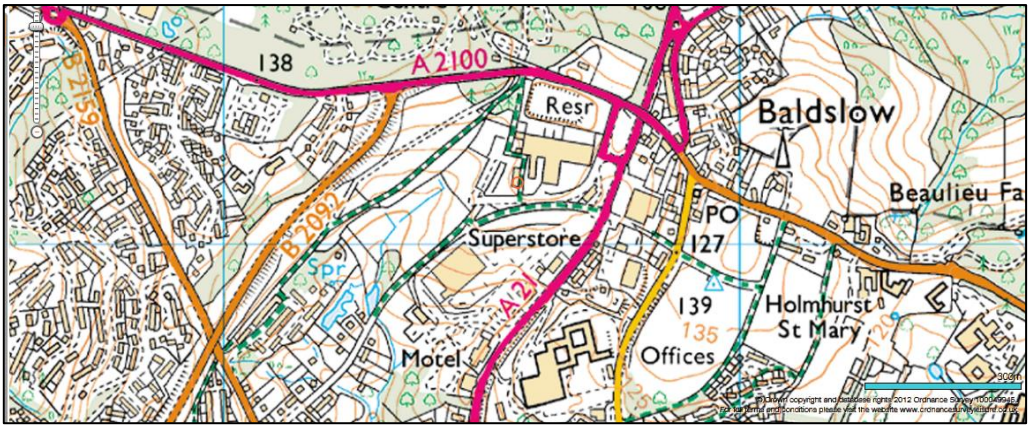
POLICY OS5 - Amenity Footpath Network indicates that *Planning permission for development affecting the Amenity Footpath Network shown on the Proposals Map will be granted only where the proposal either:-*

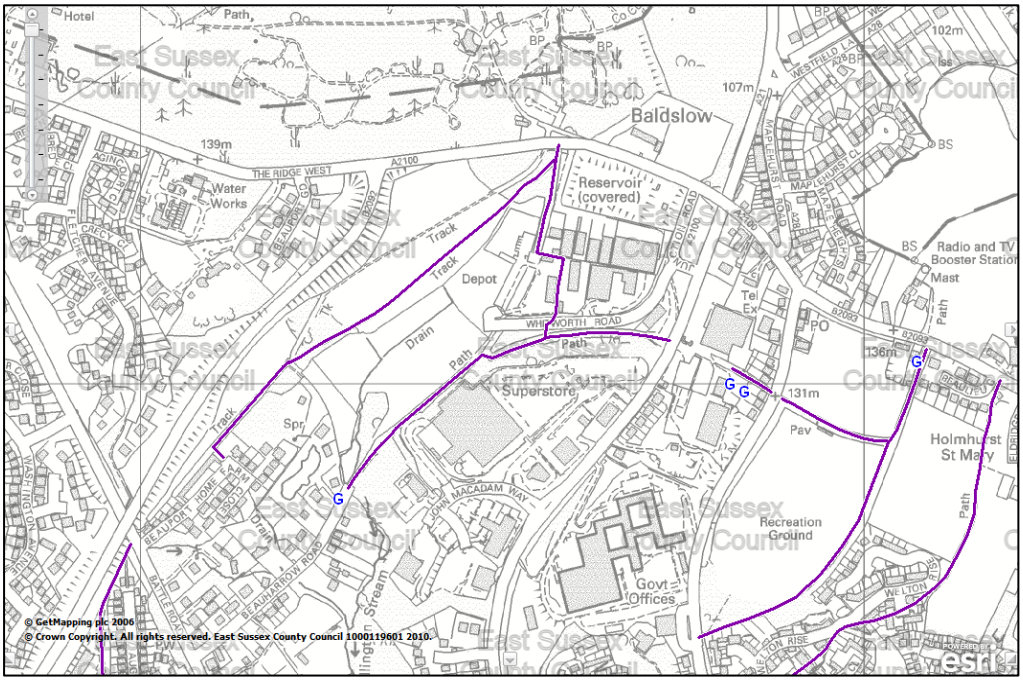
(a) Preserves or safeguards the route of the existing or proposed footpath; or

(b) Makes provision for the diversion of the footpath to an acceptable alternative route no less attractive, safe and convenient for public use.

Where development is permitted, the Council may attach planning conditions and/or may seek to enter into legal agreement(s) to achieve these outcomes.

6.4.21 Three public footpaths cross the area as shown on the OS extract and East Sussex County Council Footpath maps below. These are Footpath 129; 130 and 130a.





6.4.22 Development Guidelines set out in Chapter 9 of the Local Plan detail a range of development management issues of general relevance.

The Hastings Planning Strategy

6.4.23 The Planning Strategy is aimed at developing a town which is economically and socially dynamic, creating sufficient opportunity for new homes, employment and retail activity. Without growth the Council considers they cannot provide the context for addressing the needs of those currently excluded from the economic and social life of the town, or attract and retain a balanced population.

6.4.24 The economic downturn of recent years has slowed Hastings' ability to build upon regeneration investment. The Planning Strategy therefore aims to put the right planning policies in place to enable Hastings to continue its regeneration as the economy grows; and to provide the framework for future economic, environmental and social action.

6.4.25 Paragraph 2.25 of the document indicates that the Hastings and Rother area has one of the weakest economies in the South East and the future of Hastings will be increasingly related to what happens in neighbouring Bexhill. There are limits to the amount of land available for development and regeneration purposes within the town and outward expansion is constrained by protected landscape and countryside such as the Hastings Country Park and the High Weald Area of Outstanding Natural Beauty (AONB).

6.4.26 The Council aims to make the best use of previously developed land in the urban areas for both residential and employment development purposes.

6.4.27 Objective 6 of the Planning Strategy seeks the provision of an efficient and effective transport system which will be achieved through a number of measures including:

6a) working at a local, county and national level to secure improvements in strategic transport infrastructure such as the Bexhill - Hastings Link Road and improvements to the A21 and A259 roads

6c) working with East Sussex County Council and Rother District Council to deliver the Local Transport Plan 3 and measures for the Hastings and Bexhill priority area

6e) supporting development which reduces the need to travel, especially by car

6.4.28 Thirteen planning focus areas will provide a useful framework setting the scene for the preparation of the more detailed Development Management Plan, and any Neighbourhood Plans that may be produced by the community. The application area falls within Area 1: Little Ridge & Ashdown in the western part of the Plan area which encompasses a mix of housing, employment and green space areas.

6.4.29 The strategy for the Western Area is to focus on its potential for employment and housing development, whilst protecting and enhancing existing areas of greenspace (5.8).

6.4.30 The Queensway Employment Corridor is a core area of employment development opportunities located adjacent to Queensway. The aim here is to attract companies from around the UK and Europe, and growing the environmental technologies and services sector, as well as others who place importance on environmentally sustainable business. The Queensway Employment corridor involves the development of two key sites in Hastings, one of which has some units let (5.12).

6.4.31 The following policies have some general relevance:

POLICY FA1: Strategic Policy for Western Area indicates for the Little Ridge and Ashdown area some 220 - 280 dwellings up to 2028 together with mixed B1, B2, B8 development of **circa 23,400m² at Queensway& Whitworth Road.The emerging Development Management** Plan will establish the detail in relation to these proposed strategic elements. As noted above Policy E1 of the Hastings Planning Strategy has relevance in the context of future industrial estate development and states that:

POLICY E1: Existing Employment Land and Premises

Effective use of employment land and premises will be secured by the following:

a) land and premises currently, or last used for employment purposes – including B1, B2 & B8 or any of a use of a similar character not falling within a specified use class, will be retained in such use unless it is demonstrated that there is no reasonable prospect of its continued use for employment purposes or it would cause serious harm to local amenities;

b) where continued employment use of a site/premises is demonstrated to be unviable permitting a mixed use enabling development which incorporates employment space will be considered first;
if a mixed use scheme is not viable the extent to which any proposed new use generates new employment will be taken into account.

c) permitting intensification, conversion, redevelopment and/or extension having regard to other policies of the Plan;

The Employment Land Retention Supplementary Planning Document gives further details of how parts a) and b) of the policy will be implemented.

Proposals for development of live/work units will be supported subject to normal planning considerations.

The submitted version of the Development Management Plan indicates that the existing industrial estates at West Ridge could be extended (LRA7 - Land at the junction of The Ridge West and Queensway and LRA8 - Land in Whitworth Road, The Ridge West) for a combined total of up to 12,000m² of employment use class development.

POLICY SC1: Overall Strategy for Managing Change in a Sustainable Way

Growth and change will be managed so that development meets sustainability objectives, avoids significant vulnerability to the impacts of climate change, improves the quality of the natural environment, supports the diverse needs of communities and provides vibrant, safe, healthy and inclusive places where existing and future residents want to live and work.

6.4.32 A number of general development control criteria have to be taken into account including the protection and enhancement of biodiversity:

POLICY SC7: Flood Risk

The Council will support development proposals that avoid areas of current or future flood risk, and those that do not increase the risk of flooding elsewhere.

The Council will adopt a risk-based sequential approach to determining the suitability of land for development, in accordance with the principles set out in national planning policy relating to Flood Risk and the Hastings Strategic Flood Risk Assessment 2008.

Following application of the sequential and exception tests where necessary, development proposals will need to:

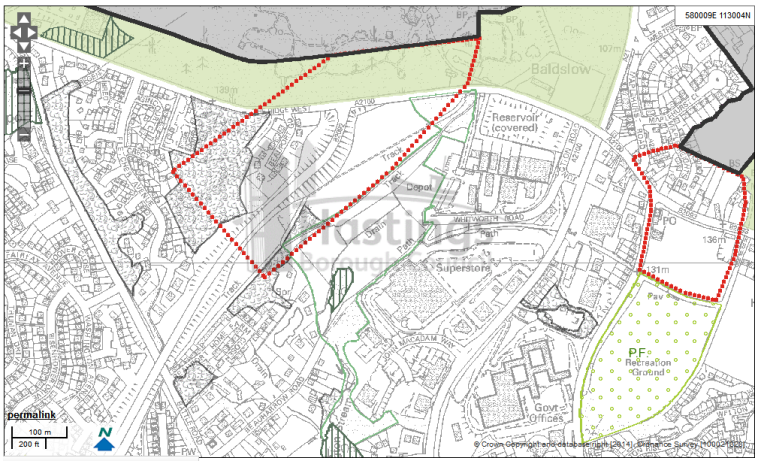
- *be of flood resistant or resilient design*
- *ensure the most vulnerable land uses are directed away from the areas at highest flood risk on a site where there is more than one flood zone.*
- *manage surface water run-off appropriately, particularly in the Combe Haven Catchment Area, in accordance with the Council's adopted Surface Water Management Plan and its standing advice*

Developers will particularly need to address flood risk in areas at the highest risk, such as Bulverhythe, Combe Valley Countryside Park and Hastings Town Centre.

Adaptation of all developments to reduce the risk of flooding will be sought through a variety of suitable measures, including the use of Sustainable Drainage Systems. Proposals for the long-term management of these should be submitted to the Council at or before the planning application stage.

6.4.33 An interim Proposals Map (to be superseded by the Development Management Plan Policies Map once adopted) indicates the application area will be subject to the following specific policy provisions:

- Archaeological Notification Area – EN1
- Ancient Woodland - EN 3, EN4
- Local Wildlife Sites - EN3, EN6
- Woodland - EN3



6.4.34 The application area extends into an Archaeological Notification Area and will be subject to Policy EN1.

POLICY EN1: Built and Historic Environment

To promote understanding and appreciation of the historic environment the Council will, within three years from the adoption of the Development Management Plan, develop a historic environment strategy for the conservation of the historic environment, including those heritage assets identified as being most at risk through neglect, decay or other threats. This will reinforce the historic environment record for the borough, a key information source in assessing the impact of future development on the historic environment.

Importance will be placed on new development making a positive contribution to the quality, character, local distinctiveness and sense of place of historic buildings and areas.

Particular care will be given to protecting the significance and setting of the following heritage assets:

a) Listed buildings;
b) Conservation areas;
c) locally listed heritage assets
d) historic parks and gardens;
e) scheduled monument sites; and
f) areas of archaeological potential and known archaeological find sites

There is a presumption in favour of the conservation of heritage assets and their settings. The more important the asset, the greater the weight that will be given to the need to conserve it. As heritage assets are irreplaceable, any harm or loss will require clear and convincing justification.

Development which sustains and enhances the significance of heritage assets and/or their setting will be encouraged. The Council will look for opportunities to enhance or better reveal the significance of the designated heritage assets, such as listed buildings and Conservation Areas, in the town. Investment in the appropriate repair and restoration of heritage assets, where works will enhance their significance, will be encouraged and supported by the Council.

There are many areas of the Borough where there is high archaeological potential, but where the extent of the likely finds is, as of yet, unknown. Great care needs to be taken to protect this archaeological resource through the planning process.

Detailed design policies to protect the town's heritage assets will be set out in the Development Management Plan.

6.4.35 Small areas of woodland fall within the red line boundary some of which are included within TPO 38. (See section 3.1 above)

POLICY EN3: Nature Conservation and Improvement of Biodiversity

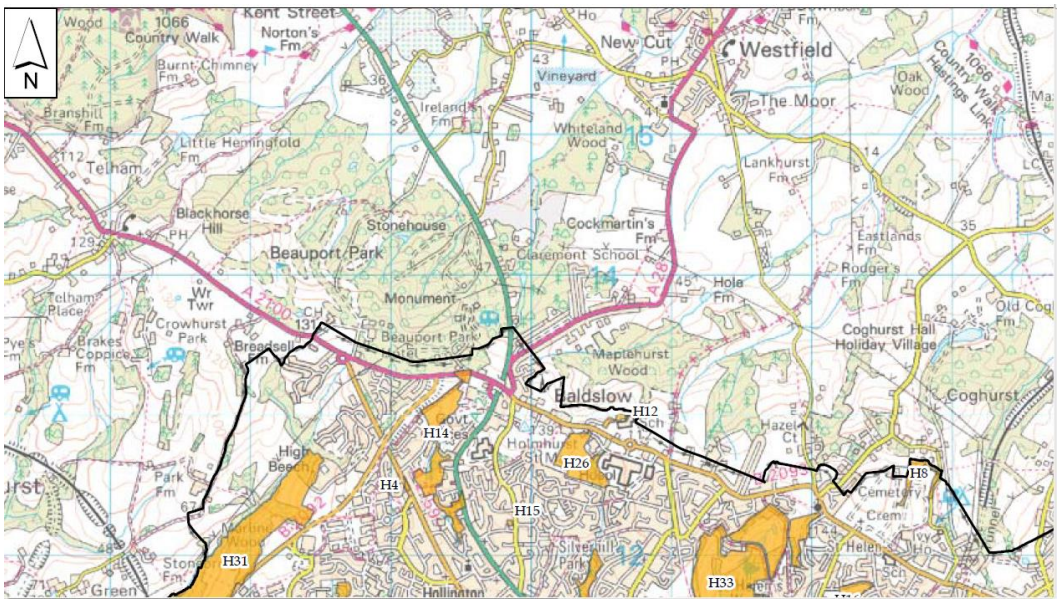
The town's biodiversity and geological resources will be protected and enhanced. Priority will be given to: g) protecting woodland, particularly ancient woodland and veteran trees

6.4.36 The proposal occurs within an identified Local Wildlife Site subject to Policy EN6. A Local Wildlife Site is a non-statutory designation applying to a site of Borough-wide importance. The designation seeks to provide recognition of the wildlife value of these sites to the local community and, where possible, to prevent significant damage arising from development.

POLICY EN6: Local Wildlife Sites (LWS)

Development proposals within or adjacent to Local Wildlife Sites (LWS) will only be permitted where there is a local need which outweighs any harm to the nature conservation interest.

The Council may attach conditions to any planning permission and/or may seek to enter into agreement(s) to minimise the harm and/or secure the protection, enhancement and management of the nature conservation interest.



6.4.37 The Review of Local Wildlife Sites and Ni 197 (Improved Local Biodiversity) conducted in 2009 indicates Hollington Valley as a LWS (H14 on the plan above). This area extends to 12Ha and is considered to be of High Value. (**See Appendix B1**].

6.4.38 The Planning Strategy (paragraph 11.2) aims to improve strategic access by road and rail to reduce the town's relative isolation and open up areas for housing and business development. This needs to be complemented with measures that efficiently manage movement within the town as well as supporting local access by walking, cycling and public transport, to move Hastings towards a more sustainable transport future.

6.4.39 The high level objectives of the East Sussex Local Transport Plan (LTP3) 2011-2026 are to:

- improve economic competitiveness and growth
- improve safety, health and security
- tackle climate change
- improve accessibility and enhance social inclusion
- improve quality of life

6.4.40 Within Hastings the priority is to make efficient and effective use of the existing road network – through traffic management and through encouraging the optimum use of the roads. However, the Plan acknowledges that there is some scope for limited local improvements as well.

POLICY T2: Local Road Improvements

The Council will safeguard land required for highway improvements, in particular:

- *any land required to implement complementary measures for the Bexhill - Hastings Link Road*
- *any land required to implement highway improvements required as a result of the proposals in the Planning Strategy.*

The Council's role in both strategic and local road improvements is to work with partners, particularly the Highways Agency and East Sussex County Council to secure the timely delivery of these schemes.

POLICY T3: Sustainable Transport

The Council will work with East Sussex County Council using the Local Transport Plan 3 policy framework and other partners to achieve a more sustainable transport future for Hastings. Particular priority will be given to:

- *improving bus routes, through support for the provision and improvement of bus priority lanes and junction approaches, services and passenger facilities*
- *supporting the provision of new and enhanced cycle routes in the town, and in particular, supporting the implementation of the strategic cycle network as identified on the key diagram and the Policies Map*
- *improving walking routes for pedestrians*
- *ensuring that new development is located close to existing public transport provision where possible*
- *requiring developers to consider the needs of pedestrians and cyclists in developments and deliver appropriate measures*
- *improving the safety of the highway network*
- *improving air quality and the environment generally*
- *examining the potential for adopting other "smarter choices" measures, including workplace and school travel plans; travel awareness campaigns, car clubs/car sharing schemes, teleworking and home shopping*

Transport Assessments maybe required for development schemes depending on the potential impact on the road network.

6.5 The Changing Policy Context

6.5.1 The emerging Development Management Plan also sets out general access requirements that will be applicable in all cases:

POLICY DM4 – General Access

Attention must be paid, not only to the access onto the site, but also access within all parts of any resultant development. Development schemes should include:

a) Safe access into (and within) the development for all users and be accompanied, as appropriate, by a Transport Assessment Statement or Report as appropriate. Hastings Borough Council will take advice from the local Highways Authority (East Sussex County Council) when taking decisions on this point;

b) The enhancement and promotion of public transport provision pedestrian and cycle access, and where appropriate the inclusion of pedestrian and cycle routes into and through sites to aid connectivity;

c) When considering the layout of a site, provision for non-car based modes of transport are shown to be clearly included;

d) The parking standards set out in the adopted Parking Provision in New Developments Supplementary Planning Document (or any future replacements);

e) Where appropriate, for development which would generate additional traffic on an un-metalled carriageway, through a legal agreement, the bringing of the road up to an acceptable standard and for it to remain private or to be brought up to an adoptable standard and adopted by the Highway Authority;

f) Good accessibility for all, especially for people with a physical or sensory impairment;

g) The installation of a powered lift system to all floors, for any new buildings (except a single dwelling house) of three storeys or more. The lifts should be designed to allow for their use by disabled people and particularly those who use wheelchairs;

h) Good performance against nationally recognised best practice guidance on internal building design and layout.

6.6 Policy Conclusion

6.6.1 This proposal has both a wider strategic as well as a local role in policy terms. There is support at national level through the NPPF in the schemes role as a means of facilitating sustainable development. The improvement and expansion of existing facilities is a sustainable initiative which the Council have sought to optimize.

6.6.2 The Hastings Planning Strategy and emerging Development Management Plan support the expansion of existing industrial estates in principle and have allocate land specifically for the purpose which would be accessed by the scheme.

6.6.3 The adopted and emerging development plan policy framework therefore supports the proposal in principle and as such there should be a presumption in favour of development.

7 Economic impacts

7.1 Introduction

7.1.1 The provision of QGW and associated developments, are a direct response to the persistent socio-economic challenges facing the Hastings and Rother communities. QGW will be a single carriageway road of approximately 650m, connecting Sedlescombe Road North with the B2092 Queensway.

7.1.2 The road will free up access to two strategically important employment sites at the northern edge of the town's well-developed manufacturing community, and will therefore unlock the delivery potential for development of new employment space, boosting the area's business capacity and supporting the local economy and labour market.

7.1.3 The economy and labour market of Hastings and Rother continue to show signs of structural weakness. The local area's gross workforce size is smaller than would be expected compared to regional and national levels of workforce participation, and there is an overdependence on lower order and public sector occupations to provide the bulk of jobs in the local area. This is limiting the area's contribution to overall economic output and its ability to compete in wider marketplaces.

7.2 Appraisal to economic impact assessment

7.2.1 As with other chapters, the economic effects of QGW have been assessed in terms of direct construction-related economic effects (employment and Gross Value Added) and the operational economic effects arising from the occupation of new employment floorspace.

7.2.2 The quantification of employment effects during the construction phase of QGW has been based on latest construction cost estimates and the current levels of turnover per employee required in the construction sector in East Sussex. Employment effects during the operational phase have been based on the enabling effect of the road in bringing forward the delivery of the two employment sites which will comprise a mix of B1 (Business) and B2 (General Industrial) uses and the expectation that such development will be entirely occupied.

7.3 Policy Context

7.3.1 There are a range of national and sub-national economic public policy objectives currently in place which are in part seeking to address the structural weaknesses present within the local economy, and these are discussed in the section below. Such evidence has helped frame the assessment of economic effects. The following national, sub-national and local economic development policy objectives are relevant to QGW and form the background to the development.

National economic rebalancing and infrastructure investment

7.3.2 The Government's approach to economic growth and recovery was established through the 2010 Growth Review and the 2011 Plan for Growth. The Growth Plan establishes a series of policies aimed at generating more sustainable and balanced jobs growth – moving away from an overreliance on public sector jobs through the stimulation of private sector growth and investment to support higher-value jobs. Private sector jobs growth is particularly important in Hastings and Rother which still have a structural imbalance towards public sector employment.

7.3.3 The continual development of infrastructure is promoted by Government as one of the key factors in delivering its economic growth agenda. This has been a principal and recurring argument for investment in each of the National Infrastructure Plans, the strategic infrastructure plan set out each year by HM Treasury since 2010. The most recent, published in December 2013, identifies infrastructure as vital to long-term growth with positive effects for employment, goods, service delivery and business interaction. Highways infrastructure is strategically one of the most important areas of investment – 'If no steps are taken to address

the need to increase the capacity of the road network, and ease congestion, the UK will suffer economically' (2013 National Infrastructure Plan).

South East Local Enterprise Partnership (SELEP): Growth Deal and Strategic Economic Plan

7.3.4 The South East Local Enterprise Partnership (SELEP) was established in 2011 as the private sector led partnership responsible for economic strategy and development programmes across Essex, Kent and East Sussex. The Strategic Economic Plan was published in March 2014. It sets out the approach to sub-regional economic growth to 2021 and forms the foundation of the LEP's negotiations with Government on a Growth Deal and investment priorities for its share of the Single Local Growth Fund (SLGF).

7.3.5 SELEP's economic ambitions closely align with national priorities, including to:

1. Enable the creation of 200,000 sustainable private sector jobs by 2021; and
2. Lever investment of £10bn to accelerate jobs growth and housebuilding.

7.3.6 One of the ways the LEP is seeking to achieve this is by ensuring land is available to accommodate growth – a significant issue for the South East. The SEP outlines the long-term commitment to unlock employment land with capacity for 310,000 additional jobs and residential land to accommodate 250,000 new homes.

7.3.7 The SEP identifies the Hastings-Bexhill corridor as a strategically important location for growth, and specifically highlights the employment potential of sites around Queensway The development of QGW will provide access to two employment sites in this corridor, totalling 5.88 ha with an indicative capacity to accommodate over 1,305 gross jobs.

7.3.8 Maintaining and improving physical connections across the LEP area is also cited in the SEP as one of the key factors needed for the area to build on its economic strength as an international trade gateway. This issue is reiterated in SELEP's strategy for the investment of European economic development funding (EUSIF Strategy, January 2014) which identifies 'serious weaknesses' in the area's transport infrastructure as a barrier to economic growth. The provision of a road link between Queensway and the A21 Sedlescombe Road North will capitalise on the development of the Bexhill-Hastings link road, one of the LEP area's major transport infrastructure projects, which will join Queensway around 1.5 miles to the south, and will improve road capacity in the area. As such, QGW is identified as a priority project for the Hastings-Bexhill Growth Corridor listed within the SEP.

East Sussex Economic Development Strategy (2012)

7.3.9 The requirement to rebalance the local economy, particularly through the generation of new private sector jobs, is a key theme of the county Economic Development Strategy. The economic vision states that:

"By 2021, East Sussex will have a stronger, more resilient, inclusive and balanced economy, built on an expanded private sector base in a county recognised for its distinctive character and excellent connectivity."

7.3.10 The document outlines seven strategic priority actions in order to achieve this ambition. QGW directly contributes to two of these priorities:

- *Strategic Priority 3:* Improve connectivity – The strategy cites improvements to the speed and connectivity of transport and digital as critical prerequisites of the business and residential development required to support ongoing economic growth in the County. Delays caused by congestion are identified as an adverse economic issue to be resolved, particularly in high-demand urban areas such as Hastings. The Queensway Gateway (referred to as the 'Baldslow link') is identified as a key project under this priority.
- *Strategic Priority 4:* Upgrade the provision of commercial premises – The strategy also highlights the requirement for an improved supply of good quality, appropriate, sustainable and flexible business accommodation in order to attract, retain and grow companies in the County. The development of the Queensway Gateway will provide

access to employment sites which will provide capacity for up to 12,000 m^2 of B class accommodation, providing a considerable enhancement to the local supply of commercial premises.

7.3.11 The Strategy recognises the County's potential for business growth but highlights that there is an insufficient supply of business premises and many of those that do exist are not appropriate to the needs of businesses. QGW will contribute directly to addressing this policy imperative.

East Sussex Local Transport Plan 2011-2026

7.3.12 The strategic link between improved transport infrastructure and economic growth is strongly reflected in the County Transport Plan, which the Council published in 2011 in its role as the local transport authority. Improving economic competitiveness and growth is one of four main objectives. A number of projects are proposed to address identified challenges for transport infrastructure in the county including: the lack of a high standard road infrastructure; constraints to economic growth and improving transport connectivity; the deteriorating condition of roads; and continual growth in the volumes of traffic. The plan recognises the significance of future growth and regeneration in the Hastings area for the economic prospects of the whole County. It commits the County Council to delivering the Link Road and *'a package of complementary measures…to enhance the positive impacts of the scheme and enable access by sustainable modes of transport'*. QGW is one of a number of projects which will add to the benefits achieved by the larger investment.

East Sussex County Council Plan, Capital Investment Programme

7.3.13 The County Council's economic priorities and the importance of renewed infrastructure are reiterated in the corporate plan for 2014/15 which makes driving economic growth one of its four priority outcomes. To achieve this the Council has planned a programme of activities to improve infrastructure and improve the condition of highways to 'create the conditions for growth and improve enterprise'. This commitment has been backed by the £463m capital investment programme for 2014-18 which includes £86m for the Bexhill-Hastings Link Road and £91m for improvements to existing highways.

The Hastings Planning Strategy 2011-2028

7.3.14 Adopted in February 2014, Shaping Hastings is the core planning strategy for the borough which forms the foundation of the overall Local Plan. The strategy recognises the importance of new commercial premises to supporting local economic growth and sets the target to develop up to 70,000m^2 of new employment floorspace by 2028 (Policy DS2). The main transport priority outlined is to secure improvements to strategic access, in order to reduce the town's relative isolation and opening up areas for housing and business development. The strategy highlights the importance of proposed improvements to connections between the A21 and Queensway stating that such a project has *'major potential to continue the delivery of housing and economic regeneration in Hastings'*.

Rother Proposed Submission Core Strategy (2011, revised 2013)

7.3.15 The Rother Core Strategy has been submitted to the Secretary of State for examination, and upon adoption will form the basis of the Local Plan for the district. The strategy underlines the shared economic ambitions of Rother and Hastings Councils for the Hastings-Bexhill area and outlines a shared approach to economic regeneration and growth. Key to this is to provide 100,000m^2 of employment space in Rother (Policy EC2) in order to achieve the joint requirement of 170,000m^2 established in the 2011 Hastings and Rother Employment Strategy and Land Review. The economic link between the strategies of the two authorities is further highlighted by the fact that 60,000m^2 of the employment allocation in Rother will be in Bexhill, much of which will be enabled by the development of the Hastings-Bexhill Link Road.

7.4 Baseline Conditions

Economy and employment

7.4.1 The population of the Borough of Hastings in 2012 was 90,300 which is 17% of the population of East Sussex (531,200). The working age population (16-64) makes up 64% of the total,

which is higher than the average for the County (59%) but marginally below the national average (64.2%)[1].

7.4.2 Rother has a similar population size, with 91,100 accounting for a further 17% of the County population. Rother had a significantly lower proportion of its total population being working age (54.8%) than Hastings, the County and the nation. This infers that Rother currently has lower levels of its workforce participation. The district's population profile shows higher proportions of retirement age residents than wider averages. Nearly one-in three residents in Rother are aged over 65 which is almost twice the national average (1 in 6).

7.4.3 With a smaller working-age population, it would be fairly typical for an area to either have higher levels of engagement in the labour market, due to higher demand for workers, or to have lower levels of businesses operating, due to low levels of supply. Rother and Hastings' labour market is significantly smaller than would be expected compared to national and regional levels of workforce participation. There were 38,000 jobs in Hastings and 32,000 in Rother in 2012, which means that there were 6.5 jobs for every 10 working-age (16-64) residents across both areas, compared to around 8 jobs per 10 working-age residents across the South East.

7.4.4 Lower job numbers across both areas is impacting on overall economic output. The Gross Value Added (GVA) of the East Sussex economy in 2012 was £7.7 billion, around 0.6% of UK national economic output. ONS data suggests that economic performance across East Sussex has for a long time been below that of neighbouring areas, and continues to be well below regional and national averages. Between 1997 and 2012 GVA in East Sussex grew by 71%, compared to 87% growth in neighbouring Brighton & Hove, 85% in the wider South East and 83% in the UK. This suggests that the gap in averages has increased over time and that East Sussex has not kept pace with wider trends. By 2012 GVA per head in East Sussex was over £7,000 below the national average[2]. ONS does not report GVA at lower geographies, but evidence from the East of England Forecasting Model (EEFM, Baseline 2013), suggests a similar trend in Hastings and Rother, with consistently lower than wider average GVA per head estimates.

7.4.5 The underperformance can only partly be attributed to a smaller workforce size in Hastings and Rother. The current local economy is also dominated by sectors which traditionally have lower value added jobs. In 2012 healthcare accounted for nearly a quarter of jobs in Hastings (24%) and over a fifth of all jobs across the two authorities (21.6%) compared to 13% nationally (England and GB). The second largest employment sector in both Hastings (13%) and Rother (11.2%) is retail which at 12.2% also employs a significantly greater proportion of the combined area's workforce than in the rest of the country (10.2% in England and GB).

7.4.6 Conversely, high value-added sectors are relatively underrepresented in Hastings and Rother compared to national averages. Professional and business services – including ICT, finance and property – employ 15% of the workforce in Hastings and 22% of the workforce in Rother, which is significantly lower than the national average of 26% (England)[3].

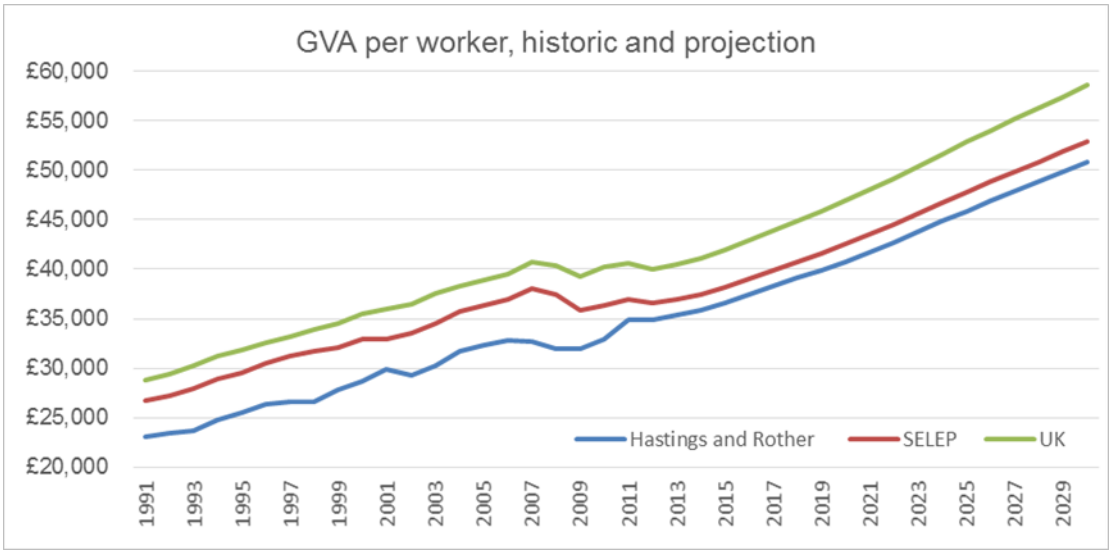
7.4.7 When compared to national averages the two authorities have significantly different levels of their workforces employed in the public sector. At 13.4%, Rother has lower levels of its workforce employed within the public sector than the national average (18.6%). Conversely, Hastings has significantly higher levels of public sector employment, with 26% of all jobs being within the public sector. Indeed, Hastings falls in the top 10% of all local authorities in England for the percentage of public sector employment[4].

7.4.8 Comparisons with the national picture also suggest that Hastings and Rother are dominated by lower order occupations. In 2013 just over a third (34%) of Hastings' working residents and almost three in ten of Rother's working residents (38%) were in managerial, professional and associated occupations, compared to the national (GB) average of 44% for higher-order jobs. The implication of this imbalance is that administrative and service occupations are overrepresented amongst Hastings' residents, making up over half of jobs (55%) as

[1] ONS, 2012 Mid-year Population Estimates
[2] ONS, 2013 Regional Gross Value Added NUTS3 tables (Income Approach)
[3] ONS, 2012 Business Register and Employment Survey
[4] East Sussex County Council 2011 Local Economic Assessment (LEA)

compared to 39% across Great Britain[5]. Similarly, 22% of residents in Rother work in unskilled and elementary occupations, a figure which is 5% higher than the national (GB) average.

7.4.9 As with GVA per head measures, historic and projected GVA per worker estimates (EEFM, 2013) also suggest an underperformance within the local area.



7.4.10 Lower levels of GVA across the two authorities can therefore be attributed to a relatively small workforce which is populated with high levels of lower order occupations in lower value added sectors.

Economic and employment deprivation

7.4.11 The development of modern high-quality commercial accommodation on allocated employment sites will be key to supporting the employment growth needed to address the imbalance in the local economy. In turn, it will also help to address identified issues of economic and employment deprivation, particularly in Hastings.

7.4.12 The 2011 East Sussex Local Economic Assessment highlights the particular problem of economic polarisation within the county – between relatively deprived coastal towns and the more affluent rural areas. Hastings experiences relatively high levels of economic deprivation, partly because of the structural issues with its employment base and also because of historically high levels of unemployment. The proportion of the working age population claiming Jobseeker's Allowance (or equivalent) has been consistently above the national and regional averages for over two decades. Following the 2008 recession, the figure peaked at 6.1% in January 2012 which was more than double the South East rate (2.7%)[6].

7.4.13 The levels of long-term and youth unemployment are particularly pertinent because they can indicate localised economic challenges arising as a result of factors other than macro-economic conditions, for example skills shortages or a prevalence of multiple deprivation. The long-term unemployment rate[7] and youth unemployment rate[8] have both been consistently above the national average for over a decade. The particular spatial concentration of youth unemployment in Hastings is illustrated by the fact that the rate in April 2014 was 3.5% higher than across the South East as a whole.

[5] ONS, 2013 Annual Population Survey
[6] ONS, 2014 Claimant Count
[7] Percentage of working age population claiming JSA for more than 12 months
[8] Percentage of 18-24 population claiming JSA

7.4.14 These issues are not as acute in Rother, although there is evidence that the district experiences more economic and employment deprivation than the wider South East region. The JSA claimant count rate has been above the regional average for most of the last 20 years, although it has also been consistently below the national rate (GB). Levels of youth unemployment in Rother have been higher than regional averages since 1994, and have been above the national average as recently as January 2014.

Growth forecasts

7.4.15 Oxford Economics' *East of England Forecasting Model* (EEFM, Spring Forecasts 2013) was extended in 2011 to include local area forecasts for areas outside the East of England, including for Hastings and Rother. Between 2014 and 2028 the total population of the two authorities is projected to grow by 7,460 which at 4.1% is well below the national average of 8.1%. The level of growth is however, predicted to be very different between the two authorities. The population of Hastings is set to grow by 7.3%, whilst Rother is only projected to grow by around 780 people, or 0.9%.

7.4.16 Over the same period the model projects a net increase of 2,423 jobs in Hastings and 808 jobs in Rother. After Retail, Professional Services is the sector modelled to make the largest contribution to this growth with over 580 new jobs representing a 30% sector employment growth in Hastings and an additional 403 jobs in Rother. The other sectors projected to contribute at least 300 net new jobs across the two authorities are:

- Construction (+808 jobs);
- Hotels and restaurants (+490 jobs);
- Business services (+481 jobs);
- Health and care (+338 jobs); and
- Arts and entertainment (+324 jobs).

7.4.17 The growth in jobs in higher-value sectors such as Professional Services and Business Services is projected to contribute to a 43% growth in Hastings' GVA, at a level just below the national average (47%). The economic growth of the borough is also forecast to contribute to reduced levels of economic deprivation, with the JSA Claimant Count rate set to fall by 1.9%.Rother is projected to experience similar levels of economic growth with GVA increasing by just over 41% between 2014 and 2028.

7.4.18 To realise forecast levels of employment growth in Hastings and Rother will require the provision of new commercial premises on identified employment sites, in particular new B1 office space. Infrastructure investments, such as QGW, which enable the development of the area's employment land allocations will be key enablers of economic growth.

Employment land and commercial property market

7.4.19 The 2011 Hastings and Rother Employment Strategy and Land Review identified the need to significantly boost the supply of land in Hastings to accommodate up to 70,000m^2 of new employment space, with a need for a further 100,000m^2 identified in Rother District (Bexhill). This recommendation has been carried forward into the adopted strategies for both areas. The 2014 Hastings Planning Strategy sets out specific actions to meet the 70,000m^2 target:

- the continuing development of new office based employment opportunities at Priory Quarter in Hastings town centre;
- the development of Enviro21 Innovation parks in the Queensway Employment Corridor, circa 15,300m^2;
- the development of floorspace opportunities on existing employment areas across the Borough by 2028 primarily at the following locations: Churchfields, Castleham, Ponswood, West Ridge and also Ivyhouse Lane;
- encouraging the renewal of the existing older stock of employment premises through the implementation of an employment land and premises protection policy; and,
- encouraging the provision of live/work units within housing developments.

7.4.20 In addition Rother *Proposed Submission Core Strategy* (2011, revised 2013) makes provision for at least 100,000m^2 gross new business floorspace, with the majority following on from the provision of the Hastings-Bexhill Link Road. Site allocations are currently being developed, but broad principles have been established for 60,000m^2 in Bexhill, up to 20,000m^2 at Rye, 10,000m^2 at Battle, 10,000m^2 in rural areas, and at least 3,000m^2 on the fringes of Hastings.

7.4.21 The final proposals for site allocations in Hastings to 2028 are outlined in the *Revised Proposed Submission Development Plan* (March 2014). QGW will provide access to two significant proposed employment sites (named 'The Ridge West' or 'West Ridge' in the Core Strategy) totaling 5.88ha which form part of the wider plan for new employment provision in the borough, including:

- 4.7 ha at Queensway North;
- 1.48 ha at Enviro 21 Business Park, Queensway
- 1.61 ha at Churchfields;
- 5.8 ha at Ivyhouse Lane; and
- 2.2 ha mixed-use development at West St Leonards.

7.4.22 The Hastings Planning Strategy identifies the efforts of a number of agencies and initiatives over the past decade which have helped Hastings improve the variety and quality of its commercial property offer including:

- Development of over 18,000m² of high quality business space in Hastings, including One Priory Square, Lacuna Place and a Creative Media and Innovation Centre;
- Establishment of Enviro21, a modern industrial park focused on the growth of environmental technology companies and advanced manufacturing;
- Other developments with capacity for 1,700 new jobs, including the decision by SAGA in late 2010 to locate in Hastings' Priory Quarter, creating up to 800 additional private sector jobs.

7.4.23 However, there is an ongoing need to develop more high-quality business accommodation, particularly Grade-A office space. A November 2011 Cluttons/DTZ property market assessment identified 52,955 m^2 of office space in Hastings of which less than a quarter (12,282m^2) was modern Grade-A accommodation. At the time, the lettable supply of Grade-A space was only 1,174m^2 with improving demand and take-up rates, meaning that the development pipeline only equated to seven months' supply. The report concluded that this represents an acute shortage of Grade-A space which would inhibit future expansion in the town and the ability to attract further inward investment.

The Site and Proposed Employment Uses

7.4.24 The area of land for the proposed route and associated employment land unlocked by QGW is currently a natural landscape area, where little or no economic activity is taking place. The economic effects of any existing on-site activity are therefore negligible in employment terms.

7.4.25 It is anticipated that the 5.88 ha of employment land would be unlocked by the QWG and this could support up to 12,000m^2) of B1 (general office development).

7.5 Assessment of Construction Effects

7.5.1 The principal economic impacts arising from the construction of the QGW will be in terms of local employment effects in the construction sector. The assessment of employment effects is based on current turnover per job estimates in the construction sector in the South East, based on BIS Business Demography Series (2013). According to the BIS statistics, £129,459 of construction expenditure currently supports 1 direct job within the sector in the South East. Using this metric and capital expenditure estimates for the proposed works, an estimate has been derived for direct annual employment from the construction phase of the proposed development.

7.5.2 Based on Input-Output Multipliers (Scottish Government, 2009) for Civil Engineering, it has then been possible to arrive at estimates for the likely levels of employment supported within the local economy through indirect and induced employment effects. GVA per construction job in the South East (ONS Sub-National GVA Estimates, 2013) and Input-Output Multipliers have then been used to arrive at estimate for the GVA generated through anticipated employment gains during the construction phase.

7.5.3 It is estimated that excluding fees for land acquisition and new service provision, costs for developing the QWG, including S278 costs and diversions would be in the region of £6m, incl. VAT. The estimated construction cost for buildings on the associated employment land would be between £40m and £45m. This assessment has used a lower range estimate totalling £46m for the construction phase, which includes estimates for the road and employment floorspace construction.

7.5.4 The estimated employment effects arising from construction activity for the QWG and associated construction of employment sites unlocked through the proposals are set out below:

Construction activity	Cost estimate (£m)	Turnover per construction job (BIS 2009) / I-O Multiplier	Job years and full-time equivalents (based on 10 job years per FTE)	GVA per job estimates (ONS / I-O Multiplier)	GVA generated through employment gains
Direct QGW construction effects	£6m	£129,459	46 (4.6 FTE)	£77,059 per job	£3.57m
Indirect employment site construction	£40m	£129,459	309 (30.9 FTE)	£77,059 per job	£23.81m
Induced effects		1 direct and indirect job generates a further 0.3 jobs[9]	93 (9.3 FTE)	£1 of direct and indirect expenditure generates a further £0.40	£10.95m
Direct, indirect and induced construction effects			402 (40.2 FTE)		£34.76m
Net additional construction effects (less 25%)			301 (30.1 FTE)		£26.07m

7.5.5 It is therefore estimated that the construction of the QWG and associated employment site construction will generate 40.2 gross full time equivalent (FTE) jobs, through direct, indirect and induced employment gains from construction activity. This includes an assumption that 10 direct and indirect jobs will generate an additional 3 jobs within the local economy, arising from the wage-spending of the construction workforce.

7.5.6 Net additional jobs impact is derived by making adjustments to reflect the fact that some construction related jobs will be relocations from within the local economy (displacement effects) and some jobs will be taken by people living outside of the local area (leakage effects). A prudent adjustment of 25% has been made for displacement and leakage effects, based on HM Treasury Green Book Guidelines for economic appraisal.

7.5.7 It is therefore anticipated that the total employment gains from the construction phase of QGW would be 31 net additional FTE jobs. Based on current GVA per job estimates (ONS) and GVA multipliers (Scottish Government), it is anticipated that such employment gains would generate in the order of £26.1m in GVA for the local economy during the construction phase.

[9] Scottish Government, Input-Output GVA Multipliers (2009)

7.6 Assessment and Mitigation of Operations Effects

Employment effects

7.6.1 The principal economic impacts arising from the operation of the QGW is the allocated commercial floorspace that is then unlocked in terms new employment generated by businesses taking up occupation of the sites.

7.6.2 It is estimated that the QGW will unlock capacity for 12,000m2 of employment floorspace (Gross Internal Area, GIA) in B1(a) (General office development) use, based on assumptions developed by Sea Change Sussex.

7.6.3 The assessment of gross operational employment effects is based on established floorspace per job benchmarks (produced by the Homes & Communities Agency, 2010) for the employment uses anticipated to occupy the allocated development. As per the assessment of construction effects, an adjustment of 25% has been made for displacement and leakage effects to arrive at an estimate for net additional jobs and a multiplier of 1.4 has been included to account for downstream employment gains anticipated through indirect and induced employment.

7.6.4 The estimated employment effects arising from the new commercial floorspace is set out below:

	Floorspace by use class (Gross Internal Area)
	B1(a) – 12,000 m^2
Floorspace per FTE job benchmark (HCA)[10]	*14m^2 GIA per job*
Gross jobs estimate	857
Net additional direct jobs (less leakage and displacement)	643
Indirect and Induced jobs (from multiplier effects)	257
Total net additional jobs (direct, indirect and induced)	**900**
Estimated GVA per direct job (ONS, 2012)	*£44,068*
Annual direct GVA impact generated	£28.3m
Estimated GVA per indirect and induced job (ONS, 2012)	*£43,846*
Annual indirect and induced GVA	£11.3m
Total annual net additional GVA (direct, indirect & induced)	**£39.6m**

7.6.5 Estimated economic impact from operational effects is therefore 857 gross FTE jobs (643 net additional direct FTE jobs). In addition, the new jobs will generate downstream employment effects through the indirect and induced effects of additional wages and supply-chain impacts (multiplier effects). Allowing for a prudent multiplier of 1.4, the overall operational employment effect is estimated to be in the order of 900 net additional FTE jobs.

7.6.6 As the allocated employment floorspace is occupied the new jobs will generate additional value in the local economy, measured by GVA. Based on ONS estimates for 2012, annual GVA per direct job for service sector activities occupying the B1a office space is estimated to be £44,068 per job, based on averages for Business Services (SIC Groups M&N) across East Sussex. Indirect and Induced GVA per job is estimated to be £43,846, the average for all jobs in East Sussex. This is because downstream jobs generated could fall into a range of employment sectors.

7.6.7 On this basis the estimated total annual direct GVA impact of the employment space unlocked by the QWG is £28.3m. It is estimated that a further £11.3m in GVA would be generated annually through downstream indirect and induced GVA gains once fully occupied.

[10] Note: the general office benchmark in HCA Employment Densities Guide (2010), is for Net Internal Area (NIA) @ 12m^2 per job. In line with HCA guidance, an uplift in the order of 15% to 20% has been applied to the benchmark to provide a benchmark for Gross Internal Area (GIA).

The overall GVA gains from the QWG is therefore estimated to be in the order of £39.6m annually. The timing of this impact is subject to the take-up profile of the allocated space.

7.7 Assessment of Cumulative Effects

The QWG represents one of a number of road schemes identified in Hastings and Bexhill planned for delivery over the coming years. The local plans outline the potential to bring forward 170,000m2 of employment space over the coming years. Based on assumptions for employment space unlocked by the QWG (20,600m2), the proposed link road would unlock 7.1% of employment space identified within local plans to be delivered.

7.8 Summary

7.8.1 The QWG will bring forward two development sites which have the potential to support 900 net additional FTE jobs (direct, indirect and induced) within the local economy, based on assumptions for a general office development on site. Such employment within the economy has the potential to generate £39.6m in GVA annually (in current prices). Employment and GVA gains will persist for as long as commercial development is operational. Therefore such annual benefits are anticipated to be long-term.

7.8.2 The construction of the QWG and the build out of the associated employment land has the potential to generate a further 31 net additional FTE jobs within the local economy, with the potential to generate £26.1m in GVA over the construction phase within the local economy.

7.8.3 The QWG is an important link in wider infrastructure development plans and fits well with growth ambitions over the coming years. The scheme would enable over 7% of Hastings allocated employment land to be released and would make a modest but important contribution towards LEP employment growth ambitions over the coming years and towards county wide ambitions for restructuring within the local economy and labour market.

7.9 References

Below are a list of reference documents and guidance sources used in setting the policy context, baseline and impact assessment work:

- BIS Business Demography Series, 2013
- Cluttons/DTZ Property Market Assessment, November 2011
- East Sussex County Council Plan, Capital Investment Programme.
- East Sussex County Council, Local Economic Assessment (LEA), 2011
- East Sussex Economic Development Strategy, 2012
- East Sussex Local Transport Plan, 2011-2028
- Hastings and Rother Employment Strategy and Land Review, 2011
- Hastings Planning Strategy 2011-2028
- Hastings Revised Proposed Submission Development Plan, March 2014
- HM Treasury and BIS, Plan for Growth, 2011
- HM Treasury and Infrastructure UK, National Infrastructure Plan, 2013
- HM Treasury, Green Book appraisal guidance
- Homes and Communities Agency (HCA), Employment Densities Guide, 2014
- ONS, Annual Population Survey 2013
- ONS, Business Register and Employment Survey, 2012, including Public Private Sector estimates
- ONS, Claimant Counts, 2014

- ONS, Mid-year Population Estimates, 2012
- ONS, Sub-National GVA Estimates (Income-Approach), December 2013
- Oxford Economics, East of England Forecasting Model, Spring 2013 Baseline Forecasts
- Rother Proposed Submission Core Strategy, 2011, revised 2013
- Scottish Government, Input-Output Multipliers, Leontief Type I and II, 2009
- SELEP, EUSIF Strategy, January 2014
- SELEP, Strategic Economic Plan, March 2014

8 Transport and Access

8.1 Introduction

8.1.1 This chapter of the Environmental Statement (ES) assesses the effect of the proposed development on Traffic and Transport.

8.1.2 A Transport Assessment (TA) has been submitted as a standalone document with the planning application.

8.2 Policy Context

The National Planning Policy Framework

8.2.1 Section 4 of the NPPF (2012) sets policies on providing sustainable transport as part of developments. Paragraph 30 of the NPPF states:

"Encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion".

8.2.2 NPPF advises in paragraph 32 that:

"All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment" and that *"development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe".*

The East Sussex Local Transport Plan

8.2.3 The East Sussex Local Transport Plan 3 (LTP3) was adopted in June 2011 and sets out the County Council's vision and objectives up to 2026. The vision for LTP3 is:

"To make East Sussex a prosperous County where an effective, well managed transport infrastructure and improved travel choices help businesses to thrive and deliver better access to jobs and services, safer, healthier, sustainable and inclusive communities and a high quality environment".

8.2.4 Specific transport objectives include the following:

- *"Improve strategic and local connectivity (…);*
- *Reduce congestion by improving the efficiency of the transport network (…); and,*
- *Improve access to jobs, services and leisure".*

8.2.5 LTP3 identifies that the existing strategic road network is restricting economic growth through an inconsistency in the standard of road infrastructure. It states that a number of major schemes have been identified to help improve connectivity and break the perception that coastal towns are relatively removed from the rest of the South East.

8.2.6 Chapter 4 of the LTP3 sets out specific objectives for the Bexhill and Hastings area which include the following:

- *"Continue to promote and deliver the BHLR;*
- *Deliver a package of complementary measures to the BHLR to enhance the positive impacts of the scheme (…);*
- *Develop and implement the cycle route networks for Hastings and Bexhill, focussing on (…) links to existing and future residential and employment areas (…);*
- *Continue to lobby for major strategic infrastructure improvements on the A21 to help deliver economic and housing growth in the Bexhill and Hastings area (…); and,*
- *Investigate potential improvements across the transport network to facilitate housing and employment growth (…)".*

8.2.7 Paragraph 4.47 of the LTP3 identifies the need to provide strategic infrastructure stating:

"The strategic road network must be 'fit for purpose' in that it has the necessary capacity to reduce the amount of traffic using other, less suitable county roads".

8.2.8 Paragraph 4.49 of the LTP3 lays emphasis on the importance of *pursuing*

"strategic road improvements to deliver sustainable growth in East Sussex", including:

- "A259 BHLR; and,
- A21 Baldslow Link (…)".

The Hastings Planning Strategy

8.2.9 The Hastings Planning Strategy, formerly known as the Core Strategy, was adopted by Hastings Borough Council in February 2014. It is at the heart of the emerging Hastings Local Plan 2011-2028 which will guide development up to 2028. The Local Plan is the Statutory Development Plan for the Borough of Hastings. It describes a vision and sets an overall framework for the future of the borough and is the basis for determining planning applications.

8.2.10 Among its strategic objectives, it aims at achieving and sustaining a thriving economy and providing an efficient and effective transport system.

8.2.11 Policies of particular relevance to the Queensway Gateway scheme have been reviewed and are as follows:

Policy DS2: Employment Growth

"To support the town's role as a major employment centre and as the focus for economic regeneration, local economic growth and diversification will be met through the development of up to 70,000m² of employment floorspace between 2008 and 2028 and will be achieved by:

- *(…) the development of Enviro21 Innovation parks in the Queensway Employment Corridor, circa 15,300m2 (…)."*

Policy FA1: Strategic Policy for Western Area

"The following table sets out the overall indicative quantity of development for Western Area, which will be explored in further detail in the Development Management Plan.

Planning Focus Area	**Employment - m² of additional (net) employment land up to 2028**
1 - Little Ridge and Ashdown	*Mixed B1, B2, B8 – c.23,400m² (at Queensway & Whitworth Road)*

Extract from Table 2: The indicative quantity of development for Western Area

In Western Area, we will also:

a) ensure development along the Queensway Employment Corridor meets high standards of environmental sustainability within what is practical and economically viable (…)

d) be less strict in retaining premises in their existing land use (as defined by the relevant Land Use Classes Order) providing a sound employment based case can be made to secure employment development at Ponswood, Churchfields, Castleham and West Ridge (…)

f) support the delivery of the proposed Bexhill-Hastings Link Road and A21 Baldslow Link improvements, and work to secure their timely provision (…)

j) support the implementation of the strategic network of cycle routes to link communities and facilities, particularly from the Conquest Hospital down towards Hastings Town Centre and out to Combe Valley Countryside Park as identified on the Policies Map (…)"

Policy T1: Strategic Road and Rail Schemes

"*The Council will seek the earliest possible implementation of the following road and rail schemes that will reduce peripheriality and support the regeneration of Hastings:*

- *Bexhill - Hastings Link Road*

- *Wider improvements to the A21 and A259 corridor (…)"*

Policy T2: Local Road Improvements

"The Council will safeguard land required for highway improvements, in particular:

- *any land required to implement complementary measures for the Bexhill-Hastings Link Road*
- *any land required to implement highway improvements required as a result of the proposals in the Planning Strategy.*

The Council's role in both strategic and local road improvements is to work with partners, particularly the Highways Agency and East Sussex County Council to secure the timely delivery of these schemes."

The Hastings Development Management Plan

8.2.12 The Revised Proposed Submission Development Management Plan version 2014 is the second key document prepared as part of the Hastings Local Plan 2011-2028. It identifies sites for development across the Borough and includes specific development policies to be used in the decision making process.

8.2.13 Policies of relevance to the proposed QGW scheme are as follows and illustrated in:

Policy LRA7 – Land at the Junction of The Ridge West and Queensway

"Land at the junction of The Ridge West and Queensway is allocated for employment (B use classes) development (Possible floorspace (gross): 6,000m²).

The Council expects development proposals for this site to:

(…) (v) Be supported by a Transport Assessment and Travel Plan. The Transport Assesment will need to take account of the site's proximity to The Ridge. Proposals should indicate how the conclusions and recommendations of the Report have been incorporated. This is likely to include new access and through routes. Potentially development may be required to contribute to improvements on The Ridge. (…)"

Policy LRA8 – Land in Whitworth Road, The Ridge West

"Land in Whitworth Road, The Ridge West is allocated for employment (B use classes) development (Possible floorspace (gross): 6,000m²).

The Council expects development proposals for this site to:

(…) (vi) Be supported by a Transport Assessment and Travel Plan. The Transport Assessment will need to take account of the site's proximity to The Ridge. Proposals should indicate how the conclusions and recommendations of the Assessment have been incorporated. Potentially development may be required to contribute to improvements on The Ridge. (…)"

8.3 Methodology

Construction Phase

8.3.1 The assessment of the environmental effects of the traffic associated with the construction has been based on the potential requirements for materials and labour to construct the QGW.

8.3.2 Construction vehicle trips have been generated using the anticipated volumes of construction material required over the course of the construction period, converted into HGV numbers.

8.3.3 It is noted that this assessment is only an approximation of the required construction movements and that a detailed Construction Management Plan would be completed once a contractor is appointed, detailing the specific number and routeing of vehicles to and from the site.

Operational Phase

8.3.4 The road network is due to undergo significant changes in traffic demand as a result of the Bexhill to Hasting Link Road (BHLR) and the North East Bexhill Gateway Road (NEBGR) and these schemes have been included as committed road schemes.

8.3.5 It is understood that ESCC have improvement schemes in the pipeline for the A2100 The Ridge West/B2092 Queensway junction, and for the A2100 The Ridge/Harrow Lane junction.

8.3.6 No decision has been made with regard to complementary measures, but consultation suggests it would be desirable that the proposed QGW is accompanied by the following ESCC CHIP measures. This impact assessment has been carried out on this basis.

- The closure of Junction Road and Whitworth Road (Whitworth Road access replaced by QGW accesses); and,
- The closure of Maplehurst Road: for modelling purposes, the closure has been made at its northern end where it meets the A28 Westfield Lane, thus retaining access for residents from the A2100 The Ridge.

Transport Models

8.3.7 Traffic data for future years has been provided by the Bexhill and Hasting Strategic Transport Model managed by ESCC/Mott MacDonald. The traffic flows provided represent 2016 and 2028 'Do-Minimum' and 'Do-Something' scenarios.

8.3.8 The 'Do-Minimum' scenario models a situation without the proposed QGW but committed developments have been included into the background flows.

8.3.9 The 'Do-Something' scenario models a situation building on the 'Do-Minimum' scenario, with the proposed QGW, and areas north and south of the QGW developed. Junction Road and Maplehurst Road have been closed and the Whitworth Road access has been replaced by the QGW access.

Table 8.1: Definition of Traffic Scenarios

Year	Scenario Name	Highway Network	Local Development
2016	Do-Minimum	QGW not included	Committed development
2016	Do-Something	QGW and CHIP measures included	23,000m² of B1 for the strategic road junctions or adjusted trip generation for QGW junctions
2028	Do-Minimum	QGW not included	Committed development
2028	Do-Something	QGW and CHIP measures included	23,000m² of B1 for the strategic road junctions or adjusted trip generation for QGW junctions

8.3.10 Detailed junction capacity assessments have been carried out with the Transport Research Laboratory (TRL) software Junction 8 version 8.0.1.305.

Assessment of Significance

8.3.11 The assessment of significance is based upon the 'Guidelines for Environmental Assessment of Road Traffic' (Institute of Environmental Assessment [IEA], 1993) and guidance issued by the Department for Transport (DfT).

8.3.12 The assessment of the transport effects of a development is guided by criteria of impact and receptor sensitivity. The question of the significance of an effect depends upon both the sensitivity of the receptor (e.g. junction, road link) and the degree to which the receptor would be affected (i.e. extent of magnitude of impact).

Receptor Sensitivity

8.3.13 The assessment has considered all elements of the baseline receptors that are considered to be sensitive to the transport impact of the QGW proposals. The baseline elements assessed are as follows.

8.3.14 Receptors likely to be affected by the proposed development include:

- Users of highway infrastructure;
- Users of pedestrian infrastructure.

8.3.15 For users of highway infrastructure sensitivity will vary according to the classification of the highway infrastructure. The table below defines the highway receptors categories, which have been classified on a scale from 'high' to 'low' value.

Table 8.2: Definition of Highway Infrastructure Sensitivity

Highway Receptor Sensitivity/Value	**Highway Infrastructure**
High	Links and junctions at A-roads
Medium	Links and junctions at B-roads
Low	Links and junctions at local distributor roads

8.3.16 For users of pedestrian infrastructure the local highway network within the vicinity of QGW has been considered. This includes A21 Sedlescombe Road North, A2100 The Ridge West and B2092 Queensway.

Table 8.3: Definition of Pedestrian Infrastructure Sensitivity

Example Receptor	**Sensitivity of receptor**
Accident Black Spots	High
Residential	Medium
Shopping Areas	Medium
Open Spaces	Low

Magnitude of Effects and Significance Criteria

8.3.17 The IEA guidelines recommend a list of potentially important items called significance criteria to be assessed. The list of significance criteria used in the assessment is the following:

- Pedestrian Severance;
- Fear and Intimidation;
- Driver Delay;
- Pedestrian Delay;
- Pedestrian Loss of Amenity; and,
- Accidents and Safety.

8.3.18 Each criterion measures the magnitude of effects in a different way; the significance criteria are presented in further detail below.

8.3.19 **Severance** can be described as the perceived divisions that can occur within a community when it becomes separated by a traffic route. Elderly people and children are more sensitive to severance than others.

8.3.20 The measurement for assessing severance is difficult to predict as *"the correlation between the extent of severance and the physical barrier of a road is not clear and there are no*

predictive formulae which give simple relationships between traffic factors and levels of severance" (Guidelines for the Environmental Assessment of Road Traffic, IEA, 1993).

8.3.21 The threshold for assessing severance is based on changes in traffic flows of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. Traffic levels between the 2028 'Do-Minimum' and 2028 'Do-Something' scenarios have been compared.

8.3.22 **Fear and Intimidation** are caused by a number of factors, including a combination of volume of traffic, its HGV composition, its proximity to people and the lack of protection caused by such factors as narrow footway widths.

8.3.23 For the assessment of fear and intimidation, the thresholds summarised in the table below have been adopted. The thresholds are based upon the conclusions of the 1981 study by Crompton and Gilbert entitled 'Pedestrian Delays, Annoyance and Risk'. These thresholds define the degree of hazard to pedestrians by average traffic flow, 18 hour heavy vehicle flow and average speed over an 18 hour day.

Table 8.4: Fear and Intimidation Magnitudes

Magnitude	**Average traffic flow over 18 hr day** [vehicles/hour]	**Total 18 hr HGV flow**	**Average speed over 18 hr day** [miles/hour]
Extreme	1,800 +	3,000 +	20 +
Great	1,200 – 1,800	2,000 – 3,000	15 – 20
Moderate	600 – 1,200	1,000 – 2,000	10 – 15

8.3.24 The Annual Average Weekday 18-hour two-way traffic flows along each link in the '2028 Do-Something' scenario have been calculated on the basis of the AM and PM peak traffic flows received from ESCC/Mott MacDonald and factored to 18 hours using factors derived from the *"Traffic distribution by time of day on all roads in Great Britain, 2013"* table by the Department for Transport.

8.3.25 Where the average traffic flow over 18 hours falls into the same category during both the '2028 Do-Minimum' and '2028 Do-Something' scenarios, the impact will be classed as 'minor'. Where there is a change is category from the '2028 Do-Minimum' to the '2028 Do-Something' scenarios, the impact of driver delay will be classed as 'major'.

8.3.26 **Driver Delay** – Traffic and driver delays to non-development traffic on the highway network can occur at key junctions in close proximity to the application site. Driver delay is determined by capacity analysis, using Department of Transport (DfT) approved software packages. Delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.

8.3.27 The assessment of driver delay has been based upon junction capacity assessments using appropriate junction modelling software. Junctions 8 is a computer modelling programme that allows the performance of priority roundabouts and priority junctions to be assessed.

8.3.28 Where the junction capacity results show the junction is anticipated to operate within capacity during the 'Do-Something' scenario, the impact of driver delay will be classed as ***'negligible'***.

8.3.29 Where the junction capacity results show the junction is anticipated to operate over capacity during both the '2028 Do-Minimum' and '2028 Do-Something' scenarios, the impact of driver delay will be classed as ***'minor'***.

8.3.30 Where the junction capacity results show the junction is anticipated to operate within capacity during the '2028 Do-Minimum' scenario, but over capacity during the '2028 Do-Something' scenario, the impact of driver delay will be classed as ***'Major'***.

Table 8.5: Driver Delay Magnitudes

Do-Minimum	**Do-Something**	**Impact of Driver Delay**
Operate within capacity	Operate within capacity	Negligible

Operate over capacity	Operate over capacity	Minor
Operate within capacity	Operate over capacity	Major

8.3.31 **Pedestrian Delay** – Increases in traffic flows can lead to greater delays to pedestrians seeking to cross roads. Professional judgement has been used to determine whether pedestrian delays on the local footpaths, if any, would be significant.

8.3.32 However, given the range of local factors and conditions which can influence pedestrian delay, the IEA does not recommend that thresholds be used as a means to establish the significance of pedestrian delay.

8.3.33 It is advised in the guidance that assessors use professional judgement to determine whether pedestrian delay is a significant impact. The guidance highlights changes in the volume, composition or speed of traffic may affect the ability of people to cross roads.

8.3.34 **Pedestrian Loss of Amenity** – This topic is described in the guidance as 'relative pleasantness of a journey'. It is affected by traffic flow, traffic composition, footway width and separation from traffic. The guidelines suggest that the significance of changes in pedestrian amenity would be where the traffic flow (or its lorry component) is halved or doubled.

8.3.35 **Accidents and Safety** - Increases in traffic flows can lead to a higher level of, or more severe, accidents. This document suggests 'major' is defined as junctions that have experienced more than ten personal injury accidents in a three year period.

Significance Criteria

8.3.36 The magnitude of effects and receptor sensitivity will be compared to estimate the significance of the effect. As there are no published standard criteria, the table below includes a range of criteria to allow the specific characteristics of each effect to be considered on an individual basis.

Table 8.5: Significance Criteria

Magnitude	**Sensitivity of Receptor**		
	High	**Medium**	**Low**
Major/Substantial	Major	Major / Moderate	Moderate
Moderate	Major / Moderate	Moderate	Minor
Minor/Slight	Moderate	Minor	Minor / Not Significant
Negligible	Minor	Minor / Not Significant	Not Significant

8.4 Baseline Conditions

8.4.1 The baseline describes the existing transport situation within the vicinity of the site, including the extant BHLR.

8.4.2 The development site is located in the Baldslow area of Hastings, approximately 4km to the northwest of Hastings town centre. To the north of the proposed QGW lies a cluster of industrial buildings and warehouses and a scrapyard accessed from the A2100 The Ridge West and Whitworth Road. To the south of the development site lies the Sedlescombe Road branch of Sainsbury's and its car park. Further west, the site is bounded to the north and the south by undeveloped land which has been allocated for employment related development in the Local Plan.

Walking and Cycling

8.4.3 No specific cycle facilities or dedicated lanes exist in the vicinity of the proposed scheme. There is however a segregated left-turn cycle lane from the A28 Westfield Lane into Maplehurst Road.

Public Transport

8.4.4 Most local bus routes run along the A2100/B2093 The Ridge, the A21 Sedlescombe Road North and Harrow Lane, as they terminate at Conquest Hospital, which lies off the B2093 The Ridge, approximately 1km to the east. Fewer routes run along the A2100 The Ridge West, the A21 Ebden's Hill and the A28 Westfield Lane. Junction Road constitutes an interchange for the routes operating between the A21 Sedlescombe Road North and the A2100/B2093 The Ridge.

Highway Network

8.4.5 The proposed QGW will link the A21 Sedlescombe Road North to the B2092 Queensway. Figure 3 shows the existing routes connecting A2100 The Ridge West, B2093 The Ridge East and B2092 Queensway to the A21 Sedlescombe Road via Junction Road. The speed limit varies from 30 mph on The Ridge East, 40 mph on the A21 Sedlescombe Road and National Speed Limit on Queensway.

8.4.6 The Bexhill to Hasting Link Road (BHLR) and the North East Bexhill Gateway Road (NEBGR) schemes received planning permission respectively in July 2009 and September 2013. They are currently being built and are set to open in the spring of 2015.

8.5 Assessment and Mitigation of Construction Effects

8.5.1 The construction phase is programmed to last from April 2015 to July 2016.

8.5.2 During the construction stage of the proposed development, the following potential direct impacts are likely:

- Heavy goods vehicle (HGV) vehicle trips to remove/deliver cut, fill and materials;
- Temporary closure of pedestrian footways;
- Dirt and mud on road services; and
- Construction workers accessing the application site.

8.5.3 Indirect or secondary impacts such as noise, dust and vehicle emissions are also likely, however these are dealt with in Chapter 9: Noise & Vibration and Chapter 10: Air Quality, of this ES.

8.5.4 The routes to be used by construction traffic and the site access/egress arrangement are to be agreed with HBC prior to commencement of works. However, construction works is planned to start from the west making B2092 Queensway the main entry to the construction site.

8.5.5 This implies construction traffic to/from the east, south and west would be able to access the site via B2093/A2100 The Ridge and/or B2092 Queensway while traffic to/from the north would access the site via the A21, Junction Road, A2100 The Ridge West and B2092 Queensway.

Assessment of Construction Effects

8.5.6 Construction will generate a short-term increase in in HGV movements on the highway in proximity to the application site. Potential transportation and access related impacts comprise temporary disruption to road users and pedestrians due to vehicles accessing and egressing the application site.

8.5.7 To assess the likely environmental effects of the construction of QGW assumptions have been made with regard to the required movements of vehicles during the construction phase of development. The assumptions and calculation used are provided in **Appendix C.1** whilst a summary of estimated movements is provided below:

- Earthworks – 3,100 two-way vehicle trips;
- Construction – 1,100 two-way vehicle trips; and,
- Staff – 6,000 two-way vehicle trips.

8.5.8 Average number of vehicle trips during the earthworks phase is estimated to be approximately 22 two-way trips while deliveries for the construction phase is likely to generate up to 15 two-way trips per day. Additionally staff members are likely to generate approximately 20 daily two-way vehicle movements.

Significance

8.5.9 **Driver delay** – The potential for an average 42 two-way trips per day is considered unlikely to have a significant impact on driver delay through the local highway network. However, temporary narrowing of lanes/lane closures in order to create safe working areas for certain phases of works could cause temporary delay. The most critical phase has been identified as the construction of the roundabout with the A21 Sedlescombe Road, scheduled to last for approximately 2 months.

8.5.10 In terms of highway classification, receptor sensitivity has been identified as 'high' for connecting A-roads and the magnitude of impact has been identified as 'negligible'. The significance of driver delay during construction is defined as ***'minor***'.

8.5.11 **Accidents and Safety** - Construction traffic will be accessing the site throughout the working day and is not anticipated to increase any rates of accident on the local highway network. The phases of works are unlikely to increase the accident frequency.

8.5.12 Construction works is planned to start from the west making B2092 Queensway the main entry to the construction site. Receptor sensitivity has been identified as 'medium' for B2092 Queensway. Magnitude of impact has been characterised as 'minor' and the significance is therefore defined as ***'minor'***.

8.6 Assessment and Mitigation of Operation & Cumulative Effects

8.6.1 The estimation of potential impacts on the local road network has been informed by the ESCC Bexhill and Hasting Strategic Transport Model.

Trip Generation

8.6.2 The proposed QGW is expected to carry new development trips in addition to reassigned trips. The strategic transport model has predicted the proposed development will generate approximately 900 development trips during the AM peaks and 1,200-1,300 development trips during the PM peaks, based on the 23,000m² land being developed north and south of the proposed QGw.

8.6.3 A more refined set of trip generation figures based on a more detailed definition of land use types and areas gives development trips in the range of 650-700 movements during the AM peaks and 750-800 movements during the PM peaks.

8.6.4 Further information has been provided in the Transport Assessment which has been submitted as a standalone document with the planning application.

Assessment of Operation & Cumulative Effects

8.6.5 Predicted changes relative to the comparison of the strategic transport model scenarios, with or without the inclusion of the proposed QGW and associated CHIP measures, show the roads linking directly to the proposed QGW, the B2092 Queensway and the A21 Sedlescombe Road are expected to experience a traffic increase as a result of the proposed development.

8.6.6 In terms of the local junction assessments, a set of junctions has been selected based on a detailed review of the strategic transport model 2016 and 2028 outputs, and consultation with ESCC. The following junctions were selected as needing further/detailed assessment beyond the strategic transport model, owing to indications of poor performance:

- A21 Ebden's Hill/A28 Westfield Lane;
- A2100 The Ridge/Harrow Lane;
- A2100 The Ridge West/B2092 Queensway; and,

- B2092 Queensway/Napier Road.

Significance

8.6.7 **Severance –** The magnitude of change in traffic flow change between the '2028 Do-Minimum' and '2028 Do-Something' scenarios has been assessed.

8.6.8 The modelling forecasts an increase at peak hours (two-way flow) in the region of 40-55% at the A21 Sedlescombe Road north of junction with the proposed QGW and the magnitude of change is considered 'moderate'. At all other links the increase is less than 30% and the magnitude of change is considered 'slight'.

8.6.9 Due to residential developments receptor sensitivity is defined as 'medium' for the A21 Sedlescombe Road, A2100 The Ridge West and the B2092 Queensway.

8.6.10 The significance of pedestrian severance is therefore defined as '***moderate***' on the A21 Sedlescombe Road North and '***minor***' on the A2100 The Ridge West and B2092 Queensway.

8.6.11 **Fear and Intimidation –** The Annual Average Weekday (AAW) 18-hour two-way traffic flows has been derived from the AM and PM peak flows from the 2028 'Do-Something' scenarios.

8.6.12 The A21 Sedlescombe Road, A2100 The Ridge West and the B2092 Queensway are expected to have an average traffic flow over the 18 hour day at the region of 1,300-1,700 vehicles/hour giving all links a level of fear and intimidation defined as 'great' for both the 'Do-Minimum' and 'Do-Something' scenarios.

8.6.13 Where the average traffic flow over 18 hours falls into the same category during both the 2028 'Do-Minimum' and 2028 'Do-Something' scenarios, the impact will be classed as 'minor'. Due to residential developments receptor sensitivity is defined as 'medium' for the A21 Sedlescombe Road, A2100 The Ridge West and the B2092 Queensway. The significance of fear and intimidation is therefore defined as '***minor***'.

8.6.14 **Driver Delay –** The assessment indicates that the assessed local junctions on the strategic network are predicted to perform poorly either without the proposed QGW or with the proposed QGW in 2016 and 2028. The results for the 'Do-Minimum' scenario indicate that, with the exception of B2092 Queensway/Napier Road in the AM peak, all junctions are predicted to be above capacity as indicated by having RFC values above the acceptable threshold of 0.85.

Table 8.5: 'Do-Minimum' scenario results on Driver Delay

Junction	Results	Comment
A21 Ebden's Hill / A28 Westfield Lane	Maximum RFC at 0.90 for the 2016 AM peak and above 1 for other peaks	Acceptable thresholds exceeded
A2100 The Ridge / Harrow Lane	Maximum RFC above 1 at all peaks	Acceptable thresholds exceeded
A2100 The Ridge West/B2092 Queensway	Maximum RFC is at 0.99 for the 2016 PM peak and above 1 at other peaks	Acceptable thresholds exceeded
B2092 Queensway/Napier Road	Maximum RFC is at 0.59 at the 2016 AM peak, 0.41 at the 2028 AM peak and above 1 at both 2016 and 2028 PM peaks	Within acceptable thresholds at AM peaks, acceptable thresholds exceeded at PM peaks

8.6.15 The results for the 'Do-Something' scenario show that with the exception of B2092 Queensway/Napier Road at the AM peaks all junctions are predicted to be above capacity.

Table 8.5: 'Do-Something' scenario results on Driver Delay

Junction	Results	Comment
A21 Ebden's Hill / A28 Westfield Lane	Maximum RFC above 1 at all peaks	Slight detrimental impact and acceptable thresholds exceeded

A2100 The Ridge / Harrow Lane	Maximum RFC above 1 at all peaks	Negligible impact and acceptable thresholds exceeded
A2100 The Ridge West/B2092 Queensway	Maximum RFC at 0.99 at the 2016 AM peak, 0.96 at the 2016 PM peak and above 1 at other peaks	Negligible impact and acceptable thresholds exceeded
B2092 Queensway/Napier Road	Maximum RFC at 0.74 at the 2016 AM peak, 0.71 at the 2028 AM peak and above 1 at both PM peaks	Slight detrimental impact and acceptable thresholds exceeded

8.6.16 The performance of the B2092 Queensway/Napier Road junction appears to respond to the proposed QGW in terms of a relative reduction in performance in the AM peak for 2016 and 2028.

8.6.17 As explained earlier, where the junction capacity results show the junction is anticipated to operate over capacity during both the 'Do-Minimum' and 'Do-Something' scenarios, the impact of driver delay will be classed as 'minor'.

8.6.18 In terms of highway classification, receptor sensitivity is defined as 'medium' and the significance of driver delay is defined as ***'minor***'.

8.6.19 **Pedestrian Delay** – There are currently no dedicated pedestrian crossings across the links or at the junctions with the exception of:

- the junctions of the A2100 The Ridge with Harrow Lane and the A2100 The Ridge West with the B2092 Queensway where central refuges and dropped kerbs with tactile paving exist;
- the signalised junction of the A21 Sedlescombe Road with John Macadam Way (which grants access to the Sainsbury's supermarket) where signalised crossings exist.

8.6.20 It is not expected that the changes in traffic flows will affect pedestrians seeking to cross the roads as the majority of pedestrian traffic occurs between residential areas and local bus stops as well as local shops (including the Sainsbury's supermarket), along both the A2100 The Ridge West and the A21 Sedlescombe Road North, which are served by crossings at junctions where traffic stops or slows down.

8.6.21 As a result, it is considered that the effect of the development on pedestrian delay would be '***not significant'***.

8.6.22 **Pedestrian Loss of Amenity** – The QGW will change the amenity of the site for pedestrians due to the introduction of traffic into existing open space. However, the provision of the QGW will overall not change the amenity of the vicinity of the site along the links and at the junctions mentioned above. The QGW will be accompanied by footways improving access to the Sainsbury's supermarket.

8.6.23 It is therefore considered that the overall effect of the development on the pedestrian loss of amenity is '***not significant'***.

Mitigation Measures Construction Phase

8.6.24 The site working hours will be discussed and agreed with the HBC but have been assumed to be as follows, in line with HBC guidance:

- 08.00 – 18.00 Monday to Friday;
- 08.00 – 13.00 Saturday;
- No times on Sundays or Bank Holidays.

8.6.25 All works will be within the agreed hours, unless or in the event of exceptional circumstances such as:

- An emergency or health and safety issue demands continuation of works;
- Completion of an operation that would otherwise cause greater interference with the environment/general public if left unfinished;
- A requirement to complete concrete pours due to unforeseen overruns caused by, for example, offsite batching plant issues and traffic delays; and/or
- Weekend periods when partial road closures may be required for works in order to limit disruption to traffic during a weekday when the area will be busier.

8.6.26 Although night-time working will not normally be undertaken, it is expected that some deliveries may take place at night and that certain works may be undertaken during this period.

8.6.27 Access routes to and from the site to be used by heavy goods vehicles (HGVs) will be agreed with HBC to minimise disruption to the road and pedestrian network.

8.6.28 Any local traffic management measures for site access will be agreed with HBC. The level of daily and peak construction vehicle trips is relatively small considering the capacity of the surrounding road network, it is therefore anticipated that there would be no significant impact on the capacity of the surrounding junctions.

Mitigation Measures Operation Phase

8.6.29 As a result of the Transport Assessment there is no junction performance impact to mitigate against, as there is no acceptable level of performance (without the QGW) for the proposed QGW to seek to return to, by way of mitigation.

8.6.30 On this basis, there is no case to require mitigation measures beyond the proposed QGW as currently defined/designed.

8.6.31 The slight exception is the B2092 Queensway/Napier Road ('Junction 7'). Here the performance of the junction does appear to respond to the proposed QGW, in terms of a relative reduction in performance with the QGW in the AM peak for 2016 and 2028. The issue relates to side arm traffic being unable to enter the mainline.

8.6.32 However in the PM there is no difference in performance with or without the proposed QGW. On this basis there appears little case for additional mitigation. However, future consideration may need to be given to an improvement scheme for this junction, by ESCC.

8.7 Summary

8.7.1 The essential benefit of the introduction of the proposed QGW is that it will provide access to new employment land. In addition the proposed QGW effectively completes the BHLR route between the A259 in Bexhill and the A21 in Hastings.

8.7.2 The assessment indicates that the combination with the proposed QGW is predicted to offer benefits in terms of access to new local employment land, enabling local traffic to reroute onto more appropriate links, and helps complete the BHLR between the A259 in Bexhill and the A21 in Hastings.

8.7.3 Additionally, traffic flows between the B2092 Queensway and the A21 Sedlescombe North will benefit from shorter trip lengths.

8.7.4 Average number of vehicle trips during the earthworks phase is estimated to be approximately 22 two-way trips while deliveries for the construction phase is likely to generate up to 15 two-way trips per day. Additionally staff members are likely to generate approximately 20 daily two-way vehicle movements.

8.7.5 It is considered that the impact of construction traffic as a result of the construction of the QGW is ***'minor'*** with regard to both driver delay and accidents/safety.

8.7.6 The proposed QGW is designed to have three roundabout junctions. The proposed QGW roundabouts are predicted to operate within acceptable thresholds in 2016 and 2018, based on current traffic growth estimates.

8.7.7 Based on the outputs from the highway model, selected junctions on the local network in 2016 and 2028 have been assessed in detail. The assessment of these junctions indicates that these junctions are predicted to be at/above operational capacity with or without the proposed QGW in both 2016 and 2028, with the exception of the B2092 Queensway/Napier Road junction where an impact due to the proposed QGW in the AM peak is identified.

8.7.8 It is considered that the impact of the proposed QGW during operation would be '***moderate***' to '***minor***' on pedestrian severance, '***minor***' on fear and intimidation, '***minor***' on driver delay and '***not significant***' on both pedestrian delay and loss of amenity.

8.7.9 Further improvement to the local highway network is being developed separately through the ESCC CHIP measures programme, with a focus on locations along The Ridge, and the Highways Agency at the A21/A28 junction. These projects, in response to the pending BHLR, will help improve the performance of the local highway network with QGW in future years.

8.8 References

- "Guidelines for the Environmental Assessment of Road traffic", Institute of Environmental Assessment, 1993
- "Design Manual for Roads and Bridges", Volume 11, Section 3, Department for Transport

9 Noise and Vibration

9.1 Introduction

9.1.1 Sea Change Sussex is proposing to construct a new road to the north of Hastings. The primary design objectives of the proposed road being to allow land to be released around the road for employment use in accordance with the emerging local plan.

9.1.2 The proposed link road will connect the A21 (Sedlescombe Road North) to B2092 Queensway. The proposed road would be an approximately 650 m single lane carriageway of a width suitable for traffic speeds of up to 60 mph.

9.1.3 This Chapter describes the potential noise and vibration impacts of the proposed new road: Queensway Gateway. The assessment considers the potential impacts on existing known noise sensitive receptors in the vicinity of the development during the construction and operational phases. Mitigation options are considered where relevant.

9.1.4 Acoustic Terminology has been provided in **Appendix D.1**.

9.2 Policy Control

The National Planning Policy Framework, 2012

9.2.1 The NPPF was published in March 2012. In respect of noise, the document states in section 11, paragraph 109 that:

"The planning system should contribute to and enhance the natural and local environment by… preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of… noise pollution".

9.2.2 The NPPF sets out four aims, which are set out at paragraph 123 in Section 11 of the document, titled 'Conserving and enhancing the natural environment':

"*Planning polices and decisions should aim to*:

- *Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;*
- *Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason*".

9.2.3 Numerical guidance in relation to the application of policy is not presented in the NPPF. Several of relevant documents have therefore been used in order to aid in the implementation of the aim in the NPPF. These are described below:

The Control of Pollution Act 1974

9.2.4 The Control of Pollution Act 1974, Section 61 sets out procedures for contractors to obtain 'Prior Consent' for construction works within agreed noise limits.

9.2.5 Prior to the start of construction work, there would be an assessment of construction noise impacts taking account of the methods of working to be employed. Applications for prior consent would be made to the local authority. These would contain a method statement of the proposed works and the steps that would be taken to minimise and mitigate noise to acceptable levels and time periods during the whole construction period.

The Environmental Protection Act

9.2.6 Under Part III of the Environmental Protection Act 1990, local authorities have a duty to investigate noise complaints from premises (land and buildings) and vehicles, machinery or equipment in the street. This includes noise arising from construction sites.

9.2.7 If a local authority's Environmental Health Officer is satisfied that the problem complained about amounts to a statutory nuisance then the authority must serve an abatement notice on the person responsible or in certain cases the owner or occupier of the property. The notice could require that the noise or nuisance must be stopped altogether or limited to certain times of the day.

The Noise insulation Regulations 1975 as Amended 1988

9.2.8 Assuming the Scheme is built, the highway authority would under certain circumstances have a duty under the Noise Insulation Regulations 1975 (as amended 1988) to offer insulation for residential properties with respect to a new road. Under the regulations, residential properties could qualify for an offer of noise insulation. In respect of road traffic noise, properties would qualify if all six of the following conditions are satisfied:

- Be residential
- have been occupied before the new or altered road was first opened to the public
- The property must be within 300 m of the nearest point of the new carriageway;
- The façade noise level due to road traffic on any highway (the “relevant” noise level) up to 15 years after the date of opening, must equal or exceed 68 dB LA10,18h, (the “specified” level), with levels of 67.5 dB LA10,18h rounded upwards;
- The “relevant” noise level for up to 15 years after the date of opening, must be at least 1 dB LA10,18h higher than the pre-construction year road traffic noise level; and
- Noise from the new or altered road must contribute at least 1 dB LA10,18h to the “relevant” level.

9.2.9 The highway authority has a duty under these regulations to offer insulation for residential properties with respect to a new road. The authority also has discretionary power to offer insulation against construction noise. The regulations would exclude bathrooms, toilets, halls and smaller kitchens that do not include dining areas from the provisions.

9.2.10 Some residential buildings may not be eligible for insulation under the Regulations. These include houses first occupied after the “relevant date” (the date when the Scheme first opens to public traffic).

9.2.11 Where it is considered by the highway authority that the works would seriously affect a dwelling adjacent to the construction site for a substantial period of time, insulation against construction noise may be offered prior to the works taking place. The highway authority is not obliged to offer insulation against construction noise and the regulations do not specify any particular noise level or time period for applying these discretionary powers. Normally, the provision of insulation would only be made if it were not possible to control or mitigate the noise by other means.

The Design Manual for Roads and Bridges – Environmental Assessment

9.2.12 The Department for Regional Development (DRD) advocates the use of The Design Manual for Roads and Bridges (DMRB) as the regulatory standard for the design of a new road or improvements to an existing road. In particular, Volume 11 Section 3 Part 7 (HA 213/08) sets out the method for assessing noise and vibration associated with road traffic. DMRB provides guidance on the selection of the scheme assessment area and the relevant assessment years.

9.2.13 DMRB sets out threshold criteria, which, where it is possible that they will be met or exceeded, trigger the requirement for a detailed traffic noise assessment. The threshold criteria are as follows:

- Change in daytime traffic noise impacts in the short term of 1 dB $L_{A10,18h}$ (Opening Year 1).
- Change in daytime traffic noise impacts in the long term of 3 dB $L_{A10,18h}$ (typically 15 years after project opening).
- Change in night-time traffic noise impacts of 3 dB $L_{night,outside}$ in the long term where the $L_{night,outside}$ is predicted to be greater than 55 dB $L_{night,outside}$ in any scenario.

9.2.14 The magnitude of the changes in noise level at each noise sensitive receptor is categorised according to the criteria presented in Table 9.2.1 for the short term impacts and Table 9.2.2 for the long term impacts.

Table 9.2.1 DMRB Noise Changes and Magnitude of Opening Year Impacts (Short Term)

Noise Change, $L_{A10, 18h}$	Magnitude of Impact
0	No change
0.1 – 0.9	Negligible
1.0 – 2.9	Minor
3.0 – 4.9	Moderate
5+	Major

Table 9.2.2 DMRB Noise Changes and Magnitude of Design Year Impacts (long term)

Noise Change, $L_{A10, 18h}$	Magnitude of Impact
0	No change
0.1 – 2.9	Negligible
3.0 – 4.9	Minor
5.0 – 9.9	Moderate
10+	Major

Calculation of Road Traffic Noise (CRTN) 1988

9.2.15 The Department of Transport/Welsh Office Memorandum CRTN describes procedures for traffic noise calculation, and is suitable for environmental assessments of schemes where road traffic noise may have an impact.

9.2.16 The CRTN shortened measurement procedure recognises the trends in traffic profiles and corrects the arithmetic mean of three 1-hour readings taken in consecutive hours between 10:00 -17:00 hours to provide a reliable estimate of the LA10,18h over the period 06:00 - 24:00 hrs.

British Standard 5228:2009+A1:2014 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' Part 1: Noise and Part 2: Vibration + Amendment No. 1 2014

Noise

9.2.17 The standard does not provide limits for construction noise. Annex E of Part 1 provides guidance which should be used only for information purposes. The most common assessment for EIA schemes is the so called 'ABC Method' (Example Method 1). This method assesses the calculated construction noise level with the ambient noise level for the

appropriate period (day, evening or night-time), rounded to the nearest 5 dB. A potential significant effect is identified if the ambient noise level exceeds the appropriate category value (as presented in Table 9.2.3). Other "project-specific factors, such as the number of receptors affected and the duration and character of the impact" also need to be considered to determine whether a significant impact exists.

Table 9.2.3: BS 5228-1 Annex E Example Threshold values for Construction Noise

Assessment category and threshold value period	Threshold Value ($L_{Aeq,T}$) (dB)		
	Category A [A)]	Category B [B)]	Category C [C)]
Night-time (23.00−07.00)	45	50	55
Evenings and weekends [D)]	55	60	65
Daytime (07.00−19.00) and Saturdays (07.00−13.00)	65	70	75

NOTE 1 A potential significant effect is indicated if the L*Aeq, T* noise level arising from the Site exceeds the threshold level for the category appropriate to the ambient noise level.

NOTE 2 If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to Site noise.

A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

D) 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.

9.2.18 The recommended thresholds are defined as the 'threshold of significance'. The significance of the effect of construction noise has therefore been considered with regard to these recommended thresholds.

9.2.19 It should be noted that these criteria are not proposed as an absolute limits for construction noise. Rather, they should be considered as a level against which to assess the significance of noise effects associated with construction activities

9.2.20 Draft 'Guidelines for Noise Effect Assessments', published by the Institute of Acoustics and Institute of Environmental Management and Assessment (IEMA), gives guidance on describing the effect of noise based on the change in noise level. It is considered appropriate to adapt this guidance for this assessment with consideration for the 'construction noise level'. Any exceedance of the proposed threshold values due to construction noise alone should be regarded as of greater than negligible significance. Accordingly, the significance of construction noise may be assessed as follows:

Negligible: Assessment criterion (i.e. 70 dBA) is not exceeded;

Minor adverse: Assessment criterion is exceeded by up to 3 dBA;

Moderate adverse: Assessment criterion is exceeded by 3 to 6 dBA; and

Major adverse: Assessment criterion is exceeded by over 6 dBA.

9.2.21 Consideration is also given to the duration of the noise generating activity. If the activity is for a short duration (e.g. a few weeks), the significance of the effect could be reduced by one level (for example an effect of moderate adverse significance be reduced to an effect of minor adverse significance).

Vibration

<u>Human Perception</u>

9.2.22 Vibrations, even of very low magnitude, can be perceptible to people. Vibration nuisance is frequently associated with the assumption that, if vibrations can be felt, then damage is inevitable; however, considerable greater levels of vibration are required to cause damage to buildings and structures, or to cause computers and similar electronic equipment to malfunction. Vibration transmitted from site construction activities to the neighbourhood can, therefore, cause anxiety as well as annoyance.

9.2.23 There are two basic approaches to the quantification of vibration effects. The more detailed approach uses the term "vibration dose value" as defined in BS 6472 Part 1 2008. This gives a range of values averaged over the daytime and night-time for which there is (i) "Low probability of adverse comment"; (ii) "Adverse comment possible"; and (iii) "Adverse comment probable" and as measured within a building. The vibration dose value is measured or computed from a frequency weighted acceleration level, with the vibration dose value computed from the root mean quad of the time varying weighted acceleration level, or number of discrete events that occur over the course of the assessment period. The "root mean quad" concept puts considerably greater emphasis on the maximum levels of vibration than on the number of events.

9.2.24 The alternative, simpler, approach is to use the concept of peak particle velocity (PPV) as measured outside the building. BS 5228 Part 2:A1:2014, suggests that for construction activities, it is considered more appropriate to provide guidance in terms of the PPV, since this parameter is likely to be more routinely measured based upon the more usual concerns over potential building damage.

9.2.25 Guidance on the interpretation of the effects of vibration levels in terms of human perception and disturbance is given in BS 5228 Part 2:A1:2014 and reproduced in Table 2.1.

Table 9.1: BS 5228 guidance on Human Response to Vibration Levels (PPV)

Human Response to Vibration Levels (PPV)	
Vibration Level	**Effect**
0.14 mm/s	Vibration might just be perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might just be perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

9.2.26 With respect the assessment of severity of vibration impact it is proposed to use the following trigger levels for different degrees of significance of vibration from construction activities, as measured on the outside of the building:

Table 9.2: Vibration Significance Criteria

Vibration Level	**Effect**
< 0.3 mm/s PPV	Negligible;
0.3 < 1.0 mm/s PPV	Minor Adverse Significance
1.0 < 5 mm/s PPV	Moderate Adverse Significance
5 mm/s PPV	Major Adverse Significance

BS 7385 Part 2: 1993 'Evaluation and measurement for vibration in buildings. Guide to damage levels from ground borne vibration

Building Damage

9.2.27 Extensive studies carried out in the UK and overseas have shown that documented proof of actual damage to structures or their finishes resulting solely from well-controlled construction and demolition activities is rare. There are many other mechanisms which cause damage, especially in decorative finishes, and it is often incorrectly concluded that vibrations from construction and demolition are to blame. Guidance on the susceptibility of buildings to damage from vibration is given in BS 7385 Part 2: 1993. This recommends that for soundly constructed residential properties in a good state of repair, a conservative threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a value of 10 mm/s PPV for intermittent vibration. Thus humans perceive vibration well before any damage is likely to be caused by it. Where there are existing significant defects then this value should be halved.

9.3 Methodology

Introduction

9.3.1 The following sections describe the assessment methodology used to undertake the assessment of noise and vibration impacts and effects associated with the proposed development based on the guidance described in the previous section.

Consultation with Hastings Borough Council

9.3.2 Consultation was undertaken with the Principle Environmental Health Officer at Hastings Borough Council (HBC) between 21 January 2014 and 11 February 2014.

9.3.3 The consultation focused on the methodologies for the assessments and noise surveys.

9.3.4 A summary of the scoping agreement is presented below:

- A noise assessment will be undertaken, based on baseline noise monitoring, to validate a computer noise model of the site and surroundings prepared using SoundPLAN 7.1 or similar.
- An environmental baseline noise survey will be undertaken adjacent to Sedlescombe Road North and Queensway using the methodology outlined in the 'Calculation of Road Traffic noise' (CRTN). A 24 hour noise measurement is also proposed in the vicinity of 5 Beauport Home Farm Cottages as this is the nearest dwelling to the proposed route of the new access road (As shown in **Figure 9.1, Appendix D.5**).
- The noise modelling software uses the methodology described in CRTN. The baseline noise model will comprise road traffic data for Sedlescombe Road North and Queensway and the future year model will also allow for traffic along the new road. The site topography and existing buildings within the study area will be included within the model and corrections for these factors will be included within the calculations in accordance with the CRTN calculation methodology.
- The noise model will be used to assess the change in road traffic noise at nearby dwellings due to the new road. The guidance within the 'Design Manual for Roads and Bridges Volume 11 Environmental Assessment Section 3 Environmental Assessment Techniques Part 7 Noise and vibration' will be used.
- Construction noise will be assessed using the ABC method in BS 5228-1:2009 and vibration will be assessed using BS 5228-2:2009. A qualitative assessment will be undertaken as the exact construction methods will not be determined until a contractor has been appointed.
- An outline assessment will be undertaken to determine whether nearby residents are entitled to insulation treatment under the Noise Insulation Regulations, 1975 (as amended in 1988).

9.3.5 Email correspondence with the EHO is presented in **Appendix D.2**. This correspondence includes the Scoping Report issued by PBA and the Scoping opinion issued by HBC.

DMRB Simple Assessment

9.3.6 The DMRB approach to assess traffic noise impact compares the noise levels for the Do Something scenario (with proposed scheme) against noise levels for the Do Minimum scenario (without the scheme). The method requires that comparisons are made between the baseline noise situation (before the change produced by the scheme) and the noise level in the worst-case year in the first 15 years after opening (i.e. generally the future year which would have the maximum traffic flow 15 years after opening). The noise change at the opening year is also considered.

9.3.7 Results from the simple assessment showed that for all options, at least one dwelling may be subject to an increase of 3 dB(A) or more in the future year.

9.3.8 Section 3.4.1 ii) of DMRB states that the assessment should progress to 'Detailed' level if: 'an increase in noise of 3 dB(A) or more at any dwelling within the scheme assessment area during the first 15 years as a result of the scheme' is predicted'

9.3.9 Therefore, a 'Detailed Assessment' has been carried out for the preferred scheme option.

9.3.10 The preliminary scheme design comprises a new road connecting Sedlescombe Road and Queensway Road.

Methodology for Establishing Baseline Conditions

Baseline Noise Survey

9.3.11 Due to the requirement of a detailed DMRB assessment, a baseline noise survey is required to establish the baseline conditions of the DMRB Study area.

9.3.12 A baseline noise survey was carried out between the hours of 15:30 on 4 March 2014 and 15:30 on 5 March 2014 at three representative locations within the site. The survey was undertaken over a period considered to represent the typical noise levels on site under prevailing meteorological conditions.

9.3.13 A combination of two unattended 24 hour measurements and a single 3 hour attended measurement were undertaken at the three locations. Table 9.3.1 provides a description of the locations and Figure 9.1 shows the approximate location of the noise survey positions.

Table 9.3.1 Details of Measurement Locations for the Baseline Noise Survey

Location (see Figure 10.1)	Description	Measurement Duration (hh:mm)
LT1	The microphone was located on the grassy island between Sedlescombe Road and the access path to the car show room. It was located at a height of 1.5 m from ground level.	24:00
LT2	The microphone was located near Queensway Road approximately 300 m from the Queensway Road/ The Ridge junction at a distance of approximately 185 m from the edge of the carriageway. The microphone was located at a height of 1.5 m above ground level.	24:00
CRTN	The microphone was located adjacent to Queensway Road approximately 300 m from the Queensway Road/ The Ridge junction at a distance of 5.5 m from the edge of the carriageway. The microphone was located at a height of 1.5 m above ground level.	3:00

9.3.14 The instrumentation used in the baseline noise survey has been presented in Table 9.3.2.

Table 9.3.2 Instrumentation Used During the Noise Survey

Item	Type	Manufacture	Serial Number	Laboratory Calibration Date
Calibrator	4231	Brüel & Kjær	2619374	15/01/2014
Hand-Held Analyser	2250	Brüel & Kjær	2590403	30/08/2013
½ " Microphone and Pre-Amp	4189	Brüel & Kjær	2589391	30/08/2013
Hand-Held Analyser	2250	Brüel & Kjær	2626233	30/08/2013
½ " Microphone and Pre-Amp	4189	Brüel & Kjær	2621212	30/08/2013
Hand-Held Analyser	2250	Brüel & Kjær	2626232	30/08/2013
½ " Microphone and Pre-Amp	4189	Brüel & Kjær	2621211	30/08/2013

9.3.15 The meteorological conditions during the attended noise survey were dry and overcast with sunny spells. Temperatures varied between 2 and 5°C.

9.3.16 Unattended continuous measurements were set up at the LT1 and LT2 locations. These were selected in order to establish noise levels due to road traffic noise on the respective roads and measure the existing ambient noise within the vicinity of the proposed road.

9.3.17 The attended 3 hour measurement was set up in order to establish road traffic noise emanating from Queensway Road. The CRTN shortened method was used to provide an estimate of the LA10,18h level

9.3.18 All instruments were calibrated before and after the measurement periods. No significant drift in calibration occurred.

Methodology for a Noise Model

9.3.19 The proprietary computer software SoundPLAN version 7.3 has been used to construct a noise model of the site and the surrounding areas.

9.3.20 A number of Scenarios have been modelled using road traffic data provided by Ramboll UK Ltd. These are presented in **Appendix D.3.**

- 2014 Baseline: used to calibrate the noise model with the results of the noise survey;
- 2016 Do Minimum Baseline: (without Development);
- 2016 Do Something (With Development);
- 2026 Do Minimum (Future assessment year without development);
- 2026 Do Something (Future assessment year with development).

9.3.21 The noise model has been reviewed by comparing the measured baseline LA10,18h levels with that predicted in the noise model at the same locations. A change in noise levels of ± 3 dB is widely regarded to be the minimum perceptible under normal conditions. Therefore, if the measured and modelled results are within ± 3 dB the model is considered to demonstrate a good representation.

9.3.22 If the results of the noise model are higher than those during the noise survey, the noise model has assumed to provide a worst case assessment of the typical scenario. If the noise

model results are more than 3 dB higher than the model results, a correction has been added to the noise model to ensure that the results provide a worst case assessment.

9.3.23 The cumulative impact of all committed developments in the surrounding area will be represented and accounted for in the traffic data received by the transport consultant.

Methodology for the Assessment of Demolition and Construction

9.3.24 Guidance on construction noise limits have been based on the 'ABC Method of assessment as agreed with the local authority

9.3.25 The nearest receptors are over 70 m from the proposed road; therefore construction vibration is considered to be negligible and has not been assessed in any detail.

9.3.26 As the proposed road link is situated relatively away from existing noise sensitive premises, a quantitative assessment of construction noise and vibration has not been undertaken. This is reinforced by the advice within DMRB's Volume 11, Section 3, Part 7 hD 213/11 – revision 1, Paragraph 3.16 where it is stated that "as there is an expectation that disruption due to construction is a temporary issue, the area in which it is considered to be a nuisance is generally more localised than where the impacts of the road project are likely to be a cause of concern once it has opened to traffic. It has been shown that the impact of construction nuisance in one form or another diminishes rapidly with distance."

Methodology for the Assessment of Effect due to Operation

Road Traffic noise

9.3.27 The noise study area is presented in Figure 9.2 and is primarily defined in DMRB Volume 11 Section 3 Part 7 (HA 213/08). The study area is defined as 600 m around new or altered highways (and sections of existing roads within 2 km of the new works) that are predicted to be subject to a change in noise level of more than 1 dB(A) as a result of the proposed scheme on opening. Existing roads subject to a change of 1 dB(A) or more were identified by traffic forecasts predicting, as required by DMRB, an increase in flow by at least 25% or decrease by 20% in the scheme opening year (although ignoring those where the predicted traffic flow was less than 1000 Annual Average Weekday Traffic (AAWT18hr) in both Do Something and Do Minimum scenarios. Collectively these are called 'affected routes'.

9.3.28 The noise model has been used to calculate noise levels within the noise study area, at a height of 1.5 m above local ground, in terms of the free-field LA10,18h in accordance with CRTN methodology, (as required by DMRB), for each scenario.

9.3.29 As part of the procedure for a Detailed Assessment, DMRB requires that the magnitude of the noise impact is reported using a suggested scale of magnitude to describe the increase or decrease in noise level associated with the proposed scheme. The magnitude scale is described in more detail in Section 9.2, and is included in Table 9.2.3. Following the DMRB procedures, this assessment of impact magnitude is required for the following scenarios:

- Do Something scenario in the 2016 baseline year against the Do Minimum scenario in the 2016 baseline year; and
- Do Something scenario in the 2028 future assessment year against Do Minimum scenario in the 2016 baseline year.

9.3.30 The results of all the assessments have been used to develop in appropriate noise mitigation proposed. This is discussed in Section 9.4 which considers further mitigation to reduce or remove significant effects evaluated for the base scheme.

Road Traffic Vibration

9.3.31 DMRB Volume 11 provides broad advice on the assessment of road traffic vibration, noting that ground-borne vibration resulting from road traffic is difficult to accurately predict and that it is extremely unlikely to cause damage to buildings. Notwithstanding this, the DMRB does recognise that ground-borne vibration can cause disturbance to residents where the sub-grade is soft, the road surface is uneven and/or when dwellings are within a few metres of the carriageway.

9.3.32 DMRB recommends that the effects of vibration should also be considered where appropriate. In the case of ground-borne vibration, the likelihood of perceptible vibration being caused is particularly dependent upon the smoothness of the road surface. Research has shown that vibration levels caused by heavy vehicles travelling at 110 kph over a 25 mm hump (i.e. a large discontinuity consistent with poorly backfilled trench) could cause perceptible vibration at up to 40 m from the road (Watts, 1990). This would infer that it is unlikely that significant levels of vibration would be generated at distances greater than this. Also, with a newly laid road surface it is a requirement of new highway construction specification that the surface would be smooth and free from any discontinuities of this magnitude. DMRB Vol. 11, Section 3, Part 7 HA 213/08 Annex 2, paragraph A2.26 of DMRB states such vibrations are unlikely to be important when considering disturbance from new roads and an assessment would only be necessary in exceptional circumstances. No such exceptional circumstances are envisaged for this scheme and hence no impacts or effects from ground borne vibration are predicted.

9.3.33 The DMRB covers the potential for airborne noise, from heavy goods vehicles, to cause vibration nuisance close to main roads. As an indication of the scale of impact relative to noise effects, the guidance in DMRB paragraph HA 213/08 Annex 3, Paragraph A3.22 states that for a given level of noise exposure the percentage of people bothered very much or quite a lot by vibration is 10% lower than the corresponding figure for noise nuisance. On average traffic induced vibration is expected to affect a very small percentage of people at exposure levels below 58 dB LA10, 18 hr , Also, the significance of any change in airborne traffic vibration can be considered proportional to the significance of changes in traffic noise. As such the assessment of airborne vibration can be considered to be included within the assessment of airborne noise.

Significance Criteria

9.3.34 The significance of residual effects has been assessed with regards to the sensitivity of the noise sensitive receptors against the magnitude of impact. Table 9.3.3 below defines the sensitivity of the receptor based on its use.

Table 9.3.3: Sensitivity of Receptors

Sensitivity to Change	Description
High (H)	Dwellings
Medium (M)	Schools, hospitals, quiet recreation areas, places of worship
Low (L)	Offices, cafes/bars with external areas
Very Low (VL)	Industrial, retail

9.3.35 When considering noise changes due to road traffic, a comparison is made between the ‘Do Something’ and ‘Do Minimum’ scenarios. These changes in noise can potentially increase or decrease.

9.3.36 It is widely accepted that a change of 3 dB is the minimum perceptible under normal conditions for continuous broadband sounds, and a change of 10 dB corresponds roughly to halving or doubling the subjective ‘loudness’ of sound, therefore this forms the basis for determining the magnitude of change in noise levels as summarised in Tables 9.2.1 and 9.2.2 for both the short term and long term impacts.

9.3.37 An increase in noise level is described as adverse and a decrease in noise level as beneficial.

9.3.38 Table 9.3.4 provides the definitions of significance.

Table 9.3.4 Definitions of Significance

Criteria	Significance
Negligible	Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision making process. Nevertheless, they are of relevance in the detailed design of the project.
Moderate	These effects, if adverse, while important at a local scale, are not likely to be key decision making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
Major	These effects are likely to be important considerations at a regional or district scale but, if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision making process.

9.3.39 **Table 9.3.5** sets out how the sensitivity of the receptors and the magnitude of the impact have been combined to determine the significance criteria. The criteria range from negligible to major.

Table 9.3.5 Sensitivity of Receptors and Magnitude of Impact

Magnitude		Sensitivity			
		High	**Medium**	**Low**	**Negligible**
	Negligible	Minor	Minor	Negligible	Negligible
	Minor	Moderate	Minor	Minor	Negligible
	Moderate	Moderate	Moderate	Minor	Negligible
	Major	Major	Moderate	Moderate	Minor

Limitation and Assumptions

9.3.40 It has been assumed that the noise climate during the noise survey is representative of the typical noise climate, i.e. traffic flows were representative of normal movements, there were no greater or fewer aircraft movements etc. as there was no evidence to assume otherwise.

9.3.41 Nothing unusual in terms of the noise climate was observed, at the times of the attended survey. This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the Site and surrounding area at differing times.

Road Traffic Data

9.3.42 It has been assumed that the road traffic data received from Ramboll UK Ltd and presented in **Appendix D.4** are representative of the typical traffic flows along the relevant roads.

9.3.43 It is assumed that the data provided will account for any and all committed developments in the surrounding area.

9.3.44 Traffic flows on a number of roads have not been received. This may explain discrepancies between measured and predicted levels at location LT1

Mapping and Topography

9.3.45 Site mapping information has been sourced by Emapsite.com

9.3.46 Topographical data has been sourced by Emapsite.com in the form of a .TXT file.

9.4 Baseline Conditions

Noise

9.4.1 A large range of statistical noise parameters were acquired, but the A-weighted noise parameters LAeq,T, LA90,T, LA10,T and LAFmax are considered to be the most relevant in this assessment.

9.4.2 The daytime and night-time results of the unattended noise surveys undertaken at locations LT1 and LT2 are presented in Figures 9.3 to 9.6 as Time History Graphs. The results are summarised in Tables 9.4.1 and 9.4.2.

Table 9.4.1 Summary of Daytime (06:00 to 24:00) Unattended 24 Hour Noise Survey Results at LT1 and LT2

Location	Date	Duration, T (hh:mm)	$L_{Aeq,\ T}$ dB	Highest L_{Amax} dB	Lowest $L_{A90,\ T}$ dB	$L_{A10,\ T}$ dB
LT1	04/03/2014 – 05/03/2014	18:00	72	98	56	75
LT2	04/03/2014 – 05/03/2014	18:00	49	89	40	50

Table 9.4.2 Summary of Night-time (24:00 – 06:00) Unattended 24 Hour Noise Survey Results at LT1 and LT2

Location	Date	Duration, T (hh:mm)	$L_{Aeq,\ T}$ dB	Highest L_{Amax} dB	Lowest $L_{A90,\ T}$ dB	$L_{A10,\ T}$ dB
LT1	04/03/2014 – 05/03/2014	06:00	65	86	41	67
LT2	04/03/2014 – 05/03/2014	06:00	55	86	30	43

9.4.3 Table 9.4.3 presents the results from the 3 hour attended measurements. The CRTN shortened measurement procedure recognises the trends in traffic profiles and corrects the arithmetic mean of three 1-hour readings taken in consecutive hours between 10:00 -17:00 hours to provide a reliable estimate of the LA10,18h over the period 06:00 - 24:00 hrs.

Table 9.4.3 Summary of Attended CRTN Noise Survey Results

Location	Date	Duration, T (hh:mm)	$L_{Aeq,\ T}$ dB	L_{Amax} dB	$L_{A90,\ T}$ dB	L_{A10} (dB)
CRTN Hour 1	05/03/2014	01:00	73	95	59	76.8
CRTN Hour 2	05/03/2014	01:00	73	88	60	76.7
CRTN Hour 3	05/03/2014	01:00	73	95	60	76.8

9.4.4 The CRTN comparative measurement procedure has been used to calculate the LA10,18h at the CRTN location.

9.4.5 In addition, this guidance describes the procedure for calculating noise from road traffic, which is the methodology and algorithms used by the noise modelling software.

9.4.6 Table 9.4.4 presents the calculated LA10,18h level based on the 3 hour attended noise survey results.

Table 9.4.4 CRTN Shortened method calculated level

Duration, T (hh:mm)	L_{A10} (dB)
18:00	76

9.4.7 It was observed that road traffic noise from the adjacent roads was the dominant noise source at the measurement Locations LT1 and LT2.

9.4.8 With regard to the 3 hour attended measurement it was observed that the dominant noise source was road traffic noise emanating from Queensway Road.

Baseline Noise Model Results

9.4.9 The noise contours for each modelled scenario are presented in Figures 9.7 – 9.11.

9.4.10 The noise model has been received by comparing the measured baseline LA10,18h¬ with that predicted in the noise model at the same locations.

Table 9.5.6 Modelled Results Compared to Measured Results

Location	Measured	Modelled	Difference
LT1	75	70	5
LT2	50	51	1
CRTN	76	75	1

9.4.11 The large difference at location LT1 may be attributed to the lack of traffic flow data for roads to the immediate east of the location

9.5 Assessment and Mitigation of Construction Effects

Noise

9.5.1 Construction noise has the potential to cause a noise impact at existing noise-sensitive receptors and proposed noise-sensitive receptors that are inhabited whilst construction continues. The level of impact cannot be determined until the phasing and equipment to be used has been finalised, which will occur once a contractor has been appointed. The mitigation section outlines requirements for the reduction of construction noise and vibration which could be applied so as to minimise the effects due to noise from the construction phase of the development.

9.5.2 Referring to the advice given by BS 5228:2009. Figures 9.12 – 9.14 present the LAeq, 12 h , LAeq, 6 h and LAeq, 4 h noise contours produced by the noise model. These figures should be used to set the BS 5228 ABC method, thresholds for construction noise. Tables 9.5.1 to 9.5.2 present the noise sensitive receptors most likely to be affected by construction noise (defined in Figures 9.15 – 9.17) and the categories they have been allocated for the following threshold value periods:

- Daytime (07.00−19.00) and Saturdays (07.00−13.00);
- Evenings and Weekends; and

- Night-time (23:00 – 06:00).

Table 9.5.1: Baseline Noise Level at Construction Noise Sensitive Receptors

Location	$L_{Aeq,T}$ from Noise Model (to the Nearest 5 dB) (dB)			Category		
	Day (L_d)	Evening (L_e)	Night (L_n)	Day	Evening	Night
NSR1	< 65	55	> 55	A	B	C
NSR2	< 65	55	> 55	A	B	C
NSR3	< 65	55	> 55	A	B	C
NSR4	< 65	55	> 55	A	B	C
NSR5	< 65	< 55	< 45	A	A	B
NSR6	< 65	< 55	< 45	A	A	B
NSR7	< 65	< 55	< 45	A	A	B
NSR8	< 65	< 55	< 45	A	A	B
NSR9	65	> 55	58	B	C	SEE NOTE 1
NSR10	65	> 55	58	B	C	SEE NOTE 1
NSR11	65	> 55	58	B	C	SEE NOTE 1
NSR12	65	> 55	59	B	C	SEE NOTE 1

Note 1: If the ambient noise level exceeds the category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to the site noise.

Table 9.5.2: Proposed Construction Noise Thresholds of Significance.

Location	Proposed construction Thresholds of Significance (dB)		
	Day (L_d)	Evening (L_e)	Night (L_n)
NSR1	65	60	55
NSR2	65	60	55
NSR3	65	60	55
NSR4	65	60	55
NSR5	65	55	50
NSR6	65	55	50
NSR7	65	55	50

Location	Proposed construction Thresholds of Significance (dB)		
	Day (L_d)	Evening (L_e)	Night (L_n)
NSR8	65	55	50
NSR9	70	65	61
NSR10	70	65	61
NSR11	70	65	61
NSR12	70	65	62

9.5.3 Referring to Figures 9.12 – 9.14 and the above tables, recommended thresholds for construction noise should be set.

Vibration

9.5.4 Should vibration generating activities occur such as piling then vibration monitoring could be incorporated into the Construction Environmental Management Plan (CEMP).

9.5.5 The DMRB provides guidance on ambient levels of vibration as PPV, stating that for traffic vibration generally a PPV of 0.2 mm/s measured on a floor in the vertical direction is on the threshold of perceptibility, and a level of about 0.5 mm/s is perceptible and may become disturbing or annoying at higher levels. PPVs in the structure of buildings close to heavily trafficked roads rarely exceed 0.2 mm/s and are typically well below 0.1 mm/s. The DMRB also states that there is no firm evidence that structural damage to buildings can occur below 10 mm/s.

9.5.6 It is believed that all roads surrounding the proposed site are in good condition and devoid of speed bumps. It is considered sufficient therefore to assume that vibration from construction traffic would not represent a significant issue and therefore is not considered any further.

Mitigation

9.5.7 Further assessment of construction noise mitigation will be undertaken when a principal contractor has been appointed at each stage and detailed method statements and the construction programme are available.

Common Construction Noise and Vibration Mitigation Methods

9.5.8 The following advice is based upon guidance provided in BS 5228 and should be applied in order to minimise noise and vibration from the construction activities affecting noise sensitive receptors:

- Appropriate operational hours;
- Considerate working hours for excessively noisy activities;
- Ensuring the use of quiet working methods, the most suitable plant and reasonable hours of working for noisy operations, where reasonably practicable;
- Locating noisy plant and equipment as far away from dwellings as reasonably possible and where practical, carry out loading and unloading in these areas;
- Screening plant to reduce noise which cannot be reduced by increasing the distance between the source and the receiver (i.e. by installing noisy plant and equipment behind large site buildings;
- Orienting plant that is known to emit noise strongly in one direction so that the noise is directed away from dwellings, where possible;
- Closing acoustic covers to engines when they are in use or idling and

- Lowering materials slowly, whenever practicable, and not dropping them.

9.5.9 A Construction Environmental Management Plan CEMP will be agreed prior to commencement of construction. The CEMP could form the basis of the agreed working methods with the Local Authorities under Section 61 of the Control of Pollution Act 1974.

9.6 Assessment and Mitigation of Operation Effects

DMRB Assessment

9.6.1 Noise contours have been produced to represent the short-term and long-term permanent noise impact, as defined in DMRB. These are presented in Figures 9.18 – 9.20 and summarised in Tables 9.6.1 – 9.6.2.

9.6.2 From Figure 9.18, it can be seen that the majority of the DMRB study area will be subject to an increase in the noise level of between 0 – 3 dB between 2016 and 2028 (long term impact), which can be expected from the natural increase in road traffic. In accordance with DMRB's magnitude of impact, this is classified as a negligible impact.

9.6.3 Figure 9.19 presents the short term impact in 2016. It can be seen that the areas to the east and west of Battle Road along with the area to the east of the DMRB study area will be subject to a decrease in noise levels due to the short term impact of the proposed link road. The areas to the south east, south west and north west of the DMRB study area will be subject to an increase in noise levels of 0.1 to 1 dB. This would be classed as a negligible impact.

9.6.4 The residential areas in proximity to the northern and southern sections of Sedlescombe Road (A21) are subject to an increase in noise levels between 1 and 2.9 dB. In accordance with DMRB magnitude of impact, this is classified as a minor impact. The area directly south of the proposed link road could be subject to an increase in noise levels between 3 – 4.9 dB. In accordance with DMRB's magnitude of impact, this is classified as a moderate impact for the short term.

9.6.5 In the long term assessment, shown in Figure 9.20, the majority of the DMRB study area will be subject to an increase in noise levels between 0 – 3 dB. In accordance with the DMRB magnitude of impacts, this would be classed as a negligible impact. However, the area directly south and east of the proposed link road would be subject to an increase in noise levels of between 3 – 5 dB. This would be classified as a minor adverse impact.

9.6.6 In the long term assessment, as shown in Figure 9.20, the areas to the north east and north west of Battle road are subject to a decrease in noise levels. The areas to the south east of Queensway road along with the areas in the south east and north east sections of the DMRB study area would be subject to an increase in noise levels between 0.1 – 3 dB. This would be classed as a negligible impact. The area directly south of the proposed link road along with a small area to the east could be subject to an increase in noise levels between 3 – 4.9 dB. This is classified as a moderate impact for the long term.

9.6.7 The following Tables 9.6.1 –9.6.2 indicate the approximate amount of dwellings within the DMRB study area affected by noise during the short term and long term. There are approximately 1300 dwellings within the DMRB study area. These tables support the results presented in the noise contour map Figures 9.18 –9.20.

Table 9.6.1 Short-term Traffic Noise Reporting Table for DMRB Assessment

Change in Noise Level		Approximate Number of Dwellings
Increase in noise level, LA10, 18 h	0.1 – 0.9	960
	1 – 2.9	255
	3 – 4.9	5
	5 +	0

Change in Noise Level		Approximate Number of Dwellings
No Change	0	0
Decrease in noise level, LA10, 18 h	0.1 – 2.9	80
	3 – 4.9	0
	5 – 9.9	0
	10 +	0

Table 9.6.2 Long-term Traffic Noise Reporting Table for Detailed Assessment

Change in Noise Level		Approximate Number of Dwellings
Increase in noise level, LA10, 18 h	0.1 – 2.9	1235
	3 – 4.9	15
	5 – 9.9	0
	10 +	0
No Change	0	0
Decrease in noise level, LA10, 18 h	0.1 – 2.9	50
	3 – 4.9	0
	5 – 9.9	0
	10 +	0

9.6.8 It should be noted that this type of assessment compares the noise levels for the year 2028 with development against year 2016 without development. Therefore, results in the above Tables and Figures 9.18 – 9.20 also include the change in noise levels due to traffic growth between those years.

9.6.9 The amount of dwellings subject to minor and moderate adverse impacts for both the short term and long term would be a cause for mitigation measures to reduce the impacts on occupants of these dwellings.

9.6.10 In addition to the figures above, noise contours have been prepared to present the absolute noise levels likely to be experienced within the study area during the night-time study area would not generally be subject to a +3 dB increase in noise levels in the long term.

9.6.11 This has been deemed as a negligible impact.

The Noise Insulation Regulations Assessment

9.6.12 The highway authority would, under certain circumstances, have a duty under the Noise Insulation Regulations 1975 (as amended in 1988) to offer insulation for residential properties with respect to a new road. Under the regulations, residential properties could qualify for an offer of noise insulation.

9.6.13 Figure 9.22 shows a number of dwellings where noise levels are higher than 67.5 dB LAeq (16 hours).

9.6.14 A number of these dwellings do experience an increase of more than 1 dB.

9.6.15 However, based on the results of the outline assessment it appears that noise emissions due to the new road do not contribute 1 dB to the increase and therefore the Noise Insulation Regulations may not be met at any existing residential dwellings. Due to this, no eligible dwellings have been identified. This is mainly due to distance noise attenuation.

Mitigation

9.6.16 DMRB, section 4 suggests a selection of mitigating methods when dwellings are subject to adverse impacts during the short term and long term due to a new development. The most feasible method of mitigation for the proposed development is the implication of a 'low noise road surface'. This method of mitigation has the potential to reduce the increase in noise levels from the proposed development by around to 3.5 dB.

9.6.17 Figures 9.23 – 9.24 presents the short term and long term changes in noise levels with the suggested mitigation. The following Tables 9.6.3 –9.6.4 summarizes the approximate amount of dwellings within the DMRB study area affected by noise during the short and long term. These tables support the results presented in the noise contour map Figures 9.23 – 9.24.

Table 9.6.3 Short-term Traffic Noise Reporting Table for DMRB Assessment with Mitigation

Change in Noise Level		Approximate Number of Dwellings
Increase in noise level, LA10, 18 h	0.1 – 0.9	1145
	1 – 2.9	5
	3 – 4.9	0
	5 +	0
No Change	0	0
Decrease in noise level, LA10, 18 h	0.1 – 2.9	150
	3 – 4.9	0
	5 – 9.9	0
	10 +	0

Table 9.6.4 Long-term Traffic Noise Reporting Table for DMRB Assessment with Mitigation

Change in Noise Level		Approximate Number of Dwellings
Increase in noise level, LA10, 18 h	0.1 – 2.9	1265
	3 – 4.9	5
	5 – 9.9	0
	10 +	0
No Change	0	0
Decrease in noise level, LA10, 18 h	0.1 – 2.9	30
	3 – 4.9	0
	5 – 9.9	0
	10 +	0

9.6.18 With the suggested mitigation in place the amount of dwellings that were previously subject to a minor and moderate impact has been reduced to approximately 5 dwellings in both the short term and the long term.

9.6.19 This is deemed to be a negligible impact.

9.7 Assessment and Mitigation of Cumulative Effects

Assessment

9.7.1 It has been confirmed that the road traffic data supplied includes all committed developments in the surrounding area.

9.7.2 Chapter 5.6 describes in detail the committed developments in the surrounding area.

9.8 Summary

Introduction

9.8.1 The impacts of the proposed link road connecting the A21 (Sedlescombe Road North) to Queensway has been assessed using methods set out in the Design Manual for Road and Bridges (DMRB) and the Noise Insulation Regulations 1975 as Amended in 1988.

9.8.2 A series of threshold values for significance due to the noise impact during the construction phase(s) has also been provided using the 'ABC Method' set out by British Standard 5228:2009 as requested by the Environmental Health Officer.

Baseline

9.8.3 Baseline conditions have been established via means of a baseline noise survey.

Assessment

9.8.4 The external LA10,18h levels due to road traffic movements have been assessed. The results show that during the short term there are approximately 960 dwellings that could be subject to

a negligible impact and approximately 255 dwellings which could be subject to a minor adverse impact. Furthermore, approximately five dwellings could be subject to a moderate adverse impact in the short term.

9.8.5 During the long term, approximately 1235 dwellings could be subject to a negligible impact; and approximately 15 dwellings that could be subject to a minor adverse impact.

Mitigation and Enhancement

9.8.6 As suggested by DMRB, the new road could be constructed with a low-noise road surface. This mitigation method has the potential to reduce the road traffic noise by around 3.5 dB.

9.8.7 With this mitigation implemented, the amount of dwellings subject to a minor adverse impact will be reduced from 255 to 5 in the short term. The amount of dwellings subject to a moderate adverse impact could be reduced from five to zero.

9.8.8 During the long term, the amount of dwellings subject to a minor impact would be reduced from 15 to 5.

Conclusions

9.8.9 A noise impact assessment of a new link road proposed to connect the A21 (Sedlescombe Road) to Queensway has been undertaken.

9.8.10 A Construction Environmental Management Plan (CEMP) should be agreed prior to commencement of construction. The CEMP could form the basis of the agreed working methods with the Local Authorities under Section 61 of the Control of Pollution Act 1974.

9.8.11 The assessment has indicated the need for mitigation measures in the form of a low noise road surface. After mitigation, the amount of dwellings subject to a minor impact would be around five.

9.8.12 Based on the results of the outline assessment it appears that the eligibility criteria in the Noise Insulation Regulations are not met at existing residential dwellings. Due to this, no eligible dwellings have been identified.

9.9 References

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10 Air Quality

10.1 Introduction

10.1.1 This chapter documents the assessment of the likely significant effects of the proposed development in terms of air quality, and has been prepared by Peter Brett Associates LLP in consultation with Hastings Borough Council (HBC).

10.1.2 The proposed development has the potential to adversely affect air quality during both the construction phase and operational phase. The main air pollutants of concern related to construction are dust and fine particulate matter (PM10), whilst for road traffic they are nitrogen dioxide and fine particulate matter (PM10 and PM2.5).

10.1.3 This chapter describes: the assessment methodology; the baseline conditions at the site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; the likely residual effects after the mitigation measures have been employed, and the likely cumulative effects in conjunction with committed developments.

10.2 Policy Context

Air Quality

10.2.1 The Air Quality Strategy (2007) establishes the policy framework for ambient air quality management and assessment in the UK. The primary objective is to ensure that everyone can enjoy a level of ambient air quality which poses no significant risk to health or quality of life. The Strategy sets out the National Air Quality Objectives (NAQOs) and Government policy on achieving these objectives.

10.2.2 Part IV of the Environment Act 1995 introduced a system of Local Air Quality Management (LAQM). This requires local authorities to regularly and systematically review and assess air quality within their boundary, and appraise development and transport plans against these assessments. The relevant NAQOs for LAQM are prescribed in the Air Quality (England) Regulations 2000 and the Air Quality (Amendment) (England) Regulations 2002.

10.2.3 Where an objective is unlikely to be met, the local authority must designate an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) setting out the measures it intends to introduce in pursuit of the objectives within its AQMA.

10.2.4 The Local Air Quality Management Technical Guidance 2009 (LAQM.TG(09); Defra, 2009) issued by the Department for Environment, Food and Rural Affairs (Defra) for Local Authorities provides advice as to where the NAQOs apply. These include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year). Thus, for example, annual mean objectives apply at the façades of residential properties, whilst the 24-hour objective (for PM10) would also apply within the garden. They do not apply to occupational, indoor or in-vehicle exposure.

EU Limits

10.2.5 The Air Quality Standards Regulations 2010 implements the European Union's Directive on ambient air quality and cleaner air for Europe (2008/50/EC), and includes limit values for nitrogen dioxide (NO2). These limit values are numerically the same as the NAQO values but differ in terms of compliance dates, locations where they apply and the legal responsibility for ensuring that they are complied with. The compliance date for the NO2 EU Limit Value was 1 January 2010, five years later than the date for the NAQO.

10.2.6 Directive 2008/50/EC consolidated the previous framework directive on ambient air quality assessment and management and its first three daughter directives. The limit values remained unchanged, but it now allows Member States a time extension for compliance, subject to European Commission (EC) approval.

10.2.7 Despite many areas of the UK not being compliant with the annual average NO2 limit value, the UK has decided not to seek an extension to the compliance date for this pollutant. This was on the basis that it could not be guaranteed that the UK would be compliant by the latest date allowable under the Directive (1 January 2015).

10.2.8 European Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) requires member states to introduce a range of measures for the protection of habitats and species. The Conservation of Habitats and Species Regulation (2010) (Stationary Office, 2010), transposes the Directive into law in England and Wales. The Regulations require the Secretary of State to provide the European Commission with a list of sites which are important for the habitats ort species listed in the Directive. The Commission then designates worthy sites as Special Areas of Conservation (SACs). The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs); with these classified under the Council Directive 79/409/EEC on the Conservation of Wild Birds. These sites from a network termed "Natura 2000".

10.2.9 The Regulations primarily provide measures for the protection of European Sites an European Protected Species, but also require local planning authorities to encourage the management of other features that are of major importance for wild flora and fauna.

10.2.10 In addition to SACs and SPAs, some internationally important UK sites are designated under the Ramsar Convention. Originally intended to protect waterfowl habitat, The Convention has broadened its scope to cover all aspects of wetland conservation.

10.2.11 The Habitats Directive (as implemented by the Regulations) requires the competent authority, which in this case will be the planning authority, to firstly evaluate wheter the development is likely to give rise to a significant rise on the European site. Where this is the case, it has to carry out an 'appropriate assessment' in order to determine whether the development will adversely affect the integrity of the site.

10.2.12 Sites of national importance may be designated as Sites of Special Scientific Interest (SSSIs).Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs (in England and Wales) were introduced by the Countryside and Rights of Way (CROW) Act 2000. If a development is "likely to damage" a SSSI, the CROW act requires that a relevant conservation body (i.e. Natural England) is consulted. The CROW act also provides protection to local nature conservation sites, which can be particularly important in providing 'stepping stones' or 'buffers' to SSSIs and European sites. In addition, the Environment Act (1995) and the Natural Environment and Rural Communities Act (2006) both require the conservation of biodiversity.

Assessment Criteria

<u>Human Health Criteria</u>

10.2.13 The NAQOs for NO2 and PM10 set out in the Air Quality Regulations (England) 2000 and the Air Quality (England) (Amendment) Regulations 2002 are shown in Table 10.1.

Table 10.1: Nitrogen Dioxide and PM_{10} Objectives

Pollutant	Time Period	Objective
Nitrogen dioxide (NO_2)	1-hour mean	200µg/m^3 not to be exceeded more than 18 times a year
	Annual mean	40µg/m^3
Particulate Matter (PM_{10})	24-hour mean	50µg/m^3 not to be exceeded more than 35 times a year
	Annual Mean	40µg/m^3

10.2.14 The objectives for nitrogen dioxide and PM10 were to have been achieved by 2005 and 2004, respectively, and continue to apply in all future years thereafter. Analysis of long term monitoring data suggests that if the annual mean nitrogen dioxide concentration is less than 60µg/m3 then the one-hour mean nitrogen dioxide objective is unlikely to be exceeded where

road transport is the main source of pollution. This concentration is used to screen whether the one-hour mean objective is likely to be achieved

10.2.15 The Air Quality Strategy (2007) includes an exposure reduction target for smaller particles known as PM2.5. These are an annual mean target of 25µg/m3 by 2022 and an average urban background exposure reduction target of 15% between 2010 and 2022.

10.2.16 A new air quality directive (2008/50/EC) was adopted in May 2008, and includes a national exposure reduction target, a target value and a limit value for PM2.5, shown in Table 10.2. The UK Government transposed this new directive into national legislation in June 2010 (Stationery Office, 2010).

Table 10.2: PM2.5 Air Quality Criteria

	Time Period	Objective/Obligation	To be achieved by
UK objectives	Annual mean	25µg/m^3	2020
	3 year running annual mean	15% reduction in concentrations measured at urban background sites	Between 2010 and 2020
European obligations	Annual mean	Target value of 25µg/m^3	2010
	Annual mean	Limit value of 25µg/m^3	2015
	Annual mean	Stage 2 indicative Limit value of 20µg/m^3	2020
	3 year Average Exposure Indicator (AEI)[a]	Exposure reduction target relative to the AEI depending on the 2010 value of the 3 year AEI (ranging from a 0% to a 20% reduction)	2020
	3 year Average Exposure Indicator (AEI)	Exposure concentration obligation of 20µg/m^3	2015

[(a)]The 3 year annual mean or AEI is calculated from the $PM_{2.5}$ concentration averaged across all urban background monitoring locations in the UK e.g. the AEI for 2010 is the mean concentration measured over 2008, 2009 and 2010.

Ecological Criteria

10.2.17 Objectives for the protection of vegetation and ecosystems have been set by the UK Government and were to have been achieved by 2000. They are summarised in Table 10.3 and are the same as the EU limit values. The objectives only strictly apply a) more than 20km from an agglomeration (about 250,000 people), and b) more than 5km from Part A industrial sources, motorways and built up areas of more than 5,000 people. However, Natural England has adopted a more precautionary approach and applies the objective to all internationally designated conservation sites and SSSIs. For the assessment of road schemes, the Highways Agency follows this approach and requires an assessment of the impacts of roads traffic emissions on conservation sites (Designated Sites) within 200m of a road (Highways Agency, 2007). When pollutant concentrations exceed a critical level it is considered that there is a risk of harmful effects.

Table 10.3 Vegetation and Ecosystem Objectives (Critical Levels)

Pollutant	Time Period	Objective
Nitrogen Oxides (expressed as NO_2)	Annual mean	30µg/m^3

10.2.18 Critical loads for nitrogen deposition onto sensitive ecosystems have been specified by United Nations Economic Commission for Europe (UNECE). They are defined as the amount of pollutant deposited to a given area over a year, below which significant harmful effects on sensitive elements of the environment do not occur, according to present knowledge. Exceedence of a critical load is used as an indication of the potential for harmful effects to occur.

10.2.19 Where critical loads are already exceeded, an increase of more than 1% of the critical load is an indication of potentially significant effects which would trigger the need for further, more detailed assessment. It should be noted that an increase in deposition of more than 1% is not, per se, an indication that a significant effect exists, only the possibility of one. Depending on a

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Defra, 2009. Local Air Quality Management Technical Guidance LAQM.TG(09).

more detailed assessment which would take account of the actual ecological conditions at the location under consideration, an increase of more than 1% may be acceptable.

Designated sites

10.2.20 The Hollington Valley Site of Nature Conservation Importance (SNCI) is situated adjacent on both sides to the proposed development site and to the east of the B2092 Queensway. The critical loads for the location are presented in Table 10.4.

Table 10.4: Deposition and Site Relevant Critical Loads

Habitat	Critical Load	
	Nitrogen Deposition (kgN/ha/yr)	Acid Deposition (keqN/ha/yr)
Broadleaved and mixed woodlands	10 - 20	0.14 – 2.95

The acid deposition critical loads are the nitrogen element of the minimum critical load function.
N/A – no comparable habitat with established critical load estimates available.

Planning Policy

National Policy

10.2.21 The National Planning Policy Framework was published in March 2012. This sets out the Government's planning policies for England and how they are expected to be applied. In relation to conserving and enhancing the natural environment, paragraph 109 states that:

"The planning system should contribute to and enhance the natural and local environment by…. preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability."

10.2.22 Paragraph 124, also states that:

"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."

10.2.23 Paragraph 203 goes on to say:

"Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition."

10.2.24 National Planning Practice Guidance (NPPG) was published in March 2014 to support the NPPF. Paragraph 001, Reference 32-001-20 of the NPPG provides a summary as to why air quality is a consideration for planning:

"…Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit….The local air quality management (LAQM) regime requires every district and unitary authority to regularly review and assess air quality in their area. These reviews identify whether national objectives have been, or will be, achieved at relevant locations, by an applicable date….If national objectives are not met, or at risk of not being met, the local authority concerned must declare an air quality management area and prepare an air quality action plan…..Air quality can also affect biodiversity and may therefore impact on our international obligations under the Habitats Directive…..Odour and dust can also be a planning concern, for example, because of the effect on local amenity."

10.2.25 Paragraph 002, Reference 32-002-20140306, of the NPPG concerns the role of Local Plans with regard to air quality:

"….Drawing on the review of air quality carried out for the local air quality management regime, the Local Plan may need to consider:

- *the potential cumulative impact of a number of smaller developments on air quality as well as the effect of more substantial developments;*
- *the impact of point sources of air pollution..; and*
- *ways in which new development would be appropriate in locations where air quality is or likely to be a concern and not give rise to unacceptable risks from pollution. This could be through, for example, identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable."*

10.2.26 Paragraph 005, Reference 32-005-20140306, of the NPPG identifies when air quality could be relevant for a planning decision:

"….When deciding whether air quality is relevant to a planning application, considerations could include whether the development would:

- *Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more.*
- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area;*
- *Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.*
- *Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations.*
- *Affect biodiversity. In particular, is it likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites."*

10.2.27 Paragraph 007, Reference 32-007-20140306, of the NPPG provides guidance on how detailed an assessment needs to be:

"Assessments should be proportionate to the nature and scale of development proposed and the level of concern about air quality, and because of this are likely to be locationally specific."

10.2.28 Paragraph 008, Reference 32-008-20140306, of the NPPG provides guidance on how an impact on air quality can be mitigated:

"Mitigation options where necessary will be locationally specific, will depend on the proposed development and should be proportionate to the likely impact….Examples of mitigation include:

- *the design and layout of development to increase separation distances from sources of air pollution;*
- *using green infrastructure, in particular trees, to absorb dust and other pollutants;*

- *means of ventilation;*
- *promoting infrastructure to promote modes of transport with low impact on air quality;*
- *controlling dust and emissions from construction, operation and demolition; and*
- contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development."

10.2.29 Paragraph 009, Reference 32-009-20140306, of the NPPG provides guidance on how considerations about air quality fit into the development management process by means of a flowchart. The final two stages in the process deal with the results of the assessment:

"Will the proposed development (including mitigation) lead to an unacceptable risk from air pollution, prevent sustained compliance with EU limit values or national objectives for pollutants or fail to comply with the requirements of the Habitats Regulations." If Yes:

"Consider how proposal could be amended to make it acceptable or, where not practicable, consider whether planning permission should be refused."

Local Policy

10.2.30 Hastings Borough Council's (HBC) Local Plan (LP) adopted in 2004 sets out the framework of policies to guide and encourage development in the Borough. Its policies are saved by direction of the Secretary of the State pending their replacement with the Local Plan 2011-2018 (emerging). Policy NC6 states:

"Development Proposals within or adjacent to Sites of Nature Conservation Importance will not be permitted unless there is a local need which outweighs any harm to the nature conservation interest. The Council may attach conditions to any planning permission and/or may seek to enter into agreement(s) to minimise the harm and/or secure the protection, enhancement and management of the nature conservation interest."

10.2.31 Policy DG33 on Environmental Pollution states:

"Planning permission will not be granted for development which would be likely to cause unacceptable pollution of air, water or land. This includes development which will result in an unacceptable risk of pollution to the quality or potential yield of surface and groundwater resources. The Council may require that applicants carry out air quality monitoring and assessment into the likely effect of significant new developments alongside existing main road which could lead to a substantial increase in traffic levels and consequent deterioration in air quality in the area."

10.2.32 The emerging draft replacement LP 2011-2018 (emerging) includes draft Policy DM6-Pollution and Hazards which states:

"In order to protect human health and water quality planning permission will only be granted for development providing:

b… The level of airborne pollutants caused by the proposed development does not exceed statutory guidelines, unless appropriate mitigation measures are agreed.

Applicants will be required to supply convincing supporting evidence (from relevant and suitably qualified professional) that any actual or potential pollution can be overcome through appropriate remedial, preventive or precautionary measures."

10.3 Methodology

Baseline Data Collection

10.3.1 Information on existing air quality has been obtained by collating the results of monitoring carried out by the Hastings Borough Council (HBC). Background concentrations for the site have been defined using the national pollution maps published by Defra. These cover the whole country on a 1x1 km grid[2]

10.3.2 Existing nitrogen and acid deposition rates within the study area were determined from the Air Pollution Information System website (APIS, 2014).

Construction Impacts

10.3.3 During demolition and construction the main potential effects are dust annoyance and locally elevated concentrations of PM10. The suspension of particles in the air is dependent on surface characteristics, weather conditions and on-site activities. Impacts have the potential to occur when dust generating activities coincide with dry, windy conditions, and where sensitive receptors are located downwind of the dust source.

10.3.4 Separation distance is also an important factor. Large dust particles (greater than 30µm), responsible for most dust annoyance, will largely deposit within 100m of sources. Intermediate particles (10-30µm) can travel 200-500m. Consequently, significant dust annoyance is usually limited to within a few hundred metres of its source. Smaller particles (less than 10µm) are deposited slowly and may travel up to 1km; however, the impact on the short-term concentrations of PM10 occurs over a shorter distance. This is due to the rapid decrease in concentrations with distance from the source due to dispersion.

10.3.5 The Institute of Air Quality Management (IAQM, 2014) has issued revised guidance on the assessment of dust from demolition and construction. The IAQM guidance recommends that the risk of dust generation is combined with the sensitivity of the area surrounding the site to determine the risk of dust impacts from construction and demolition activities. Depending on the level of risk (high, medium, low or negligible) for each activity, appropriate mitigation is selected.

10.3.6 In accordance with the IAQM 2014 guidance, the dust emission magnitude is defined as either high, medium or low (Table 10.5) taking into account the general activity descriptors on site and professional judgement.

10.3.7 The sensitivity of the study area to construction dust impacts is defined based on the examples provided within the IAQM 2014 guidance (Table 10.6), taking into account professional judgement.

[2] http://laqm.defra.gov.uk/maps/maps2010.html

Table 10.5: Risk Criteria for Dust Emission Magnitude

Dust Emission Magnitude	Activity
High	**Demolition** >50,000m^3 building demolished, dusty material (e.g. concrete), on-site crushing/screening, demolition >20m above ground level
	Earthworks >10,000m^2 site area, dusty soil type (e.g. clay), >10 earth moving vehicles active simultaneously, >8m high bunds formed, >100,000 tonnes material moved
	Construction >100,000m^3 building volume, on site concrete batching, sandblasting
	Trackout >50 HDVs out / day, dusty soil type (e.g. clay), >100m unpaved roads
Medium	**Demolition** 20,000 - 50,000m^3 building demolished, dusty material (e.g. concrete) 10-20m above ground level
	Earthworks 2,500 - 10,000m^2 site area, moderately dusty soil (e.g. silt), 5-10 earth moving vehicles active simultaneously, 4m - 8m high bunds, 20,000 -100,000 tonnes material moved
	Construction 25,000 - 100,000m^3 building volume, on site concrete batching
	Trackout 10 - 50 HDVs out / day, moderately dusty surface material, 50 -100m unpaved roads
Low	**Demolition** <20,000m^3 building demolished, non-dusty material, <10m above ground level, work in winter
	Earthworks <2,500m^2 site area, non-dusty soil, <5 earth moving vehicles active simultaneously, <4m high bunds, <20,000 tonnes material moved
	Construction <25,000m^3, non-dusty material
	Trackout <10 HDVs out / day, non-dusty soil, < 50m unpaved roads

Table 10.6: Area Sensitivity Definitions

Area Sensitivity	Activity	Ecological Receptors
High	>100 dwellings, hospitals, schools, care homes within 50m 10 – 100 dwellings within 20m Museums, car parks, car showrooms within 50m PM_{10} concentrations approach or are above the daily mean objective.	National or Internationally designated site within 20m with dust sensitive features / species present
Medium	>100 dwellings, hospitals, schools, care homes within 100m 10 – 100 dwellings within 50m Less than 10 dwellings within 20m Offices/shops/parks within 20m PM_{10} concentrations below the daily mean objective.	National or Internationally designated site within 50m with dust sensitive features / species present Nationally designated site or particularly important plant species within 20m

Low	>100 dwellings, hospitals, schools, care homes 100 - 350m away 10 – 100 dwellings within 50 – 350m Less than 10 dwellings within 20 - 350m Playing fields, parks, farmland, footpaths, short term car parks, roads, shopping streets PM_{10} concentrations well below the daily mean objective.	Nationally designated site or particularly important plant species 20 - 50m Locally designated site with dust sensitive features within 50m

10.3.8 Based on the dust emission magnitude and the area sensitivity, the risk of dust impacts is then determined (Table 10.7), taking into account professional judgement.

Table 10.7: Risk of Dust Impacts

Area Sensitivity	Dust Emission Magnitude		
	High	Medium	Low
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

10.3.9 Based on the risk of dust impacts, appropriate mitigation is selected from the IAQM 2014 guidance using professional judgement.

Significance Criteria

10.3.10 The construction impact significance criteria are based on the IAQM 2014 guidance. The guidance recommends that no assessment of the significance of effects is made without mitigation in place, as mitigation is assumed to be secured by planning conditions, legal requirements or required by regulations. With appropriate mitigation in place, the residual effect of construction impacts on air quality is assessed as not significant.

Road Traffic Impacts

Human Health Receptors

10.3.11 Relevant sensitive locations are places where members of the public might be expected to be regularly present over the averaging period of the objectives. For the annual mean and daily mean objectives that are the focus of this assessment, sensitive receptors will generally be residential properties, schools, nursing homes, etc. When identifying these receptors, particular attention has been paid to assessing impacts close to junctions, where traffic may become congested, and where there is a combined effect of several road links.

10.3.12 Based on the above criteria, six existing properties close to QGR have been identified as receptors for the assessment. The locations of existing residential receptors were chosen to represent locations where impacts from the development are likely to be the greatest. These locations are described in Table 10.8. Receptors were modelled at a height of 1.5m and 6.5m representing ground floor and first floor exposure.

Table 10.8: Description of Receptor Locations

Receptor	Location
R1	23 Beauport Home Farm Close
R2	The Clats 823, The Ridge Road
R3	836 The Ridge Road
R4	7 Maplehurst Road
R5	579 Sedlescombe Road North
R6	569 Sedlescombe Road North 9

Ecological Receptors

10.3.13 Relevant ecological receptors in the vicinity of the site are discussed in Paragraph 10.2.20. Concentrations of nitrogen oxides are predicted, and deposition calculated, at a range of receptors at increasing distances from the proposed development (Figure 1 in Appendix E.1)

in order to indicate whether or not the critical level and critical loads are being exceeded in the habitat.

10.3.14 The Critical Load Function Tool available from APIS is used to determine whether the acid deposition critical loads are exceeded.

Impact Predictions

10.3.15 Predictions of the impacts of current traffic levels have been carried out using the ADMS-Roads dispersion model (v3.2.4.0). The model requires the user to provide various input data, including the Annual Average Daily Traffic (AADT) flow, the proportion of heavy duty vehicles (HDVs), road characteristics (including road width and street canyon height, where applicable), and the vehicle speed. Traffic speeds were based on local speed restrictions, taking into account congestion and proximity to a junction.

10.3.16 Existing Annual Average Daily Traffic (AADT) flows, and the proportions of Heavy Duty Vehicles (HDVs), for roads adjacent to the site have been provided by the project transport consultants (PBA) from counts carried out for the project. Traffic data used in this assessment are summarised in Appendix E.3

10.3.17 The baseline year for the traffic data is 2014, and the model has been verified against 2013 monitoring data and meteorological data from the Herstmonceux monitoring station, which is considered suitable for this area (see Appendix E.2 for further details of the verification method).

10.3.18 Emissions were calculated using the recently released Emission Factor Toolkit (EFT) v6.0.1c, which utilises NOx emission factors taken from the European Environment Agency COPERT 4 (v10) emission tool. The traffic data were entered into the EFT, along with speed data to provide combined emission rates for each of the road links entered into the model.

10.3.19 Nitrogen deposition has been calculated from the predicted nitrogen dioxide concentrations using a deposition velocity of 3mm/s for the woodland habitat located at the proximity of the site.

Significance

10.3.20 There is no official guidance in the UK on how to assess the significance of air quality impacts of existing sources on a new development. The approach developed by the Institute of Air Quality Management[3], and incorporated in Environmental Protection UK's guidance document on planning and air quality[4], has therefore been used.

10.3.21 The guidance sets out three stages: determining the magnitude of change at each receptor, describing the impact, and assessing the overall significance. Impact magnitude relates to the change in pollutant concentration; the impact description relates this change to the air quality objective.

10.3.22 **Table 10.9** sets out the impact magnitude descriptors, whilst **Table 10.10** sets out the impact descriptors.

Table 10.9: Impact Magnitude for Changes in Ambient Pollutant Concentrations

Magnitude	Annual Mean NO_2 and PM_{10}	Annual Mean $PM_{2.5}$	Number of Days with PM_{10} >50µg/m^3
Large	> 4µg/m^3	> 2.5µg/m^3	> 4 days
Medium	2 – 4µg/m^3	1.25 – 2.5 µg/m^3	3 – 4 days
Small	0.4 – < 2µg/m^3	0.25 – < 1.25µg/m^3	1 – 2 days
Imperceptible	< 0.4µg/m^3	< 0.25µg/m^3	< 1 day

3 Institute of Air Quality Management, 2009. Position on the Description of Air Quality Impacts and the Assessment of their Significance, November 2009. The IAQM is the professional body for air quality practitioners in the UK.

4 EPUK, 2010. Development Control: Planning for Air Quality (2010 Update)

Table 10.10: Impact Descriptor for Changes in Concentration at a Receptor

Absolute concentration with the development in relation to Objective / Limit Value	Change in concentration		
	Small	Medium	Large
Above objective/limit value (a)	Slight	Above objective/limit value (a)	Slight
Just below objective/limit value (b)	Slight	Just below objective/limit value (b)	Slight
Below objective/limit value (c)	Negligible	Below objective/limit value (c)	Negligible
Well below objective/limit value (d)	Negligible	Well below objective/limit value (d)	Negligible

Where the Impact Magnitude is Imperceptible, the Impact Descriptor is Negligible.
Where there is an increase in concentrations, the absolute concentration relates to the 'with development' air quality. Where there is a decrease in concentrations, the absolute concentration relates to the 'without development' air quality. Where concentrations increase the impact is described as adverse, and where it decreases as beneficial.
(a) Above: >40 µg/m^3 annual mean NO^2 or PM_{10}, or >25 µg/m^3 annual mean $PM_{2.5}$, or >35 days PM_{10} >50 µg/m^3
(b) Just below: 36 – 40 µg/m^3 annual mean NO_2 or PM_{10}, or 22.5 – 25 µg/m^3 annual mean $PM_{2.5}$, or 32 – 35 days PM_{10} > 50 µg/m^3
(c) Below: 30 – <36 µg/m^3 annual mean NO_2 or PM_{10}, or 18.75 – <22.5 µg/m^3 of annual mean $PM_{2.5}$, or 26 – <32 days PM_{10} > 50 µg/m^3

10.3.23 The guidance states that the assessment of significance should be based on professional judgement, taking into account the following factors, with the overall air quality effect of the scheme described as either 'insignificant', or of 'minor', 'moderate' or 'major' significance:

- Number of properties affected by slight, moderate or substantial air quality impacts and a judgement on the overall balance.
- The magnitude of the changes and the descriptions of the impacts at the receptors i.e. **Tables 10.9** and **Table 10.10.** findings;
- Whether or not an exceedence of an objective or limit value is predicted to arise in the study area where none existed before or an exceedence area is substantially increased;
- Whether or not the study area exceeds an objective or limit value and this exceedence is removed or the exceedence area is reduced;
- Uncertainty, including the extent to which worst-case assumptions have been made; and
- The extent to which an objective or limit value is exceeded.

10.4 Baseline Conditions

10.4.1 Hastings Borough Council (HBC) has investigated air quality within its area as part of its responsibilities under the LAQM regime. To date, it has declared one AQMA located along Bexhill Road in Bulverhythe for exceedences of particulate matter PM10 objectives. The proposed development site lies approximately 4.5km from the site. Given the location and the distance between the proposed development and the AQMA significant changes in traffic as a result of the development are unlikely to have a significant adverse effect on the AQMA.

Monitoring

10.4.2 HBC carries out nitrogen dioxide monitoring using diffusion tubes at several locations within the Council. The nearest monitoring locations from the proposed development site are presented in Table 10.11 and shown in Figure 1 in Appendix E.1. The closest one is located at St Lukes Church Alma Terrace. However, for model verification purposes the monitoring location used is the one located at 116 Bohemia Road given its proximity to the main road.

10.4.3 There is no particulate matter PM10 monitoring in the proximity of the proposed development site.

Table 10.11: Diffusion Tube Results 2013 (µg/m^3)

ID	Location	Type	2013
DT1	St Lukes Church Alma Terrace	Roadside	22.24
DT2	116 Bohemia Road	Roadside	**40.34**
Objectives			**40**

Exceedences of the objective in bold.
2013 data provided by HBC
National bias factor used for 2013: 0.95
There is an absence of previous years monitoring data for the study area.

10.4.4 Measured nitrogen dioxide concentrations for 2013 are below the annual mean nitrogen objective at one of the locations, whilst the objective was exceeded at 116 Bohemia Road. The measured concentrations at Bohemia Road are unusually high for the traffic flows on the road. The measured concentrations may therefore be influenced by specific local factors.

Background Concentrations

10.4.5 In addition to measured concentrations, estimated background concentrations for the study area have been obtained from the national maps published by Defra. (**Table 10.12**).

10.4.6 For Human Health and Ecological receptors, the background concentrations are well below the relevant objectives in 2013.

Table 10.12: Estimated Annual Mean Background Concentrations (µg/m^3)

Year	NO_x	NO_2	PM_{10}	$PM_{2.5}$
2013	17.8	13.8	17.4	11.6
Objectives	**30**[a]	**40**[b]	**40**[b]	**25**[b]

[a] Ecosystem; [b] Human Health

Baseline Deposition – Ecological Receptors

10.4.7 The three year average (2009 – 2011) nitrogen and acid deposition rates for the designated site sensitive to either nitrogen or acid deposition are presented in **Table 10.13**; data have been taken from the APIS website. The APIS data does not include future year predictions and therefore on a conservative basis, the APIS baseline is assumed constant for the year assessments.

Table 10.13: Baseline Deposition Rates

Designated Sites	Nitrogen Deposition (kgN/ha/yr)	Acid Deposition	
		(keqN/ha/yr)	(keqS/ha/yr)
Broadleaved and mixed woodlands	27.58	1.97	0.25

Predicted Baseline Concentrations

Human Health Receptors

10.4.8 The ADMS-Roads model has been run to predict baseline nitrogen dioxide, PM_{10} and $PM_{2.5}$ concentrations at each of the existing receptors locations identified in **Table 10.8** for the baseline years of 2013 and 2016. The predicted baseline concentrations of NO_2, PM_{10} and $PM_{2.5}$ are shown in **Table 10.14**.

Table 10.14: Predicted Concentrations of NO_2, PM_{10} and $PM_{2.5}$ in 2013 and 2016

Receptor	NO_2		PM_{10}				$PM_{2.5}$	
	Annual Mean ($\mu g/m^3$)		Annual Mean ($\mu g/m^3$)		Number of Days >50$\mu g/m^3$ [a]		Annual Mean ($\mu g/m^3$)	
	2013	2016	2013	2016	2013	2016	2013	2016
R1	20.0	22.5	17.6	18.2	1	2	12.2	12.5
R2	34.0	36.4	19.9	21.0	3	5	13.2	13.9
R3	32.0	34.3	20.5	21.5	4	5	13.5	14.1
R4	30.0	32.3	20.2	21.0	4	5	13.3	13.8
R5	34.3	37.6	19.5	20.8	3	4	13.4	14.2
R6	20.7	23.1	18.4	18.9	2	2	12.2	12.5
Objectives	**40**		**40**		**35**		**25**	

Exceedances highlighted in bold

[a] The number of days with PM_{10} concentrations greater than 50$\mu g/m^3$ have been estimated from the relationship with the annual mean concentrations described in Defra, 2009.

10.4.9 The annual mean nitrogen dioxide objective is predicted not to be exceeded at any of the existing receptors in 2013 and 2016. Predicted baseline concentrations of PM_{10} and $PM_{2.5}$ are well below the objectives in 2013 and 2016. The predicted baseline concentrations increase between 2013 and 2016 due to the completion of the Bexhill Link Road altering traffic patterns in the area, increase traffic flows and therefore pollutant concentrations.

Ecological Receptors

10.4.10 Predicted concentrations and deposition rates for the baseline years is presented in **Table 10.15**.

Table 10.15: Predicted Baseline Concentrations at Ecological Receptors in 2013 and 2016

Receptor and Distance in Habitat	Distance from kerb (m)	Total NOx ($\mu g/m^3$)		Nitrogen Deposition (kgN/ha/yr)		Acid Deposition (keqN/ha/yr)	
		2013	2016	2013	2016	2013	2016
E1 0m	0	24.1	25.9	**28.5**	**28.8**	2.35	2.39
E1 5m	5	24.2	26.0	**28.5**	**28.8**	2.36	2.39
E1 10m	10	24.3	26.1	**28.5**	**28.8**	2.36	2.39
E1 15m	15	24.4	26.1	**28.6**	**28.8**	2.36	2.40
E1 20m	20	24.5	26.2	**28.6**	**28.8**	2.36	2.40
E1 30m	30	24.7	26.5	**28.6**	**28.9**	2.37	2.40
E1 40m	40	24.9	26.7	**28.6**	**28.9**	2.37	2.41
E1 50m	50	25.1	26.9	**28.7**	**28.9**	2.37	2.41
E1 75m	75	25.7	27.5	**28.7**	**29.0**	2.39	2.43
E1 100m	100	26.4	28.3	**28.9**	**29.1**	2.40	2.44
E1 125m	125	27.3	29.2	**29.0**	**29.3**	2.42	2.46
E1 150m	150	28.5	**30.4**	**29.2**	**29.4**	2.45	2.48
E1 175m	175	**30.2**	**32.2**	**29.4**	**29.7**	2.48	2.52
E1 200m	200	**33.1**	**35.2**	**29.8**	**30.1**	2.54	2.58
Critical Level/Load		**30**		**10 - 20**		**0.14 – 2.95**	

Exceedences highlighted in bold

10.4.11 In 2013, the NOx critical level is predicted to be exceeded at 175m and 200m from the development site, whilst in 2016 the critical level is predicted to be exceeded from 150m up to 200m. The nitrogen deposition critical level is predicted to be exceeded at all distances from the proposed site in 2013 and 2016. There are no predicted exceedences of the critical loads of acid deposition within the habitat.

10.4.12 The distances in the habitat are from the kerb of the Queensway Gateway Road. In the baseline situation, the road does not exist. Predicted concentrations and deposition therefore increase as one moves further from the location of the road and one gets nearer to the A2100.

10.5 Assessment and Mitigation of Construction Effects

10.5.1 The main potential effects during construction are dust deposition and elevated PM_{10} concentrations. The following activities have the potential to cause emissions of dust:

- site preparation including delivery of construction material, erection of fences and barriers;
- demolition of existing buildings on site;
- earthworks including digging foundations and landscaping;
- materials handling such as storage of material in stockpiles and spillage;
- construction and fabrication of units; and
- disposal of waste materials off-site.

10.5.2 Typically the main cause of unmitigated dust generation on construction sites is from demolition and vehicles using unpaved haul roads, and off-site from the suspension of dust from mud deposited on local roads by construction traffic. The main determinants of unmitigated dust annoyance are the weather and the distance to the nearest receptor.

10.5.3 Based on the IAQM criteria (**Table 10.5**), the risk of dust emissions is considered to be medium. The study area is considered to be of medium sensitivity (**Table 10.6**), due to the presence of residential properties within a 100m of the proposed site. In addition, the area sensitivity for the ecological receptor is considered to be medium, due to the presence of a locally designated site of particular interest. Appropriate mitigation corresponding to a medium risk site is therefore required during the construction phase.

10.5.4 The following standard medium risk mitigation measures from IAQM 2014 guidance are recommended. These should be included within a Construction Environmental Management Plan (CEMP) and agreed with Local Authority.

Communication

- Develop and implement a stakeholder communications plan.
- Display the name and contact details of persons accountable on the site boundary.
- Display the head or regional office information on the site boundary.

Management

- Develop and implement a dust management plan.
- Record all dust and air quality complaints, identify causes and take measures to reduce emissions.
- Record exceptional incidents and action taken to resolve the situation.
- Carry out regular site inspections to monitor compliance with the dust management plan and record results.
- Increase site inspection frequency during prolonged dry or windy conditions and when activities with high dust potential are being undertaken.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible.
- Erect solid screens or barriers around dusty activities or the site boundary at least as high as any stockpile on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site run off of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove potentially dusty materials from site as soon as possible.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary.

- Avoid the use of diesel or petrol powered generators where possible.
- Produce a Construction Logistics Plan to manage the delivery of goods and materials.
- Only use cutting, grinding and sawing equipment with dust suppression equipment.
- Ensure an adequate supply of water on site for dust suppressant.
- Use covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use water sprays on such equipment where appropriate.
- Ensure equipment is readily available on site to clean up spillages of dry materials.
- No on-site bonfires and burning of waste materials on site.

Earthworks

- Re-vegetate earthworks and exposed areas /soil stockpiles to stabilise surfaces as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless required for a particular process.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankersand stored silos with suitable emissions control systems.
- Trackout
- Use water assisted dust sweepers on the site access and local roads.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving the site are covered to prevent escape of materials.
- Record inspection of on-site haul routes and any subsequent action, repairing as soon as reasonably practicable.
- Install a wheel wash with a hard-surfaced road to the site exit where site layout permits.
- The site access gate to be located at least 10m from receptors where possible.

10.6 Assessment and Mitigation of Operation Effects

Human Health Receptors

10.6.1 Predicted concentrations of nitrogen dioxide, PM_{10} and $PM_{2.5}$ at existing receptors in 2016, both with and without the development in place, are presented in **Table 10.16**.

Table 10.16: Predicted Concentrations of Nitrogen Dioxide, PM_{10} and $PM_{2.5}$ for Receptors

Receptor	Without Development				With Development			
	NO_2	PM_{10}		$PM_{2.5}$	NO_2	PM_{10}		$PM_{2.5}$
	Annual Mean[a]	Annual Mean[a]	Days[b]	Annual Mean[a]	Annual Mean[a]	Annual Mean[a]	Annual Mean[a]	Annual Mean[a]
R1	22.5	18.2	2	12.5	24.3	18.5	2	12.7
R2	36.4	21.0	5	13.9	**44.8**	22.6	7	14.9
R3	34.3	21.5	5	14.1	36.0	21.8	6	14.3
R4	32.3	21.0	5	13.8	34.5	21.5	5	14.1
R5	37.6	20.8	4	14.2	**48.6**	23.2	9	15.7
R6	23.1	18.9	2	12.5	25.4	19.3	3	12.8
Objectives	**40**	**40**	**40**	**25**	**40**	**35**	**35**	**25**

Exceedences highlighted in bold
[a] Concentrations in µg/m^3

[b] The number of days with PM_{10} concentrations greater than 50µg/m^3 have been estimated from the relationship with the annual mean concentrations described in Defra, 2009.

10.6.2 The annual mean nitrogen dioxide objective is predicted to be exceeded in two existing properties, namely R2 and R5 with the proposed development in place.

10.6.3 The changes in annual mean concentrations and the number of days with PM_{10} concentrations greater than 50µg/m^3 are presented in **Table 10.17**.

Table 10.17: Change in Predicted Concentrations brought about by the Development

Receptor	NO_2	PM_{10}		$PM_{2.5}$
	Annual Mean (µg/m^3)	Annual Mean (µg/m^3)	Number of Days >50µg/m^3 [a]	Annual Mean (µg/m^3)
R1	1.9	0.4	0	0.2
R2	8.4	1.6	3	1.0
R3	1.7	0.3	1	0.2
R4	2.2	0.4	1	0.3
R5	11.0	2.4	4	1.5
R6	2.3	0.4	0	0.3

[a] Based on unrounded numbers

10.6.4 Based on the impact magnitude descriptors presented in **Table 10.9**, the changes in annual mean nitrogen dioxide concentrations range from small to large with the development in place, whilst the changes in PM_{10} and $PM_{2.5}$ concentrations and the number of days with PM_{10} concentrations greater than 50µg/m^3, range from imperceptible to large.

10.6.5 Using the criteria set out in **Table 10.10** and in **paragraph 10.3.27**, the impact on PM_{10} concentrations are negligible except from R5 which is considered to be slightly adverse. $PM_{2.5}$ concentrations are described as not significant at all existing receptors.

10.6.6 The impacts on annual mean nitrogen dioxide concentrations are all described to be as negligible for R1 and R6, slight adverse at receptors R3 and R4 and substantial adverse at receptors R2 and R5.

Ecological Receptors

10.6.7 Predicted concentrations and deposition rates with and without the development in place are contained in **Table 10.18.**

Table 10.18: Predicted Concentrations at Ecological Receptors in 2016 with and without the development

Receptor and Distance in Habitat	Without Development			With Development		
	Total NO_x (µg/m^3)	Nitrogen Deposition (kgN/ha/yr)	Acid Deposition (keqN/ha/yr)	Total NO_x (µg/m^3)	Nitrogen Deposition (kgN/ha/yr)	Acid Deposition (keqN/ha/yr)
E1 0m	25.9	**28.8**	2.39	**178.3**	**44.5**	**4.6**
E1 5m	26.0	**28.8**	2.39	**102.7**	**37.9**	**3.7**
E1 10m	26.1	**28.8**	2.39	**78.0**	**35.4**	**3.3**
E1 15m	26.1	**28.8**	2.40	**65.4**	**34.0**	**3.1**
E1 20m	26.2	**28.8**	2.40	**57.8**	**33.0**	**3.0**
E1 30m	26.5	**28.9**	2.40	**49.0**	**31.9**	2.8
E1 40m	26.7	**28.9**	2.41	**44.2**	**31.3**	2.8
E1 50m	26.9	**28.9**	2.41	**41.1**	**30.9**	2.7
E1 75m	27.5	**29.0**	2.43	**36.9**	**30.3**	2.6
E1 100m	28.3	**29.1**	2.44	**35.0**	**30.1**	2.6
E1 125m	29.2	**29.3**	2.46	**34.2**	**30.0**	2.6
E1 150m	**30.4**	**29.4**	2.48	**34.1**	**29.9**	2.6
E1 175 m	**32.2**	**29.7**	2.52	**34.7**	**30.0**	2.6
E1 200m	**35.2**	**30.1**	2.58	**36.4**	**30.3**	2.6
Critical Level/Load	**30**	**10 - 20**	**0.14 – 2.95**	**30**	**10 - 20**	**0.14 – 2.95**

Exceedences highlighted in bold

10.6.8 The NOx and nitrogen deposition critical levels are predicted to be exceeded at all distances with the development in place, whilst the acid deposition critical loads are predicted to be exceeded for up to 20m from the proposed development.

10.6.9 The changes in the total NOx, Nitrogen Deposition and Acid Deposition brought about by the proposed development are presented in Table 10.17.

Table 10.19: Predicted Proposed Development Contribution in 2016

Receptor and Distance in Habitat	2016 Proposed Development Contribution					
	Total NO_x ($\mu g/m^3$)		Nitrogen Deposition (kgN/ha/yr)		Acid Deposition (keqN/ha/yr)	
	NO_x	%	N Deposition	%	Acid Deposition	%
E1 0m	152.4	508.2	15.7	156.8	1.12	799.8
E1 5m	76.7	255.7	9.1	91.4	0.65	466.4
E1 10m	52.0	173.2	6.6	65.8	0.47	335.6
E1 15m	39.3	130.9	5.1	51.3	0.37	261.8
E1 20m	31.6	105.2	4.2	42.1	0.30	214.7
E1 30m	22.6	75.3	3.1	30.8	0.22	157.2
E1 40m	17.5	58.3	2.4	24.2	0.17	123.4
E1 50m	14.2	47.3	2.0	19.8	0.14	100.9
E1 75m	9.4	31.3	1.3	13.2	0.09	67.3
E1 100m	6.7	22.4	0.9	9.5	0.07	48.3
E1 125m	5.0	16.6	0.7	7.0	0.05	35.9
E1 150m	3.7	12.2	0.5	5.1	0.04	26.2
E1 175m	2.5	8.5	0.4	3.5	0.03	18.1
E1 200m	1.3	4.3	0.2	1.8	0.01	9.1

10.6.10 Impacts at 0m from the Queensway Gateway are on the kerb of the road and are therefore predicted to be very high. The impact reduces as one moves away from the kerb of the road.

Uncertainty

10.6.11 There are many components that contribute to the uncertainty in predicted concentrations. The model used in this assessment is dependent upon the traffic data that have been input which will have inherent uncertainties associated with them. There is then additional uncertainty as the model is required to simplify real-world conditions into a series of algorithms.

10.6.12 A disparity between the national road transport emission projections and measured annual mean concentrations of nitrogen oxides and NO2 has been identified in recent years[5]. Whilst projections suggest that both annual mean nitrogen oxides and nitrogen dioxide concentrations from road traffic emissions should have fallen by around 15-25% over the past 6 to 8 years, at many monitoring sites levels have remained relatively stable, or have even shown a slight increase. Whilst monitoring carried out by WCC shows a slight overall reduction in concentrations since 2009, the fact that concentrations have not fallen as rapidly as was previously anticipated means that a conservative approach needs to be adopted regarding future air quality predictions.

10.6.13 The complete development modelling has been based on 2013 emission factors and background concentrations, whilst utilising traffic flows for 2014 (baseline) and 2016 (future year predictions). The model has been verified against 2013 monitoring data from one diffusion tube location and the resultant verification factor is considered to be relatively high. Overall, the assessment is considered to be conservative. With future reductions in vehicle emission factors, the predicted concentrations and deposition rates are likely to reduce significantly from those predicted herein.

10.7 Assessment and Mitigation of Cumulative Effects

10.7.1 There are no committed developments in the vicinity of the site; therefore cumulative effects are not significant.

Operational

10.7.2 The future year traffic data utilised within the assessment is taking into account all committed developments in the area. The assessment has therefore predicted the cumulative concentrations arising from committed developments in the surrounding area.

5 Carslaw, D, Beevers, S, Westmoreland, E and Williams, M, 2011. Trends in NOx and NO2 emissions and ambient measurements in the UK. Available at: http://uk-air.defra.gov.uk/library/reports?report_id=645

10.8 Summary

10.8.1 An assessment of the air quality effects of the Queensway Gateway Road has been undertaken.

10.8.2 Construction of the development has the potential to create fugitive dust; however the effects can be effectively mitigated by employing a range of measures. With mitigation in place, construction phase effects are not predicted to be significant.

10.8.3 The effect of road traffic emissions on existing human health receptors has been determined. A conservative approach has been taken to the selection of vehicle emission factors and background concentrations.

10.8.4 The effect of the development on existing residential receptors is predicted to be of moderate adverse significance due to the increase in concentrations that result from the Queensway Gateway Road.

10.8.5 For the Hollington Valley Site of Nature Conservation Importance (SNCI) the increases in NO_x concentrations and nitrogen and acid deposition are predicted to be significant.

10.9 References

Air Pollution Information System (APIS) (2014). Available at: http://www.apis.ac.uk/

Carslaw, D., Beevers, S., Westmoreland, E. and Williams, M. (2011). Trends in NOx and NO2 emissions and ambient measurements in the UK. Available: http://uk-air.defra.gov.uk/library/reports?report_id=645.

Department of the Environment, Food and Rural Affairs (Defra) (2014). 2011 Based Background Maps for NOx, NO2, PM10 and PM2.5. Available: http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2011

Department of the Environment, Food and Rural Affairs (Defra) in partnership with the Scottish Executive, The National Assembly for Wales and the Department of the Environment for Northern Ireland (2009). Local Air Quality Management Technical Guidance, LAQM.TG(09). HMSO, London.

Department of the Environment, Transport and the Regions (DETR, 2007) in Partnership with the Welsh Office, Scottish Office and Department of the Environment for Northern Ireland (2007). The Air Quality Strategy for England, Scotland, Wales, Northern Ireland, HMSO, London.

Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction, IAQM, London

Environmental Act 1995, Part IV.

Statutory Instrument 2000, No 921, The Air Quality (England) Regulations 2000, HMSO, London.

Statutory Instrument 2002, No 3034, The Air Quality (England) (Amendment) Regulations 2002, HMSO, London.

Statutory Instrument 2007, No. 64, The Air Quality Standards Regulations 2007, HMSO, London

11 Ecology and Nature Conservation

11.1 Introduction

11.1.1 This chapter has been produced by Applied Ecology Ltd (AEL) and provides an Ecological Impact Assessment (EcIA) of the proposed Queensway Gateway Road development. The EcIA has been informed by ecology baseline survey work undertaken by AEL in 2013/14. Full details of the ecology surveys are provided by the 2013 Phase 1 ecology report (desk-top data review and habitat and walkover survey) and the 2014 technical ecology report (protected animal species surveys). These technical reports are provided in **Appendices F.1** and **F.2**, respectively.

11.2 Policy Context

International Policy

11.2.1 In May 1992, the UK and other European Union governments adopted legislation to protect Europe's most important habitats and species. The so called 'Habitats Directive' compliments the earlier 'Birds Directive' adopted in 1979. At the heart of both Directives is the creation of a Europe-wide network of protected sites, known as Natura 2000. The Birds Directive requires the establishment of Special Protection Areas (SPAs) of ornithological importance, and the Habitats Directive requires Special Areas of Conservation (SACs) to be designated for other animal species, and habitats. Together, both SPAs and SACs make up the Natura 2000 series.

11.2.2 The Habitats Directive was adopted into national legislation in 1994 in the form of the Conservation (Natural Habitats etc.) Regulations 1994. In the UK, all terrestrial Natura 2000 sites are already notified as Sites of Special Scientific Interest (SSSIs). The Conservation of Habitats and Species Regulations 2010 consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales.

National Policy

11.2.3 The Wildlife and Countryside Act 1981 (as amended) provides the main legal framework for nature conservation and species protection in the UK. The SSSI is the main statutory nature conservation designation in the UK. Such sites are notable for their plants, or animals, or habitats, their geology or landforms, or a combination of these. Natural England is the key statutory agency in England for advising Government, and for acting as the Government's agent in the delivery of statutory nature conservation designations.

11.2.4 Designation of a SSSI is a legal process, by which sites are notified under the Wildlife and Countryside Act 1981. The 1981 Act makes provision for the protection of sites from the effects of changes in land management, and owners and occupiers receive formal notification specifying why the land is of special scientific interest, and listing any operations likely to damage the special interest.

11.2.5 The Countryside and Rights of Way Act 2000, and The Natural Environment and Rural Communities (NERC) Act 2006, provide supplementary protected species legislation. Specific protection for badgers is provided by the Protection of Badgers Act 1992.

National Planning Policy Framework

11.2.6 The National Planning Policy Framework (NPPF) was published in March 2012 and replaces previous planning policy guidance (PPS 9) on biodiversity. NPPF states in Chapter 9 paragraph 118 the following in relation to biodiversity and planning:

"When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*

- *Proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;*
- *Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *Opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and the following wildlife sites should be given the same protection as European sites:*
- *Potential Special Protection Areas and possible Special Areas of Conservation; listed or proposed Ramsar sites; and*
- *Sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

The presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined."

Local Policy

11.2.7 Hastings Borough Council is in the process of preparing a new 'Local Plan'. In the meantime, a number of policies from the Hastings Local Plan 2004 have been saved. Of these, the following are of relevance to the proposed development.

Policy NC2 - Sites of Special Scientific Interest

"Designated Sites of Special Scientific Interest (SSSIs) will be safeguarded and protected. Proposals for development within SSSIs, or likely to have an adverse effect on them directly or indirectly, will be subject to special scrutiny and will not be permitted unless:-

a) The need for development outweighs the national importance of the site for nature conservation and/or geological interest;

b) It is not possible to meet the need for the development on an alternative site; and

c) Any harm to the nature conservation and/or geological interest of the site is kept to a minimum.

"Where development is permitted, the Council may attach planning conditions and/or may seek to enter into legal agreement(s) to ensure the continuing protection and enhancement of the nature conservation and/or geological interest and to provide appropriate compensatory measures and/or site management."

Policy NC3 - Local Nature Reserves

"Areas designated or proposed as Local Nature Reserves (LNRs) will be safeguarded and protected. Proposals for development within Local Nature Reserves, or likely to have an adverse effect on them directly or indirectly, will not be permitted unless:-

a) the need for development outweighs the importance of the site for nature conservation; and

b) any harm to the nature conservation interest of the site is kept to a minimum.

Where development is permitted, the Council may attach planning conditions and/or may seek to enter into legal agreement(s) to ensure the continuing protection and enhancement of the nature conservation interest and to provide compensatory measures and/or site management."

Policy NC6 - Sites of Nature Conservation Importance

"Development proposals within or adjacent to Sites of Nature Conservation Importance will not be permitted unless there is a local need which outweighs any harm to the nature conservation interest. The Council may attach conditions to any planning permission and/or may seek to enter into agreement(s) to minimise the harm and/or secure the protection, enhancement and management of the nature conservation interest."

Policy NC8 - General Planning Requirements

"Development proposals will be required to minimise damage to wildlife and habitats. Wherever possible, development should:-

a) Retain features of biodiversity importance such as woodland, trees, hedgerows, wetland habitats, herb rich grassland, watercourses, geological features and other natural features or habitats and protect them during construction;

b) Avoid fragmenting habitats and isolating species;

c) Where the loss of existing wildlife habitats or geological features is unavoidable, keep the loss to a minimum and provide compensation through the creation of replacement habitats or other appropriate measures;

d) Incorporate, wherever appropriate, creative conservation measures which contribute to a net gain in biodiversity such as the development of new wildlife habitats;

e) Incorporate the greatest possible proportion of appropriate native vegetation in any landscaping or planting scheme, except where special requirements of purpose or location dictate otherwise;

f) Incorporate the maximum possible area of permeable ground surface and take such steps as are necessary to regulate surface water flows from impermeable surfaces in the interests of nature conservation;

g) Seek to incorporate wildlife habitats in the design of built structures; and

h) Positively address adjacent or proximate nature conservation interests.

These measures will be achieved through the use of planning conditions or Section 106 agreements where appropriate".

Policy NC9 - Information to Accompany Planning Applications

"When considering planning applications, the Borough Council will require the submission of the information set out below where this is necessary to assess the impact of proposed developments on habitats, wildlife, landscape and the Green Network:-

a) An ecological assessment providing sufficient information to meet the Council's requirements and detailing the nature conservation resource of the area affected by the application, the potential impact of the development proposed, and any suggested measures to protect existing habitats or species and/or measures to mitigate and/or compensate for any harmful impacts on them;

b) An accurate survey of all existing trees, hedges and shrubs including those affected by the proposed development;

c) Proposed changes to ground levels and drainage, existing or proposed services;

d) Proposed protection measures for existing vegetation, single or groups of trees, ponds, or any other habitats from the effect of the development or construction operations;

e) Landscape schemes and re-instatement proposals giving full details of planting species, species mix, plant specifications and densities;

f) Where appropriate, a full maintenance plan for any reinstatement or landscape works;

g) Where proposals affect existing or adjacent woodland, the identification and preservation of a suitable and viable woodland edge."

Policy NC10 - Ancient Woodland

"Planning permission will not be granted for development that would adversely affect an area of ancient woodland shown on the Proposals Map. The layout of any development encroaching into, or close to, such woodland must take account of the designation and be designed so as to minimise the impact upon it. The Council may impose conditions on any planning permission and/or seek to enter into legal agreement(s) to secure the protection, enhancement and management of ancient woodland affected, directly or indirectly, by development proposals."

Policy NC11 - Preserved Woodland

"Planning permission will not be granted for development within 20 metres of the boundary of any existing preserved woodland of more than 0.4 ha (1 acre) in area unless it includes adequate protection for the trees. If necessary, conditions will be imposed on the planning permission(s) to ensure that protection."

UK Biodiversity Action Plan

11.2.8 The UK Biodiversity Action Plan describes the UK's biodiversity resource and commits a detailed plan for its protection. This national plan is delivered through Local Biodiversity Action Plans, which use partnership working to identify local priorities in order to achieve national targets.

11.3 Methodology

Review of Existing Ecological Information

11.3.1 Existing biological data for the site and surrounding land (1km buffer), including information relating to statutory and non-statutory sites, and protected and BAP species, was provided by Sussex Biological Records Centre (SxBRC). The SxBRC Desktop Biodiversity Report (ref: ESD/13/363) was received on 4 July 2013.

11.3.2 It is also of note that AEL has undertaken a range of protected species animal survey in the local area over the past 10 years and can draw on significant local experience in protected species issues that might be pertinent to the site.

Field Surveys

11.3.3 The following desk-top and field surveys have been completed by AEL over the period 2013/14. Full details of survey methods are provided in the technical ecology reports.

2013 Survey Scope

- A phase 1 habitat survey;
- A repeat breeding bird survey ;
- An amphibian funnel-trapping visit to a single pond located within 100m of the proposed development area;
- An overnight automated bat detector survey, and
- A general protected species walkover.

2014 Survey Scope

- Dormouse survey – fifty dormouse tubes were installed in January 2014, with checks of the tubes completed between June and August 2014 until dormouse presence was verified.
- Breeding bird survey – undertaken 1 and 21 May, and 11 June 2014.

- Bat activity survey – automated detector and transect surveys in May and June 2014, and tree roost emergence survey in September 2014.
- Tree inspections for bat roosting potential – undertaken in September 2014.
- Reptile survey – 360 tins (felt mats) were placed out in areas of suitable grassland on 30 April 2014, with checks made 21 and 28 May; 11, 23, 24 and 27 June; and 9 July 2014.
- Badger survey – a full search for badger setts and field signs was undertaken in January 2014, with a follow-up survey of select areas in September 2014.
- A watching brief for additional signs of badger activity and notable plants was maintained during the course of the 2014 survey work.

Approach to Ecological Impact Assessment

11.3.4 EcIA is based on a number of factors, primarily consideration of the value of a site or feature being assessed, and the anticipated magnitude of the resulting impact. The Chartered Institute of Ecology and Environmental Management (CIEEM) has produced guidelines to assist with ecological evaluation and impact assessment which have been adapted by AEL and are used only as a general guide in this assessment. The IEEM (2006) guidelines have no legal standing and are not a substitute for professional judgement and interpretation, particularly where the ecological value of a site and/or impact magnitudes are not clear or are borderline.

Valuing Ecological Receptors

11.3.5 Ecological receptors are normally valued according to specific 'biodiversity benefits' that they provide to the environment, people or wider society. These benefits can include the conservation of genetic diversity, people's enjoyment or understanding of biodiversity, or the health benefits of biodiversity. A summary of an approach to valuing ecological receptors is presented in Table 11.1. The table shows how ecological value can be ascertained using a combination of statutory measures (legally protected sites and species) and non-statutory but widely accepted measures, such as the presence of notable habitats and species listed in BAPs.

11.3.6 Use can also be made of the Ratcliffe assessment criteria which provide a standardised way of assessing and selecting sites with nature conservation value. The method assesses value according to ten attributes, namely size, diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological / geographical unit, potential value and intrinsic appeal. All these criteria can vary at different geographical scales.

Table 11.1: An approach to valuing ecological receptors

Level of value	Examples
International	An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site, Biogenetic Reserve) or an area which NE has determined meets the published selection criteria for such designations, irrespective of whether or not it has yet been notified. A viable area of a habitat type listed in Annex 1 of the Habitats Directive, or smaller areas of such habitat that is essential to maintain the viability of that ecological resource. Any regularly occurring population of an internationally important species, i.e. those listed in Annex 1, 2 or 4 of the Habitats Directive.
National	A nationally designated site (SSSI, NNR, Marine Nature Reserve) or a discrete area which NE has determined meets the published selection criteria for national designation irrespective of whether or not it has yet been notified. A regularly occurring population of a nationally important species i.e. a priority species listed in the UK BAP and/or Schedules 1, 5 (S9 (1, 4a, 4b)) or 8 of the Wildlife and Countryside Act, or a UK Red Data Book species.
County / Regional	Non-statutory designated wildlife sites (e.g. LWSs, SNCIs and SINCs), and areas of semi-natural Ancient Woodland greater than 0.25 ha. Viable areas of key habitats identified in local/county BAPs or smaller areas of such habitats that are essential to maintain the viability of that ecological resource. Any regularly occurring, locally significant population of a species listed as being nationally scarce (occurring in 16-100 10 km squares in the UK) or in a relevant local/county BAP on account of its rarity or localisation.
Local	Other sites which the designating authority has determined meet the published ecological

	selection criteria for designation at the local level. Sites/features that are scarce within the local area or which appreciably enrich the local area's habitat resource.
Neighbourhood	Commonplace and widespread semi-natural habitats e.g. scrub, poor semi-improved grassland, coniferous plantation woodland and intensive arable farmland.
Less than neighbourhood / Negligible	Habitats of little or no ecological value e.g. amenity grassland or hard standing.

Magnitude of Effect

11.3.7 Effect magnitude refers to changes in the extent and integrity of an ecological receptor. There are many definitions of ecological integrity but the term is used here in the context of the definition adopted by the Office of the Deputy Prime Minister Circular 06/2005 on Biodiversity and Geological Conservation whereby designated site integrity refers to:

"…coherence of ecological structure and function…that enables it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified."

11.3.8 The Circular does not define integrity in relation to non-designated areas, but the principles can equally be applied to such areas. Therefore, for the purpose of this assessment, integrity for non-designated areas is defined as follows:

"…the coherence of ecological structure and function, that enables it [the site, habitat or population] to maintain the habitats, complex of habitats and/or levels of populations of species in its/their pre-development condition".

11.3.9 Simplified criteria for describing impact magnitude are summarised in Table 11.2.

Table 11.2: An approach to valuing ecological receptors

Impact magnitude	Description
High	A large-scale permanent change in the receptor and changes in its overall integrity.
Medium	A permanent change in the receptor but no permanent change in overall integrity.
Low	A small-scale permanent change or mid-term temporary change in the receptor but its overall integrity is not permanently affected.
Neutral	No change in the receptor.

Significance of Effects

11.3.10 The predicted significance of the effect is determined through a standard method of assessment based on professional judgement, considering both receptor value and magnitude of change. Combining ecological value, or sensitivity, and effect magnitude gives ecological effect significance. Effects judged to be of major or moderate significance are considered to be 'significant' effects in context of the EIA Regulations and would usually require some form of mitigation or compensation. In some cases, such as protected species, there may also be a legal obligation to provide such mitigation.

11.3.11 A matrix for determining the significance of ecological impacts is provided in Table 11.3. However, the matrix is intended as a guide only and should not to be used without professional judgment to test and refine ratings of significance.

Table 11.3: Matrix for determining significance of ecological effects

	Impact significance level	Magnitude of impacts			
		High	Medium	Low	Neutral
Value of ecological	International	Major	Major	Moderate	No impact
	National	Major	Moderate	Moderate	No impact
	County	Moderate	Moderate	Minor	No impact
	Local	Moderate	Minor	Minor	No impact
	Neighbourhood	Minor	Minor	Negligible	No impact
	Less than neighbourhood	Negligible	Negligible	Negligible	No impact

11.4 Baseline Conditions

Statutory and Non-Statutory Wildlife Sites

11.4.1 Two statutory Sites of Special Scientific Interest (SSSI) are located within 1 km of the study area, namely Maplehurst Wood SSSI (535 m to the east) and Marline Valley Wood SSSI (and Local Nature Reserve), 650 m to the west.

11.4.2 The central section of the study area occurs within the designated land area of a non-statutory Site of Nature Conservation Importance (SNCI) called Hollington Valley SNCI. A small area of woodland within the study area and the SNCI is also designated as Ancient Woodland. The SNCI citation for Hollington Valley describes the site's value as follows (see the technical ecology reports for locations and further details):

"Situated between Sedlescombe Road North and Battle Road, the habitat forms part of the significant Hollington Valley habitat complex which runs continuous with the Hollington Stream and forms one of the most significant valley corridors in the Borough.

The area supports a range of complimentary and continuous habitats which include ancient semi-natural woodland, meadow with willow carr, secondary semi-natural woodland, an excellent pond feature, and open running water by way of the Hollington Stream.

Such a large corridor system and habitat matrix form the essential elements of the green network of the borough and provide a unique countryside experience within the town. Access to the area extends from the Ridge in the north to Hollington in the south."

11.4.3 Three further SNCIs are located within 1km of the study area, namely Beauport Park SNCI (80m to the north), Holmhurst St Mary SNCI (590m to the southeast) and Marline Valley Woods SNCI (650m to the west).

Existing Protected and BAP Species Records

11.4.4 A large number of records of protected and BAP species were provided by SxBRC for land within the search area. The key records, either due to their location within or close to the study area, or because of the presence of potentially suitable on-site habitat, can be summarised as follows:

- **Reptiles** – Records of common lizard and slow-worm, both species that are known to be widespread locally in suitable habitats.
- **Hazel dormouse** – Records include from Marline Wood SSSI. This species is relatively widespread locally in broadleaved woodland and woody scrub in Hastings.
- **Bats** – Off site records (mainly from bat detectors) provided by SxBRC include pipistrelle species *Pipistrellus* sp. (7 records, of which four are unidentified roosts in three different buildings), common pipistrelle *Pipistrellus pipistrellus* (2 records), soprano pipstrelle *Pipistrellus pygmaeus* (1 record), brown long-eared bat *Plecotus auritus* (2 records, plus a possible building based summer roost), noctule bat *Nyctalus noctula* (4 records), serotine bat *Eptesicus serotinus* (2 records), and an unidentified *Myotis* bat (1 record).
- **Birds** – The SxBRC bird records were almost exclusively from Marline Valley and Woods. The only record that could be from the current study area is a 2007 record of tree sparrow from 'Hollington'. The notable birds from Marline Valley and Woods include hobby, lesser spotted woodpecker and willow tit.

Habitats and Plants

11.4.5 The study area supports a varied mix of unmanaged, mainly semi-natural habitats, including semi-improved neutral grassland, broadleaved woodland, and woody and bramble scrub. The habitats present and their extent in the study area is summarised in Table 11.4.

Table 11.4: Habitat types present within the study area and their coverage in hectares

Habitat type	Hectares	% of study area
Amenity grassland	0.25	2.2
Bramble scrub	0.78	6.7

Habitat type	Hectares	% of study area
Broad-leaved plantation woodland	0.48	4.1
Broad-leaved semi-natural woodland	2.84	24.2
Buildings	0.13	1.1
Coniferous plantation woodland	0.03	0.3
Continuous bracken	0.20	1.7
Hard standing, roads and tracks	2.33	19.9
Introduced shrubs	0.05	0.4
Mixed plantation woodland	0.70	5.9
Private gardens	0.02	0.2
Semi-improved neutral grassland	2.06	17.6
Swamp	0.06	0.5
Tall ruderal	0.20	1.7
Tall ruderal/bracken mosaic	0.30	2.6
Woody scrub	1.28	10.9
Grand Total	**11.72**	**100**

Grassland

11.4.6 Two fields of open grassland occur along the site's western-side, with small patches also remaining amongst bramble and woody scrub to the east. The sward is tall and relatively uniform in structure and species composition throughout, being dominated by a range of common grasses, including Yorkshire-fog Holcus lanatus, red fescue Festuca rubra, creeping bent Agrostis stolonifera, rough meadow-grass Poa trivialis and sweet vernal-grass Anthoxanthum odoratum. A range of other grasses and forbs are also present, including a few plants of common spotted-orchid Dactylorhiza fuchsia – a widespread and relatively common orchid species.

Woodland and Scrub

11.4.7 The majority of the woodland within the study area is of semi-natural broadleaved character.

11.4.8 A small stand of mature broadleaved woodland that is classified as Ancient Woodland is located towards the south of the study area. Part of this woodland is located in a shallow valley and is dominated by locally abundant alder Alnus glutinosa and downy birch Betula pubescens – both species indicative of wet woodland habitat. The valley sides support drier woodland of oak Quercus robur and ash Fraxinus excelsior with an understorey of coppice hazel Corylus avellana and hawthorn Crataegus monogyna, and a varied ground layer of broad buckler-fern Dryopteris dilatata, bluebell Hyacinthoides non-scripta, hedge woundwort Stachys sylvatica, red campion Silene dioica, pendulous sedge Carex pendula, wood sorrel Oxalis acetosella, wood anemone Anemone nemorosa, enchanter's-nightshade Circaea lutetiana, wood sedge Carex sylvatica and ramsons Allium ursinum.

11.4.9 A block of open woodland dominated by sycamore Acer pseudoplatanus, and a few mature oak trees and an evergreen oak Quercus ilex, is present close to Queensway. This woodland area lacks understorey shrubs and has poor structural diversity, but supports a range of typical woodland plants, including bluebell, ramsons, wood sedge and broad-leaved helleborine Epipactis helleborine.

11.4.10 Other areas of semi-natural broadleaved woodland typically comprise linear stands along earth bank features and are dominated by a canopy of oak, ash and sycamore, and a varied understorey including hazel coppice and holly Ilex aquifolium.

11.4.11 An area of semi-mature structurally-poor mixed plantation woodland is present along an embankment on the northern edge of the Sainsbury's car-park.

11.4.12 Large patches of woody scrub are present across the study area and have probably expanded in recent years due to a lack of active management. Scrub types include dense blackthorn Prunus spinosa thickets, damp willow scrub and bramble Rubus agg. scrub. Species-rich hedgerows flank both sides of the southwest to northeast footpath which crosses the study area.

Tall Ruderal

11.4.13 Occasional patches of tall ruderal vegetation are present along scrub and woodland edges, and within grassland meadows, and are typically dominated by dense beds of nettle Urtica dioica and creeping thistle Cirsium arvense, and often with some sprawling bramble.

Swamp

11.4.14 A small area of swamp vegetation is present along the course of a spring-fed in-filled field drain (part of Hollington stream) and supports a range of tall herbs, ruderals and damp ground species. The plants present include hemlock water-dropwort *Oenanthe crocata*, great willowherb *Epilobium hirsutum*, nettle, water figwort *Scrophularia auriculata*, creeping thistle, hemp agrimony *Eupatorium cannabinum*, floating sweet-grass *Glyceria fluitans*, jointed rush *Juncus articulatus*, plicate sweet-grass *Glyceria notata* and marsh foxtail *Alopecurus geniculatus*.

Invasive Plants

11.4.15 A stand of Japanese knotweed Fallopia japonica is present along the footpath parallel to Whitworth Road.

Protected Animal Species

Reptiles

11.4.16 According to the definitions provided by Froglife (1999), the site was found to support a 'good' population of common lizard (maximum daily adult count of 6) and a 'low' population of slow-worm (maximum daily count 2), with all areas of suitable habitat found to support these reptile species. It should be noted however that more than 10 refugia per ha were used to survey suitable habitats within the study area (a maximum of 10/per ha is suggested by Froglife when using their size class classification) and therefore the population classifications given above are likely to be over-estimates of the actual population size classes present.

Great crested newt

11.4.17 Two ponds are located within 250 m of the study area in locations free from significant barriers to great crested newt Triturus cristatus (GCN) movement. Both ponds are large water-bodies and have been confirmed as supporting large populations of fish and are therefore considered unsuitable for breeding GCN. No local records of GCN are known and this species is considered to be absent for the purpose of the current assessment.

Dormouse

11.4.18 The nest tube survey has verified the presence of dormouse within the study area with a dormouse nest having been found in a nest-tube located in mature semi-natural broadleaved woodland south of Whitworth Road at its western end.

11.4.19 Dormouse nest tube and nest box surveys completed by AEL and others in similar habitats to the current site on the northern side of Queensway over the period 2006-12 have verified that dormouse favour structurally diverse semi-natural woodland and dense woody scrub. The transient seasonal use (late summer/autumn) of bramble scrub has also been noted in response to the seasonal presence of blackberries, but no evidence of dormouse has been found in mixed plantation woodland or semi-natural woodland that lacks a well-developed shrub understorey during these surveys.

Breeding Birds

11.4.20 A total of 25 bird species were recorded as confirmed or suspected breeding species during the 2014 survey. Most of the bird interest was found in association with tree lines, scrub and woodland, with very little breeding bird activity found in association with areas of open grassland.

11.4.21 Of the breeding species, one was a Red-listed species (song thrush Turdus philomelos) and four were Amber-listed species (bullfinch Pyrrhula pyrrhula, dunnock Prunella modularis, green woodpecker Picus viridis and whitethroat Sylvia communis).

Bats

Bat Roosts

11.4.22 A total of four Category 1*, five Category 1, and two Category 3 trees (BCT, 2012) have been recorded within the proposed construction area (i.e. trees with features of potential value to roosting bats). None of these trees had any obvious physical signs of current bat use.

11.4.23 The follow-up bat roost emergence survey verified the roost of a single common pipistrelle bat in an evergreen oak tree (numbered T280 - refer to arboriculture report or technical ecology report for location) with a single bat emerging from an unknown location about the tree at 19.48 (four minutes after sunset).

11.4.24 The roost of a single soprano pipistrelle was also verified in T1 (ash) with a bat emerging from somewhere on the south side of the tree at 19.51 (seven minutes after sunset).

11.4.25 The detectors positioned around the two remaining Category 1* trees surveyed during the roost emergence survey (oaks T9 and T10) recorded the call of a common pipistrelle at 19.57 (13 minutes after sunset) and it is feasible (but not possible to verify) that the bat could have emerged from one of these two trees.

11.4.26 A modern car-showroom building lies within the footprint of the proposed road. An external inspection of this building (from distance using binoculars) was completed in September 2014. The building is a flat-roofed fabricated unit that appears to be of negligible value to roosting bats. However, a more detailed inspection of the building will be undertaken to confirm its value to bats prior to demolition

Bat activity

11.4.27 A minimum total of six bat species were recorded foraging and commuting within the site by the automated bat detector surveys. In decreasing order of recorded call file frequency these were:

- Common pipistrelle (73% of call files in May, 83.4% in June)
- Soprano pipistrelle (16.8% and 13.4%)
- *Nyctalus* species (6.3% and 3.0%)
- *Myotis* species (2.8% and 0.2%)
- Barbastelle *Barbestella barbastelllus* (0.7%, and not recorded in June)
- *Plecotus* species (0.4%, and not recorded in June). The small number of *Pleoctus* (long-eared) bat calls recorded is likely to be a result of under-recording during the survey as opposed to actual bat scarcity within the study area. Brown long-eared bats (which is the most likely species concerned) are relatively common woodland species that typically produce very quiet or no calls and are often under-represented in bat surveys.

11.4.28 According to Wray *et al* (2010) common and soprano pipistrelles, and *Plecotus* species (assumed to be brown long-eared bat) are all classified as common bat species in England having a population thought to be over 100,000 individuals. *Nycatalus* species (namely noctule and Leisler's bats) are both classified as rarer bat species (popn 10,000-100,000), and barbastelle bat is a rarest bat species (popn under 10,000).

11.4.29 Barbastelle was recorded only in May by two detectors - one set of calls was recorded at 23.35 (158 minutes after sunset) and a second set by a different detector at 23.44. This suggests that the bat(s) were commuting through or foraging within the study area, and does not indicate roosting on site or nearby.

11.4.30 The transect survey recorded bat activity across the entire study area with up to four pipistrelle bats seen in the air together at any one time foraging along woodland edges and tree lines. No commuting bats or obvious commuting routes were seen during the survey by either surveyor.

Badger

11.4.31 A single active badger sett (a five active hole subsidiary sett) was recorded in the southwest corner of the study area.

11.4.32 A possible former badger sett was also located along a woodland bank with topography indicative of consolidated historic badger excavations. In January and September 2014 the former sett was occupied by rabbits only, and possessed no holes of a size large enough to indicate recent use by badger.

11.4.33 Very little badger field evidence (paths, foraging, dung and latrines) has been recorded within the site and overall levels of badger activity are low.

11.5 Assessment of Development Effects

Valuation of Ecological Receptors

11.5.1 A summary of the ecological receptors and their associated value is provided in Table 11.5. Further details of the evaluation are provided in the technical ecology reports.

Table 11.5: Value of ecological receptors

Ecological receptor	Ecological value
Hollington Valley SNCI and Ancient Woodland	County / Regional
Habitats – semi-natural broadleaved woodland	Local
Habitats – all other habitats (excluding buildings and hard standing which are of negligible ecological value)	Neighbourhood
Reptiles	Local
Dormouse	County / Regional
Breeding birds	Local
Bats (commuting and foraging)	County / Regional
Bats (tree roosting)	Local
Badgers	Neighbourhood

Assessment of Construction Effects

Statutory and Non-Statutory Wildlife Sites

11.5.2 No adverse effects on statutory wildlife sites are predicted in relation to construction of QGW.

11.5.3 Construction of the QWG will result in the loss of 2.33 ha of the Hollington Valley SNCI (19.2% loss of the total SNCI area), and will result in severance and fragmentation of the SNCI (a receptor of County/Regional importance). This habitat loss and associated fragmentation is considered to be a high magnitude impact (permanent adverse) on a receptor of County/Regional importance and therefore represents an effect of moderate significance.

11.5.4 **Proposed Mitigation / Compensation** - The proposed road construction area has been positioned to avoid direct and direct impacts on the area of Ancient Woodland (part of the SNCI) that is located south of the proposed road corridor. A minimum stand-off of 15 m will be maintained between any development activity and the Ancient Woodland.

11.5.5 Integral to the indicative Landscape Masterplan is the retention and enhancement of a north-south corridor of woodland along Hollington Valley. The hydrological integrity of the SNCI and its associated watercourse (Hollington Stream) will be ensured through the provision of an appropriate road drainage strategy that aims to maintain the quality and quantity of water entering the stream. Details of the drainage strategy are provided in Chapter 14.

11.5.6 New habitat creation within the road corridor (and the wider site as shown by the Landscape Masterplan) will specifically target habitats characteristic of the wider SNCI, including native species broadleaved woodland, wet woodland and species-rich neutral grassland. New native woodland planting and enhanced understorey planting within existing woodland areas, where beneficial, will be provided in order to enhance structural and species diversity of retained / new woodland areas and to strengthen habitat connectivity. Wildflower grassland

margins and glades will be created around woodland edges to provide natural edge and transition habitat.

Habitats and Plants

11.5.7 Construction of QGW will result in the loss, damage and disturbance of surface habitats within the application site. Table 11.6 summarises the total area in hectares of habitat loss resulting from construction of QGW.

Table 11.6: Breakdown of habitat losses associated with construction of the QGW

Habitat	Habitat loss associated with construction of QGW	Proportion of QGW development area (%)
Bramble scrub	0.64	11.8
Broad-leaved plantation woodland	0.08	1.4
Broad-leaved semi-natural woodland	1.47	27.1
Buildings	0.05	1.0
Continuous bracken	0.20	3.6
Hard standing, roads and tracks	1.13	20.9
Introduced shrubs	0.05	0.9
Mixed plantation woodland	0.20	3.7
Semi-improved neutral grassland	0.53	9.8
Swamp	0.06	1.2
Tall ruderal	0.17	3.2
Tall ruderal/bracken mosaic	0.07	1.3
Woody scrub	0.59	10.9
Grand Total	**5.42**	**100**

11.5.8 In habitat loss terms, QGW would result in the total loss of 5.42 ha of land. This includes the loss of 1.47 ha of broadleaved semi-natural woodland (a habitat of local importance). Habitat loss and fragmentation of semi-natural woodland resulting from construction of the QWG is considered to be a high magnitude impact (permanent adverse) on a receptor of Local importance, and therefore represents an effect of **moderate significance**.

11.5.9 The remaining habitat loss amounts to 2.77ha of various habitats (excluding buildings and hard-standing which are of negligible value), which are all assessed as being of neighbourhood value. This habitat loss is considered to be a high magnitude impact (permanent adverse) on a receptor of Neighbourhood importance, and therefore represents an effect of **minor significance**.

11.5.10 There is a risk that site clearance and construction could result in the spread of the alien invasive plant species Japanese knotweed.

11.5.11 **Proposed mitigation / compensation** – The Landscape Master for the QWG shows that 1.18 ha of new native woodland / scrub will be created within the road corridor, together with 0.87 ha of new wildflower grassland.

11.5.12 Additional habitat creation in the form of new native species hedgerows and woodland planting, together with wildflower grassland margins, will be provided along Junction Road (which is part of the current application site) if the road closure option is taken forward.

11.5.13 Appropriate measures will be implemented in relation to Japanese knotweed (i.e. eradication through spraying or excavation and removal) to ensure that the species is not spread during development works.

Reptiles

11.5.14 Construction of QGW would result in the permanent loss of 0.50ha of semi-improved grassland, together areas of marginal dense bramble and bracken, which support slow-worm and common lizard. The areas of grassland (and associated reptile populations) are already relatively isolated and habitat loss and fragmentation effects associated with the proposed

road are unlikely to have significant effects on the overall integrity of reptiles locally. The loss of reptile habitat constitutes a medium magnitude impact (permanent adverse) on a receptor of Local importance, and therefore represents an effect of **minor significance**.

11.5.15 An area of potentially suitable reptile habitat which falls within the current study area (due to a small northern extension in the study area boundary) has been identified along a road verge north of Whitworth Road. This area will need to be surveyed for reptiles in 2014/15. If present, reptiles would be caught and moved alongside the wider reptile translocation programme.

11.5.16 **Proposed Mitigation / Compensation** - Mitigation in the form of the capture and re-location of reptiles to a receptor site during the reptile active period will be completed. Appropriate reptile barrier fencing will be installed to contain areas of reptile habitat to be impacted by construction and prevent reptiles gaining access to the construction site while works are on-going.

11.5.17 In line with current best practice guidance (HGBI, 1998) a minimum of 70 suitable captures days should be allowed to remove reptiles from the construction areas during the reptile active period, unless it can be demonstrated that the capture has been successfully completed on fewer capture days.

11.5.18 Given the adjoining grassland areas located beyond the proposed QWG are allocated for future development, it is not considered appropriate to increase the burden of reptile clearance of these land areas on to potential future developers. It is therefore proposed that all reptiles captured will be taken to an off-site receptor site in Burwash Common, Sussex, which is owned and managed by AEL specifically for this purpose.

11.5.19 Areas of infrequently managed wildflower grassland of value to reptiles will be created along the road corridor and a total of 5 no. log pile hiberacula, partly below ground in shallow pits and tied down to prevent removal for firewood, will be provided within the application area.

Dormouse

11.5.20 Construction of the QWG would result in the loss of 1.15 ha of woodland and scrub (optimal dormouse habitat) and associated habitat fragmentation effects. The loss of dormouse habitat and fragmentation constitutes a high magnitude impact (permanent adverse) on a receptor of County/Regional importance, and therefore represents an effect of **moderate significance**.

11.5.21 **Proposed Mitigation / Compensation** - Mitigation in the form of the removal of dormouse friendly habitats under the auspices of a Natural England European Protected Species licence would be implemented. Given the extent of habitat removal required, the clearance would follow a two stage clearance method, where above ground vegetation is removed in winter (November – March) with full clearance undertaken the following summer (May – September).

11.5.22 As outlined above, substantial new native woodland planting would be provided by way of compensation and to help strengthen habitat connectivity. The QWG Landscape Masterplan shows like for like compensation for woodland loss through new woodland planting with a total of 1.18 ha of new woodland to be created within the application area. Further woodland creation will be provided along Junction Road (if this road closure option in taken forward), and within the wider site allocation, as shown by the indicative Landscape Masterplan.

11.5.23 A total of 25 dormouse boxes (e.g. Schwegler 2KS woodcrete special drey for common dormice) will be installed (and monitored) in retained woodland areas along the road corridor and land adjoining.

11.5.24 An over-sized culvert linked in with existing / proposed woodland and scrub planting would be constructed beneath the road (as shown by the Landscape Masterplan) and would incorporate a wall mounted retro-fitted dormouse cage in order to reduce fragmentation effects of road construction.

11.5.25 Implementation of the above mitigation and compensation measures would ensure that significant adverse effects on the integrity of the local dormouse population do not occur in the medium to long-term.

Breeding Birds

11.5.26 Construction of the QWG would result in the loss of woodland and scrub habitats of value to an assemblage of breeding birds, as well as open grassland, which although of less value in these terms does form part of the overall habitat mosaic of importance to breeding birds. The loss of woodland and scrub habitats constitutes a high magnitude impact (permanent adverse) on a receptor of Local importance, and therefore represents an effect of **moderate significance** on breeding birds.

11.5.27 **Proposed Mitigation / Compensation** - Mitigation in the form habitat removal taking place outside the bird nesting season would be implemented under the auspices of a Construction Environmental Management Plan (CEMP) in order to prevent killing / injury to breeding birds.

11.5.28 Compensation for habitat loss will be provided by new habitat creation, as shown by the Landscape Masterplan and summarised above. A variety of bird box types would also be installed on retained mature trees around the site and adjoining unaffected woodland areas. This would include Schwegler general purpose nest box 1B (both 26mm and 32mm entrance holes, 5 no. of each), Schwegler starling box 3S (5 no.), Schwegler treecreeper box (2 no.) and Schwegler open fronted nest box 2H (5 no.).

Bats

11.5.29 Habitat loss and fragmentation effects on commuting and foraging bats are considered to be a high magnitude impact (permanent adverse) on a receptor of County/Regional importance, and therefore represent an effect of **moderate significance**.

11.5.30 Construction of the QWG would result in the loss of two trees with confirmed bat roosts (minor roosts each consisting of a single pipistrelle bat), and other mature trees of theoretical value for bat roosting. The loss of confirmed and potential bat roost trees is assessed as a permanent medium magnitude adverse impact of **minor significance**.

11.5.31 The loss of a modern car-warehouse building, which appears from preliminary inspection to be unsuitable for roosting bats, is considered to a **negligible impact**, but this will need to be confirmed by more detailed inspection when access is available.

11.5.32 **Proposed Mitigation / Compensation** – A licence from Natural England would be required to legally enable the removal of the two trees confirmed with roosting bat presence. Further physical climbing inspections of all other trees of potential value to roosting bats (but with no confirmed bat roost present) will be completed in advance of their removal and further activity surveys completed as necessary. The timing and methods of tree removal and the need for further NE licencing will be confirmed by a licenced bat ecologist in light of the survey results.

11.5.33 Compensation for the loss of forage habitat would be provided through new habitat creation, including woodland planting, wildflower grassland buffers, and a new surface water attenuation pond. Adverse effects of fragmentation on bat flyways would be reduced by the provision of a bat hop over at the culvert location set within the valley woodland corridor. New planting, including advanced nursery stock English oaks c.5m high, will be provided to promote canopy continuity over the carriageway and encourage bats to cross at height above the road.

11.5.34 After-dark lighting at the bat hop-over location will be kept to a minimum to satisfy Highways requirements, but should fall within the range of 2-5 Lux i.e. between Natural (intrinsically dark) and Rural (low distinct brightness) light levels (ILP, 2011). Any lighting in this location, and elsewhere along the road, will be designed to minimise light spill into surrounding woodland and to maintain a continuous dark-corridor for the benefit of commuting / foraging bats and other nocturnal wildlife by ensuring lighting is downward and inward facing using baffles or shields, as necessary.

11.5.35 A variety of bat box types will be installed on retained mature trees around the site in order to compensate for the loss of trees with bat roost potential, including 5 no. Schwegler 2F bat box, 3 no. Schwegler 1FF bat box and 2 no. Schwegler 2FN bat box

Badger

11.5.36 No badger setts would be affected by construction of the QGW, but there is a risk of badger entrapment within deep excavations and pipework during construction. This is a potential impact of minor significance, but requiring best practice measures to be implemented to avoid killing and injury to badger during construction.

11.5.37 No badger setts are present within the construction area and no direct effects on badger setts are anticipated in relation to construction of the QWG.

11.5.38 The risk that badgers could be at risk of entrapment in deep excavations and pipework during construction is a potential impact of **minor significance**, but requiring best practice measures to be implemented to avoid killing and injury to badger during construction.

11.5.39 Given the abundance of suitable foraging habitat locally and the relative low levels of badger activity within the site, the effects of habitat loss on the availability of badger foraging are considered to be a low magnitude impact (permanent adverse) on a receptor of Neighbourhood importance, and therefore represent an effect of **negligible significance**.

11.5.40 **Proposed Mitigation / Compensation** - A watching brief for the presence of badger setts within areas of construction will be maintained over the construction period.

11.5.41 A CEMP will set out mitigation measures in relation to working in the proximity of badgers and will highlight the fact that all deep excavations would be ramped and any exposed pipework capped during the hours of darkness to minimise the risk of badgers becoming trapped within the construction site.

11.5.42 New native woodland and wildflower grassland creation along the road embankments and the wider site would provide compensation for the loss of badger forage habitat.

11.6 Assessment of Operation Effects

11.6.1 The potentially significant operational effects resulting from the QGW are: 1) disturbance (noise and after-dark lighting) to the retained area of Hollington Valley SNCI and Ancient Woodland, 2) disruption and severance of important bat fly-ways as a result of disturbance caused by road lighting and night-time traffic, and 3) increased risk of wildlife (but particularly badger) mortality and injury as a result of collision with road traffic.

11.6.2 The potentially significant operational effects resulting from the QWG are: 1) disturbance (noise and after-dark lighting) to the retained area of Hollington Valley SNCI and Ancient Woodland, 2) disruption and severance of important bat fly-ways as a result of disturbance caused by road lighting and night-time traffic, and 3) increased risk of wildlife (but particularly badger) mortality and injury as a result of collision with road traffic.

11.6.3 Effects associated with 1) and 2) above could result in medium magnitude impacts (permanent adverse) of **moderate significance** overall. The effect of wildlife traffic collision is assessed as an impact of **minor significance**.

11.6.4 **Proposed Mitigation / Compensation** - Mitigation in the form of a nocturnal wildlife friendly road lighting strategy will be delivered to minimise general adverse impacts on the SNCI, Ancient Woodland and nocturnal wildlife at key locations along the QWG.

11.6.5 An over-sized culvert beneath the road will be incorporated into the road design (see Landscape Masterplan) in a location coincident with the existing northeast – southwest orientated Hollington stream and valley. The proposed culvert will be tied into adjoining woodland areas by additional woodland planting on the engineered embankment. Earthworks leading to the culvert would be carefully designed to ensure that ground levels and topography encourage wildlife to use the crossing point.

11.6.6 Provision for badgers will comprise a best practice mammal shelf following the Design Manual for Road and Bridges (Volume 10, Section 4, Part 2, 2001, as amended), as well as other provision for dormice and other wildlife, as outlined under construction mitigation. Sections of badger-proof fencing (25 m either side of the crossing point) will be installed to guide badgers and other wildlife into the culvert entrances.

Adverse effects of fragmentation on bat flyways would also be reduced by the provision of a bat hop over at the culvert location set within the valley woodland corridor, in combination with an after-dark lighting strategy to reduce lighting at this location.

11.7 Mitigation and Compensation Measures and Residual Impacts

11.7.1 A summary of the proposed mitigation and compensation measures to be adopted to reduce the adverse effects of development are summarised in Table 11.7. The residual impacts following implementation of these suggested measures are also highlighted.

Table 11.7: Proposed mitigation and compensation measures and residual impacts

Ecological receptor	Impact significant (prior to mitigation and compensation)	Summary of proposed mitigation and compensation measures	Residual impact
Construction			
Hollington Valley SNCI	Moderate adverse	• Retention and enhancement of SNCI woodland corridor. • Targeted habitat creation, including 1.18 ha of native woodland and 0.87 ha of wildflower neutral grassland within the application area. • Provision of culvert crossing to maintain hydrological links and facilitate mammal crossings. • Appropriate drainage strategy. • Further complementary habitat creation to be provided as part of wider site allocation.	Minor - Moderate adverse
Ancient Woodland	Negligible	• No loss of Ancient Woodland, and no development activity within 15 m. • AW to be protected from accidental damage / disturbance during construction by appropriate barrier fence and signage.	Negligible
Habitats – semi-natural broadleaved woodland	Moderate adverse	• Substantial new habitat creation, including XX ha of native broadleaved woodland planting within the application area.	Minor Adverse
Habitats – all other habitats	Minor adverse	• New habitat creation, along the road embankment, including substantial native woodland planting.	Minor adverse
Japanese knotweed	-	• Implemented appropriate control measures to prevent spreading this alien invasive plant species.	-
Reptiles	Minor adverse	• Appropriate reptile barrier fencing to be installed around reptile habitat areas within construction area. • Capture and re-location to be completed during reptile active period (minimum 70 days unless it can be demonstrated that clearance has been completed in fewer days) with translocation to off-site receptor area. • Creation of rough grassland areas along road corridor and provision of log pile hibernacula (tied down to prevent removal).	Negligible

Ecological receptor	Impact significant (prior to mitigation and compensation)	Summary of proposed mitigation and compensation measures	Residual impact
Dormouse	Moderate adverse	• Habitat removal to be completed under NE EPS licence following two stage winter/summer clearance method. • Substantial new native woodland creation and enhancement of retained woodland by understorey planting, where appropriate. • Compensation in the form of dormouse box provision (25 no.). • Over-sized culvert linked in with existing / proposed woodland and scrub planting to be constructed beneath the road and incorporate wall mounted retro-fitted dormouse cage.	Minor adverse
Breeding birds	Moderate adverse	• Habitat removal to take place outside the bird nesting season in line with CEMP. • Compensation in the form of new habitat creation proposals, and tree mounted bird boxes.	Minor adverse
Bats (commuting and foraging)	Moderate adverse	• Loss of forage habitat would be compensated through new woodland planting and a new surface water attenuation pond. • Provision of enhanced bat hop-over at culvert location. • Bat friendly lighting strategy, with dark bat hop-over crossing.	Moderate adverse
Bats (tree roosting)	Minor adverse	• Removal of trees with confirmed bat roosts to be undertaken under NE EPS licence. • Further physical climbing inspections of all other trees of potential value to roosting bats (but with no confirmed bat roost present) to be completed in advance of tree removal. The need for follow-up survey work, appropriate removal methods and licensing requirement to be advised by a licenced bat ecologist in light of findings. • A variety of bat box types will be installed on retained mature trees around the site in order to compensate for the loss of trees with bat roost potential.	Negligible
Badgers	Negligible	• New woodland and grassland creation along the road embankments would provide compensation for the loss of badger forage habitat. • A CEMP will set out mitigation measures in relation to construction working.	Negligible
Operation			
Hollington Valley SNCI and Ancient Woodland – disturbance (noise and after-dark lighting)	Moderate adverse	• A nocturnal wildlife friendly road lighting strategy will be delivered to minimise general adverse impacts on the SNCI, Ancient Woodland and nocturnal wildlife at key locations along the QWG	Minor adverse

Ecological receptor	Impact significant (prior to mitigation and compensation)	Summary of proposed mitigation and compensation measures	Residual impact
Bats – road lighting and traffic	Moderate adverse	• Provision of bat hop-over (dark crossing) at culvert location through enhanced planting, including standard trees (5 m pot grown oak standards) to encourage bats to increase their flight height and cross the carriageway above road traffic to minimise collision risk.	Minor adverse
All species (esp. badger) – traffic collisions	Minor adverse	An over-sized culvert beneath the road in line with an existing / proposed woodland / hedgerow crossing point would be incorporated into the road design so that badgers, dormice and other wildlife can safely cross road below the carriageway. The culvert would incorporate a badger shelf and wall mounted retro-fitted dormouse cage along its length. Sections of badger-proof fencing (25 m wither side of the crossing point) would be installed to guide wildlife into the entrances.	Minor adverse

11.8 Assessment and Mitigation of Cumulative Effects

11.8.1 Construction of QGW will enable future development of adjoining allocated land for Industrial and Commercial development. Part of the future development allocation falls within the Hollington Valley SNCI and therefore further habitat loss and fragmentation effects on the SNCI would occur as a result. However, consideration has been given to the likely significant environmental effects of QGW in the context of the wider allocation and indicative proposals have been presented as an overarching Landscape Masterplan as part of QGW application.

11.8.2 QGW represents one of a number of road schemes identified in Hastings and Bexhill planned for delivery over the coming years.

11.9 Summary

11.9.1 An ecology baseline for land incorporating QGW has been established through desk-top and field surveys undertaken by AEL in 2013/14.

11.9.2 Two statutory SSSIs are located within 1 km of the study area, namely Maplehurst Wood SSSI (535 m to the east) and Marline Valley Wood SSSI (and Local Nature Reserve), 650 m to the west. Adverse effects on these SSSIs are not anticipated.

11.9.3 The central section of the study area is part of the non-statutory site called Hollington Valley Site of Nature Conservation Importance (SNCI), and a small area of woodland within the study area and the SNCI is also designated as Ancient Woodland.

11.9.4 The road construction working area has been designed to avoid the area of Ancient Woodland, and a minimum exclusion buffer of 15 m will be maintained and fenced to ensure its protection during road construction. Construction of QGW will result in the loss of 5.42 ha of land; of which 2.33 ha is designated as part of the Hollington Valley SNCI and means that 19.2% of the total SNCI area will be affected by construction. A total of 1.47 ha of broadleaved semi-natural woodland (a habitat of local importance) will be lost, together with a range of other habitats of Neighbourhood value.

11.9.5 Habitat losses within the Hollington Valley SNCI and the wider development site, together with associated effects of fragmentation and degradation, have been assessed as representing an effect of **moderate significance**.

11.9.6 However, the SNCI stream and associated woodland corridor would be retained and enhanced, as part of QGW design (and indicative proposals for the wider site allocation), and compensation for habitat loss will be provided by the creation of new broadleaved woodland

(1.18 ha), wildflower grassland (0.87 ha) and a new surface water attenuation pond with the QGW site. The effects of habitat fragmentation will be reduced by provision of a below ground culvert tied into the adjoining woodland corridor by additional planting.

11.9.7 Habitat loss impacts associated with QGW construction would result in adverse impacts on reptiles, dormouse, breeding birds, bats (tree roosting, commuting and foraging). Impacts on these species and groups would be reduced through implementation of a range of mitigation and compensation measures including, implementation of a CEMP (appropriate site clearance timings and EPS licences for dormouse and tree roosting bats), habitat creation proposals, provision of an over-sized culvert incorporating mammal crossings, and a wildlife friendly lighting strategy.

11.10 References

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ILP (2011). Guidance notes for the reduction of obtrusive light: Think before you light - The right amount of light, where wanted, when wanted." GN01.

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12 Landscape and Visual

12.1 Introduction

Outline

12.1.1 The Landscape and Visual impact Assessment (LVIA) has been prepared by Influence Environmental Ltd, a chartered landscape architecture, urban design and environmental planning practice.

12.1.2 Influence Environmental Ltd was appointed by Sea Change Sussex to carry out a LVIA for the Queensway Gateway development including the junctions to both ends of the road. The LVIA has been undertaken to accompany a planning application to be submitted in October 2014

Project Description

12.1.3 This report has been prepared to assess the landscape and visual effects of construction and completion of the QGW development, comprising:

- The road, linking Queensway (B2092) and Sedlescombe Rd (A21);
- Both Junctions at either end of the road;
- Access points;
- Landscape proposals.

12.1.4 The location of the proposed development is shown on Figure I**NCLA_N0244 PL01, Appendix G.1**

12.2 Policy Context

Introduction

12.2.1 Aspects of planning guidance and policy, which are of particular relevance to the LVIA, are examined below. Relevant designations within the LVIA study area are shown in Figure **INCLA_N0244 PL05, Appendix G.1**

12.2.2 Full citations of the relevant policies or guidance extracts can be found in **Appendix G.2**.

International Legislation

12.2.3 The *European Landscape Convention (ELC)*, which was signed by the UK in February 2006 and became binding in 2007, is the first international convention to focus specifically on landscape issues and aims to protect, manage and plan landscapes in Europe. The *ELC* highlights the importance of developing landscape policies dedicated to the protection, management and creation of landscapes, and establishing procedures for the general public and other stakeholders to participate in policy creation and implementation.

12.2.4 The *ELC* defines landscape as “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” (CoE, 2004).

National Legislation

12.2.5 This LVIA takes into account the legislation and policy relevant to landscape and visual amenity, and relevant ecology and cultural heritage designations which relate to character.

Countryside and Rights of Way (CRoW) Act 2000

12.2.6 The CRoW Act (UK Parliament, 2000) provides a statutory framework for Areas of Outstanding Natural Beauty (AONB), provides further measures to protect the AONBs, and clarifies the role of local authorities which now includes the preparation of Management Plans to set out how they will care for their AONBs.

National Parks and Access to the Countryside Act 1949 as Amended by the Environment Act 1995

12.2.7 Areas of Outstanding Natural Beauty (AONB) are designated under the provisions of the 1949 National Parks and Access to the Countryside Act (UK Parliament, 1949), in order to secure their permanent protection against development that would damage their special qualities. AONBs are designated solely for their landscape qualities, for the purpose of conserving and enhancing their natural beauty.

Hedgerow Regulations 1997

12.2.8 The *Hedgerow Regulations* (UK Parliament, 1997) aim to protect hedgerows, which play an important role in supporting and enhancing biodiversity, as well as defining the character of the English and Welsh countryside.

12.2.9 According to the regulations, a hedgerow is important if it has existed for 30 years or more, and it satisfies various wildlife, landscape or historical criteria specified in the regulations.

National Planning Policy Framework

12.2.10 The Government published the *National Planning Policy Framework (NPPF)* on 27th March 2012. The *NPPF* has been created in order to replace *Planning Policy Statements (PPS)* and *Planning Policy Guidance (PPG)* documents. The *NPPF* condenses and clarifies the Government's previous Planning Policies and provides a legislative framework for promoting sustainable development in local communities.

12.2.11 At the heart of the *NPPF* is a presumption in favour of sustainable development and this should be at the core of plan and decision making. For decision making this means that approving proposals that accord with the development plan, or where these are absent or out of date, granting permission unless doing so would create adverse impacts that would significantly and demonstrably outweigh the benefits, when assessed against policies within the *NPPF*.

12.2.12 *The NPPF* sets out 12 core planning principles, which stress the importance of meeting high design and amenity standards in planning, recognising the character and beauty of the countryside, supporting thriving rural communities, conserving and enhancing the natural environment and conserving heritage assets in a manner appropriate to their significance. The full list of the core planning principles is provided in **Appendix G.6.**

12.2.13 Section 7 of the *NPPF* addresses the issue of good design and recommends that planning decisions should aim to ensure that developments respond to local character and history and reflect the identity of local surroundings while being visually attractive as a result of good architecture and appropriate landscaping.

12.2.14 The necessity to protect Public Rights of Way (PRoW) is highlighted in Section 8 of the *NPPF*.

12.2.15 The principle of conserving and enhancing the natural environment is discussed in Section 11 of the *NPPF*. Of particular relevance to this assessment is the principle of protecting and enhancing valued landscapes, conserving landscape and scenic beauty of National Parks and protecting nationally and internationally designated nature conservation areas.

12.2.16 Section 12 of the *NPPF* confirms the importance of assessing the significance and setting of heritage assets in determining planning applications. The guidance states that substantial loss or harm to heritage assets of the highest significance should be exceptional; however, it also confirms that not all elements of a conservation area will necessarily contribute to its significance.

12.2.17 The relevant excerpts from Sections 7, 8, 11, and 12 of the *NPPF* are provided in **Appendix G.6**.

Local Planning Guidance

12.2.18 The application site is located within the Hastings Borough Council and is subject to policies within

- Hastings Borough Council Local Plan;
- Rother District Local Plan (Relevant to wider LVIA study area).

12.2.19 A brief summary of the key aspects of the relevant local policies is provided below and full citations of these policies are provided in **Appendix G.6.**

Hastings Borough Council Local Plan, 2004-2011 – saved policies Adopted 2004

- **Policy L1: Landscape Character-** To protect the landscape setting of the town, such as gills, woods, and open spaces.
- **Policy L2: High Weald Area of Outstanding Natural Beauty-** To protect against adverse effects on the natural beauty of the AONB.
- **Policy L3: Development outside the Built up Area-** To protect the open spaces outside of the built up areas.
- **Policy DG6: External Lighting-** To protect against light spillage, light intensity, causing harm to the character of the area.
- **Policy DG8: Protection of Views-** To protect the views towards local landmarks, urban or natural features, local character.
- **Policy NC2: Sites of Special Scientific Interest-** To safeguard and protect these areas of interest.
- **Policy NC6: Sites of Nature Conservation Importance-** To protect these local designated areas unless there is local need for the proposed development.
- **Policy NC8: General Planning Requirements-** To minimise damage to wildlife and habitats, retain and enhance landscaping.
- **Policy NC10: Ancient Woodland-** To protect and minimise the impact on these ancient woodlands.
- **Policy NC11: Preserved Woodland-** To protect and minimise the impact to these preserved woodlands.
- **Policy OS5: Amenity Footpath Network-** To preserve or safeguard these footpaths.

Rother District Council Local Plan

- **Policy DS1: Development Strategy-** This policy requires developments to: protect the character and qualities of the environment, in particular the High Weald AONB, protect sites of recognised nature conservation importance as shown on the Proposals Map, respect the importance of the countryside in terms of its distinct landscape character, natural resources, woodland and agriculture, and protect ancient woodland from development that would prejudice its ecological and landscape value.
- **Policy GD1: General Development-** This overarching development policy requires that all development should: respect and do not detract from the character and appearance of the locality, including heritage assets, be compatible with the conservation of the AONB, respect the topography, important views to and from the site, retain site features that contribute to the character or amenities of the area, and protect and enhance habitats of ecological value.

Relevant Guidance

12.2.20 The Highways Agency (HA), 1993, "Design Manual for Roads and Bridges: Volume 11, Section 3" (hereafter referred to as the DMRB) provides advice on the design of roads and bridges and in relation to assessment of environmental impact for these.

12.2.21 Guidance relevant to the landscape and visual impact assessment and landscape character assessment is referred to in the methodology.

12.3 Methodology

Guidance

12.3.1 The format of this assessment is based on the principles as set out in the Landscape Character Assessment Guidance for England and Scotland (Former Countryside Agency and Scottish Natural Heritage, 2002) and Guidelines for Landscape and Visual Impact Assessment 3rd Edition (Landscape Institute and Institute of Environmental Management and Assessment 2013).

12.3.2 Viewpoint photographs have been presented in accordance with the Landscape Institute's Advice Note 01/11 *Photography and photomontage in landscape and visual impact assessment* (LI, 2011).

12.3.3 A detailed methodology statement, including the method of assessing the nature of receptor (sensitivity), nature of effect (magnitude), and significance of effect is provided in **Appendix G.1**.

Study Area

12.3.4 A computer-modelled Zone of Theoretical Visibility (ZTV) was initially run to establish the theoretical visibility of the proposed development in the surrounding landscape and assist in the process of defining the LVIA study area (see Figure **INCLA_N0244 PL03, Appendix G.1**). This theoretical ('worst case scenario') visibility was then verified on site to take account of screening factors other than topography, such as built form and vegetation.

12.3.5 Following these initial desktop studies and site visits, it was found that the actual visibility of the application site and the proposed development, where landscape and visual impacts could potentially occur, would be more restricted by urban form including the nearby residential development and industrial/commercial development, landform and vegetation, than the ZTV demonstrates. Taking account of the findings from desk and field studies, the study area boundary for the LVIA is concentrated to cover a 1km radius from the centre of the application site (See Figure **INCLA_N0244 PL03, Appendix G.1**). Due to the nature of the surrounding urban area, the actual visibility of QGW would be restricted by the surrounding vegetation and built form in combination with landform.

12.3.6 Only landscape and visual receptors within the LVIA study area have been considered in the assessment, as there is no potential for any significant landscape and/or visual impacts beyond that area.

Assumptions

12.3.7 The principal assumption is as follows.

- The land allocated for QGW on land between Queensway (B2092 and Sedlescombe Rd (A21) is referred to as the 'application site' throughout this report. Should the description 'application site' not give enough clarity in the context of the paragraph it relates to, then further explanation is provided.
- For the assessment of operational effects, it is assumed that during year 1 the proposed mitigation planting will not be fully matured and therefore the residual effects would be greater than the operational effects during year 10, when it is assumed that the proposed mitigation planting will be matured enough to provide screening of the development. This principle is in accordance with guidance within the DMRB.

Consultation

12.3.8 A Planning Officer at Hastings Borough Council was consulted in April 2014 in relation to the LVIA study area (a distance of 1km from the centre of the application site was agreed), documentation and policy relevant to this assessment, key sensitivities in the area, including landscape character, heritage assets, designations, and viewpoint selection.

12.4 Landscape Baseline Conditions

Introduction

12.4.1 The landscape character within the LVIA study area is assessed and examined below and relevant information on landscape character is shown in Figure **INCLA_N0244 PL06, Appendix G.1**. Figure **INCLA_N0244 PL07, Appendix G.1** illustrates the key landscape features within the LVIA study area.

National Landscape Character Assessment

12.4.2 At the national level landscape character assessment is defined by the broad landscape character areas identified by the former Countryside Agency (now part of Natural England) in Countryside Character, Volume 7: South East and London (CA, 1999), Natural England. This document identifies the entire LVIA study area as falling within the National Character Area (NCA) 122 High Weald. The key characteristics of this character area are described in **Appendix G.2**.

County and Local Landscape Character Assessment

12.4.3 The detailed description of the landscape surrounding the application site is provided within two county/ local Landscape Character Assessments:

- East Sussex County Character Assessment- Landscape Character Areas; and
- Bexhill to Hastings Link Road Environmental Statement: Chapter 13 Landscape Character Areas- East Sussex County Council, 2007.

12.4.4 East Sussex Trees and Woodland Strategy (ESRF, 2001) is a county level landscape assessment document produced in 2001 by the East Sussex Rural Forum. This county character assessment study identified three landscape character areas falling within the LVIA study area, namely: Combe Haven Basin, Bexhill and Hastings.

12.4.5 At the county and local level landscape character assessment is defined by the further divided landscape character areas identified by the East Sussex County Character Assessment. This document identifies; Hastings Urban area-31, Brede Valley-11, and Combe Haven Valley-10 cover parts of the application site and/or study area. The full descriptions of these areas are provided in **Appendix G.2**.

12.4.6 Further to the above character areas, the Bexhill to Hastings Link Road Environmental Statement: Chapter 13 Landscape Character Areas- East Sussex County Council, (2007) has identified further character division. These areas cover the western part of the study area but do not cover the application site. They are; area 12 West Woods, area 14a The Ridge (rural), area 14b The Ridge (urban), and area 15 Crowhurst High Weald. The full descriptions of these areas are provided in **Appendix G.2**.

Hastings urban area 31

12.4.7 Key features identified in the LCA are its distinctive sandstone ridges and wooded ghyll valleys, providing a series of open spaces and sheltered woodlands in the urban area. The prominent cliff-top castle ruins overlook the medieval Old Town, which has a unique vernacular character. The overall quality of the Hastings Urban Area located within the LVIA study area has been assessed as ordinary as it contains limited distinctive features and several detracting features, such as A259, derelict railway development and neglected areas of townscape. There are no landscape designations within this area. The proposed development does not have a potential to affect this area.

12.4.8 The classification of the Hastings urban area 31 has been assessed as being of medium sensitivity. This is due to medium value and susceptibility to the development proposal.

Brede Valley (LCA 11)

12.4.9 The character of Brede Valley (LCA 11) is as follows. This area has well wooded sides with occasional farms which contrast with the flat and predominantly open levels on the valley floor. This area also has the greatest concentration of woodland around the valley head.

12.4.10 The Brede Valley (LCA 11) has been assessed as being of medium sensitivity. This is due to High value and medium susceptibility to change to the nature of the proposed development.

Combe Haven Valley (LCA 10)

12.4.11 The Combe Haven Valley 10 character area is a landscape characterised by small, winding High Wealden valleys converging to form a tract of levels which curve east and south to almost reach the sea at Glyne Gap, between Hastings and Bexhill. This pleasant rolling, well-wooded countryside with areas of ancient woodland and ghylls affords excellent views of the sea and coastal towns, which have a strong influence on the area.

12.4.12 Combe Haven Valley (LCA 10) has been assessed as being of low sensitivity. This is due to low susceptibility to change to the nature of the proposed development.

Area 14b: The Ridge (urban)

12.4.13 The character of area 14b: The Ridge (urban) is characterised by ridges to the east and west, which are dissected by ghyll streams characteristic of Hastings and the wider Weald. Higher areas of landform afford long distance views across the urban area of Hastings towards the sea front, with wooded areas being more enclosed.

12.4.14 Area 14b: The Ridge (urban) has been assessed as being medium sensitivity. This is due to medium value and susceptibility to physical change due to the nature of the proposed development.

The High Weald Area of Outstanding Natural Beauty (AONB)

12.4.15 The High Weald Area of Outstanding Natural Beauty (AONB) covers the northern part of the study area. Key special qualities/significances identified in the High Weald AONB Management Plan Third Edition 2014-2019 and which would potentially be affected by the proposed development are geology and topographic features such as the deeply incised and faulted landforms, the dispersed historic settlement pattern and network of ancient route ways, the extensive network of ancient woodlands, shaws and ghyll valleys and the mosaic of small, irregular parcels of field and heathland (assarts) interspersed with woodland cover. The full description of this area is provided in **Appendix G.2**.

12.4.16 The High Weald AONB has been assessed as being of high sensitivity. This is due to its high recreational value to the local residents of the area and visitors alike, the national nature of its designation for scenic quality and the high susceptibility to change of the landscape features which are intrinsic to its special qualities.

Designations and Registered Sites

12.4.17 There is one national landscape designation within the study area – the High Weald AONB, covered above. It does not cover the application site, although its southern boundary finishes at the A2100 road to the north of the application site.

12.4.18 There are several significant heritage and cultural designations within the LVIA study area, detailed below:

12.4.19 Of the many listed buildings within the study area, most are contained within the scattered villages.

12.4.20 There are two Sites of Special Scientific Interest (SSSIs) within the study area. They are:

- Marline Valley Woods, approximately 0.84km west of the application site.
- Maplehurst Wood, approximately 0.76km north east of the application site.

12.4.21 There is a Local Nature Reserve within the study area. It is:

- Marline Wood, approximately 0.74km south west of the application site.

12.4.22 There are four Sites of Importance for Nature Conservation (SINCs) and several Ancient Woodland locations within the study area and some of these cover part of the application site. They are all shown on Figure **INCLA_N0244 PL05, Appendix G.1.**

12.4.23 The location of these designated Sites in relation to the application site is shown in Figure **INCLA_N0244 PL05**, **Appendix G.1.**

Landscape Appraisal of the Application Site and its Surroundings

12.4.24 The application site is located to the south of the A2100, which predominantly forms the boundary between the Hastings urban area and the High Weald Area of Outstanding Natural Beauty (AONB) to the north of the road. The application site is located to the east of the B2092, and to the west of the A21. The application site covers an area of approximately 5.7 Ha (red-line boundary) and comprises of a locally designated Site of Importance for Nature Conservation (SINC) with mature woodland planting on the slopes and rough grassland with scrub and bog land planting upon undulating landform which generally slopes towards the south with steep sides to the north, east and west. There are large scale business and industrial units to the immediate east of the application site as well as a large Sainsbury's Superstore with associated car park, lighting and ridgeline woodland planting. To the south and west are residential dwellings nestled within mature woodland planting.

12.4.25 The landscape surrounding the proposed development site is typical of character area Hastings Urban Area 31. Landform of the area is generally sloping to the south towards the sea front of Hastings. Landform rises to the north, east, and west within the immediate surrounds of the proposed development, with woodland cover apparent.

12.4.26 Drainage patterns in the immediate area follow a north south axis. There are relatively few water bodies present within the study area, surrounding the application site. At most there are drainage ditches, channels and boggy grassland, which predominantly drain into a pond to the south of the application site on low lying landform. In the wider landscape drainage flows also on a north south axis, towards the sea front of Hastings.

12.4.27 Land use in the area is predominantly large scale settlement to the east, south, and west of the application site, with busy 'A' roads traversing the study area. To the north of the application site the land use is given over to forestry and agriculture, with land cover defined by mature woodland, mid to large scale fields, bounded by mature hedgerows with trees, of arable and occasional pastoral farming with intermittent farmsteads, remnant mills and small nucleated villages.

12.4.28 Settlement in the area covers the majority of the study area. The town of Hastings is located south of the application site and its suburbs surround the application site to the east and west.

12.4.29 The immediate area surrounding the application site is served by a couple of major 'A' roads such as the A21 to the east, and the A2100 to the north, both of which have high usage. As a result the immediate surroundings of the application site are neither tranquil nor still in aspect. There is also the B2092 to the west of the application site, which is also a busy road.

12.4.30 There are a number of local PRoW which cover the study area and pass in close proximity and through the application site. However, there are no nationally designated, long distance routes within the study area or application site.

12.4.31 The landscape within the application site and surrounding study area has been assessed as being of medium sensitivity to the proposed development. This is due to its local value and medium quality of the landscape. The development's footprint is limited to grassland, scrub planting and woodland, which do not have high landscape value, being commonplace landscape elements in the locality.

Summary of Landscape Sensitivity

12.4.32 The sensitivities of the respective landscape receptors to the development proposal are summarised below.

National Landscape Designation

- The High Weald Area of Outstanding Natural Beauty (AONB) — High sensitivity

Landscape Character Areas

- Hastings urban area 31 — Medium sensitivity

• Brede Valley 11	Medium sensitivity
• Combe Haven Valley 10	Low sensitivity
• Area 14b: The Ridge (urban)	Medium sensitivity

12.5 Visual Assessment Baseline

Introduction

12.5.1 The visibility of the proposed development has been established by combining desktop study, ZTV analysis (see Figure **INCLA_N0244 PL03, Appendix G.1**) and information attained by the assessor from field assessment. To aid in the visual assessment, an analysis of topography has been undertaken (see Figure **INCLA_N0244 PL02, Appendix G.1**).

12.5.2 Figure **INCLA_N0244 PL08, Appendix G.1** shows the location of viewpoints selected for the assessment of impacts on visual receptors overlaid onto a ZTV (cropped to the extent of the LVIA study area).

Viewpoints

12.5.3 The ZTV analysis and subsequent site visit identified several areas within the LVIA study area, which would have visibility of the proposed development.

12.5.4 A series of viewpoints, representing different types of views and groups of receptors within the immediate area and the wider surroundings, has been identified to consider the visual impact of the proposed development. Descriptions of baseline views from these viewpoints are included in **Appendix G.4**.

12.5.5 The key views identified in this LVIA, are:

- VP01: Taken from outside residential properties along Sedlescombe Road (A21), looking north towards the application site;
- VP02: Taken from roadside along Sedlescombe Road (A21), looking north west towards the application site;
- VP03: Taken from Sainsbury's Supermarket Car Park, looking north towards the application site;
- VP04: Taken from a local PRoW number Hastings129, Looking north towards the application site;
- VP05: Taken from a residential cul de sac down Beauharrow Road, looking north, north east towards the application site;
- VP06: Taken from a local footpath PRoW number Hastings No129. Within the SINC, looking north towards the application site;
- VP07: Taken from a local PRoW number Hastings 131a#1, looking north towards the application site;
- VP08: Taken from an Access Track/ local PRoW number Hastings 131a#1, looking north towards the application site;
- VP09: Taken from the roadside along the B2092, looking north east towards the application site;
- VP10: Taken from a residential cul de sac (Beauport Gardens), looking south east towards the application site;
- VP11: Taken from the roadside along the B2092, looking south west towards the application site;
- VP12: Taken from a local PRoW number Hastings 131a#2, looking west towards the application site;

- VP13: Taken from the roadside along the A2100, looking south towards the application site;
- VP14: Taken from the entrance to Emmaus, looking south towards the application site;
- VP15: Taken from the roadside along the A2100 on a vehicular and pedestrian bridge, looking south west towards the application site;
- VP16: Taken from the entrance of the Pets at Home Store, looking south west towards the application site; and
- VP17: Taken from the recreation ground off Harrow Lane, looking north west towards the application site.

Visual receptors

12.5.6 The proposed development would have the potential to affect several groups of visual receptors. Each group of visual receptors (people) is represented by viewpoints representing different types of views that are experienced by these receptors.

Residents

12.5.7 The key receptors in this group include residents along the southbound side of the A21 opposite the pedestrian entrance to Sainsbury's Supermarket, residents along the A21 opposite the Esso Garage, residents within the detached residential properties to the south of the SINC, residents of Beauport Home Farm Close, residents within Beauport Gardens cul de sac, and residents of the croft houses which are Grade II listed. Viewpoints 1, 2, 7, 8, 10, and 11 represent these receptors. These receptors would have high sensitivity to the proposed development due to prolonged viewing opportunities. Residents within Beauharrow road cul de sac, and residents near the A2100 road bridge over the A21, represented by viewpoints 5, and 15 would be of medium sensitivity to the proposed development due to existing mature vegetation and undulating landform predominantly containing views towards the application site.

Users of the local PRoW

12.5.8 There are several local PRoW routes within the LVIA study area, and some footpaths which are in close proximity to the application site. Users of footpaths 129, 131a#1, 131a#2 and users of footpath 130, represented by viewpoints 4, 6, 7, 12, 14, and 16 would all be of medium sensitivity to the proposed development. This is due to the local popularity of these footpaths, average levels of use, and their local value. Users of footpaths 131a#1, and footpath 142, represented by viewpoints 8, and 17, would be of low sensitivity to the proposed development. This is due to existing mature vegetation containing views towards the application site, and the horizontal nature of the proposed development.

Road Users

12.5.9 There are a number of busy roads surrounding the application site which connect Hastings, St Leonards, Battle, and other surrounding settlements. The immediate surrounding roads are the A21 to the east of the application site, the B2092 to the west of the application site, and the A2100 to the north of the application site. These road users are represented by viewpoints 1, 2, 9, 11, 13, 15, and 16. They would all be of low sensitivity to the proposed development, this is due to the transient nature of the views and the direction and purpose of travel of these receptors and the fact that the receptors would have relatively low levels of interest in their visual surroundings.

Local Businesses

12.5.10 Users and staff who visit and work within the surrounding local businesses, represented by viewpoints 1, 2, 3, 14, 15, and 16, would be of low sensitivity to the proposed development. This is due to the occupation of the viewers and resultant reduced level of interest in the surrounding landscape.

Visitors to the Recreational Ground

12.5.11 Visitors and participants in recreational activities within the recreation field, represented by viewpoint 17, would be of medium sensitivity to the proposed development. This is due to the existing landform between the field and the application site, and the existing mature vegetation which contains views out towards the application site.

Users of Sainsbury's and Esso Garage

12.5.12 Users of Sainsbury's Supermarket and Esso Garage just off the A21, represented by viewpoints 1, 2, 3, and 16, would be of low sensitivity to the proposed development. This is due to their limited interest in their wider surroundings.

12.6 Potential Landscape and Visual Impacts

Introduction

12.6.1 The LVIA baseline provides an appraisal of the existing landscape and visual resource within the application site and the wider LVIA study area. The following section of the report identifies the potential landscape and visual impacts that would arise due to the construction and operation of the proposed development.

12.6.2 Figure **INCLA_N0244 PL10, Appendix G.1** shows the proposed master plan for the application site, which forms the basis for the assessment.

The Proposed Development

12.6.3 The proposed development is a link road development, joining Queensway with the A21, as shown in Figure **INCLA_N0244 PL10, Appendix G.1**. The proposed development will consist of the following:

- The link road, linking Queensway and the A21;
- Both Junctions at either end of the road;
- Access points;
- Landscape proposals.

12.6.4 It is assumed that the construction of the proposed development would be phased and would include site clearance, preparation and construction.

Potential Landscape and Visual Impacts during Construction

12.6.5 The construction activities, which would potentially cause landscape and visual impacts include:

- Removal and clearance of existing vegetation within the construction zone, including woodland planting, hedgerows, and marshy grassland;
- Earthworks;
- Construction of the proposed development, including the junctions at both ends of the proposed link road, and the access points;
- Installation of lighting columns, signage, and fencing;
- Diversion of the existing footpaths within the proposed development boundaries, whilst the construction activities are carried out;
- Presence of construction plant and vehicles on local roads/haul routes and associated potential for impact on perceptual character e.g. dirt and dust on local roads
- Use of cranes and other construction machinery on site;
- The erection of temporary structures within the construction site compound;
- Movement of construction vehicles across the landscape (on-site and off-site);
- Works associated with the implementation of the landscape scheme;
- Use of construction lighting; and

- Removal of temporary construction facilities.

12.6.6 The main potential landscape and visual impacts of the proposed development during construction, not taking into account any mitigation measures, as summarised below:

- There would be adverse physical impact on landscape elements and features within the application site caused by the site preparation works, removal of vegetation, earthworks, construction activities within the site, movement of vehicles and by implementation of the proposed landscape scheme;
- Potential adverse temporary landscape and visual impacts caused by the construction activities would be localised in scale and restricted to the application site and immediate environs including access points and the junctions at both ends of the proposed link road;
- A temporary, short-term adverse impact on landscape character would occur due to physical impact on landscape within the application site, visibility of construction works, temporary increase in the volume of light pollution, and the movement of heavy machinery and vehicles accessing the application site (all of which would utilise the existing transport infrastructure);There would be temporary adverse visual impacts on nearby visual receptors due to visibility of construction activities, including partially completed parts of the link road and movement of vehicles to, from and within the site. Also due to potential lighting of the works.

Potential Landscape and Visual Impacts on completion.

12.6.7 The main potential landscape and visual impacts of the proposed development once completed, irrespective of any mitigation measures, are summarised below:

- Potential adverse landscape impacts caused by the completed development would be localised in scale and restricted to the application site itself and immediate environs, due to enclosed nature of the area surrounding the application site;
- Potential adverse impact on landscape character would occur due to physical impact on landscape within the application site, introduction of new built form within existing amenity open space, movement of vehicles and people within the application site, and slight increase in the volume vehicular traffic and of light pollution resulting from implementation of the highway lighting scheme;
- Potential adverse physical impact on landscape elements and features within the application site caused by the removal of existing landscape features;
- Potential adverse impact on the local footpaths within the application site being re directed;
- Potential adverse visual impacts on nearby visual receptors due to visibility of the completed and operational scheme including increased traffic, plus lighting.

12.7 Proposed Development and Mitigation

Introduction

12.7.1 The mitigation measures that aim to avoid, minimise and compensate the potential adverse landscape and visual impacts and have been incorporated into the design and into the landscape strategy prepared for the completed scheme.

12.7.2 Consideration of landscape and visual effects of the proposed scheme has been an important part of the project and is reflected in the design evolution of the scheme.

Mitigation Proposals

12.7.3 There are a number of landscape design principles that will guide the implementation of a suitable landscape scheme, based on achieving the following outcomes:

- Where possible, protection, retention and enhancement of good quality woodland planting, trees and hedgerows along all the boundaries of the application site;
- Trees, hedges and shrubs that have poor structure or low value should be removed and new planting should be established where appropriate;
- Use of recommended native species to improve local biodiversity and enhance and define the local character of the open spaces within the immediate area of Hastings Urban Area 31;
- Enhance/ improve the re directed footpaths within the application site, with improved soft landscaping edges and enhanced surfacing;
- Create a lighting strategy that would minimise the potential impacts on the AONB and surrounding sensitive visual receptors;
- Structural planting along the boundaries of the application site to soften views of the proposed development when viewed from the areas of higher elevation to the east, south, and west of the site.

Mitigation of Construction Impacts

12.7.4 During the construction phase, the following mitigation measures should be considered:

- Erection of temporary hoarding, where possible along the boundaries of the application site which are most sensitive in order to limit views from receptors along Sedlescombe Road North, receptors to the west of Queensway, and receptors from Beauport Gardens, during the construction of the proposed development;
- Where possible, retention of existing boundary vegetation along all boundaries of the application site;
- Existing vegetation to be retained would be protected throughout the works in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction;
- Avoidance where possible of security and task lighting during construction.
- Wheel washing of vehicles and plant entering and leaving the site, to reduce the build-up of dust and dirt on local roads.

12.8 Assessment of Landscape Impacts

Introduction

12.8.1 This section describes the residual landscape effects (following implementation of the mitigation measures at year 1 and year 15). The assessment of magnitude of impact and the overall significance of impact is provided for the relevant designations, landscape character areas and landscape elements and features.

Effects on Landscape Character

National Character Area

12.8.2 The national character area (NCA) provides context to the surrounding landscape. National Character Area (NCA) 122 High Weald covers the entire LVIA study area and a substantial area beyond. Impacts would essentially be localised. Due to the nature of the proposed development there would be a negligible impact given the scale of the wider NCA, and on its key characteristics.

Effects on County and Local Landscape Character

12.8.3 The proposed link road development would cause physical effects on landscape elements and features within Hastings urban area 31, and Sub area 14b. The Ridge (Urban), and local

views within these landscape character areas as well as Brede Valley 11, and the High Weald Area of Outstanding Natural Beauty (AONB). There would be no physical effects on any other local landscape character areas identified in the baseline.

12.8.4 Due to the above, detailed assessment of residual landscape effects is provided only for Hastings urban area 31, Brede Valley 11, Sub area 14b. The Ridge (Urban), and the High Weald Area of Outstanding Natural Beauty (AONB).

Hastings urban area 31

12.8.5 During construction, there would be some physical impacts on the character of Hastings Urban Area 31. The direct impact would include the loss of some landscape elements and features such as the application site being cleared of any vegetation, built form, and earth works within the site being carried to enable the proposed development to be built, and the re directing of the PRoW which fall within the application site boundaries. These physical impacts would predominantly affect the northern part of this character area towards its boundary with Brede Valley 11 character area and the High Weald AONB. Although there would be physical impacts within this character area, these impacts would be localised in context, temporary in duration and would only affect a relatively small part of this character area. The magnitude of impact during construction is assessed as medium and adverse and the overall significance of the temporary effect is assessed as moderate and not significant.

12.8.6 In terms of operational impacts, the magnitude of effect at year 1 is assessed as low, as it would be limited to a small and localised part of this character area. Although the loss of the existing landscape elements and features would occur at a local level in relation to the scale of the character area, new planting would be delivered as part of the landscape mitigation strategy and would partly compensate these losses The duration of operational effect at year 1 would be short to medium-term. The significance and nature of this non- reversible residual effect at year 1 would be minor adverse, not significant.

12.8.7 The magnitude of operational impact at year 15 is assessed as negligible, as it would be limited to a small, and localised part of this character area as the loss of the existing landscape elements and features would be mitigated by the proposed planting. The operational effect at year 15 would be permanent. The significance and nature of this residual effect would be minor adverse, perhaps declining to negligible as the planting matures (not significant).

Brede Valley 11

12.8.8 The proposed development would not cause any significant effects during construction, or on completion – operational year 1, or operational year 15 on the landscape which falls within the Brede Valley 11 character area. This is due to the well wooded nature of the character area and localised effects of the proposed development.

Sub area 14b. The Ridge (Urban)

12.8.9 During construction, there would be some limited physical impacts on the sub character area 14b: The Ridge (Urban). The direct impact would include the very limited loss of landscape elements and features, such as the removal of some scrub and woodland planting on the eastern boundary of the proposed development (the character area's western boundary). This physical impact would be very limited and would affect a very small part of this character area. The magnitude of impact is assessed as negligible and adverse and the overall significance of the temporary effect is assessed as negligible and not significant.

12.8.10 The magnitude of the operational impact at year 1 is assessed as negligible, as it would be limited to a very small, and localised part of this character area. The loss of the existing landscape elements and features would be compensated by new planting delivered as part of the mitigation landscape strategy. The duration of operational effect at year 1 would be short to medium-term. The significance and nature of this non- reversible residual effect at year 1 would be negligible adverse, not significant.

12.8.11 During operational year 15, once the proposed mitigation planting has matured, there would be a negligible impact upon this character area, and due to the enhancement of the

boundaries to this area with mature mitigation planting there would potentially be a slight beneficial impact upon this LCA, albeit localised in occurrence.

Effects on Areas of Designated Landscape

(The High Weald AONB)

12.8.12 The proposed development would not cause any significant effects during construction, on completion- operational year 1, or operational year 15 on the landscape of the High Weald Area of Outstanding Natural Beauty or attendant special qualities of designation. This is due to the enclosed nature of the AONB at the closest point to the proposed development, the nature of the proposed development, and the varying landform, as well as the indirect nature of effect on the AONB arising from the proposed development. Effects on the AONB and its associated special qualities are therefore assessed as negligible.

Application Site Elements and Features

12.8.13 During construction, there would be some physical impacts on the application site's landscape elements and features. The direct impact would include the loss of landscape elements and features, such as the removal of some scrub and woodland planting, marshy grassland, and some hedgerow planting. Although there would be physical impacts to the application site's elements and features, during construction, it would be for a limited period of time (temporary) and would be confined to the site itself. The residual landscape impact would be moderate adverse due to the contained nature of impact and presence of comparable landscape elements nearby.

12.8.14 The magnitude of the operational impact at year 1 is assessed as low. Although loss of the existing landscape elements and features would occur, new planting would be delivered as part of the site's mitigation landscape strategy which would compensate these losses to a degree over time. The duration of operational effect at year 1 would be short to medium-term. The significance and nature of this non - reversible residual effect at year 1 would be moderate adverse, not significant.

12.8.15 The magnitude of operational impact at year 15 is assessed as low due to the loss of the existing landscape elements and features being mitigated by the proposed planting as it reaches maturity. The operational effect at year 15 would be permanent. The significance and nature of this residual effect would be minor adverse and not significant.

12.9 Assessment of Visual Effects

Introduction

12.9.1 A series of representative, illustrative and specific viewpoints, within both the immediate area and the wider surroundings, have been identified to assess the visual impact of the proposed residential development on a range of receptors within the surrounding area.

12.9.2 Detailed descriptions of the predicted visual change and the assessment of magnitude of effects on views illustrated by these viewpoints is provided in **Appendix G.3**.

Residual Effects on Visual Receptors

12.9.3 The paragraphs below provide the assessment of effects on visual receptors by considering the sensitivity of the receptors and the magnitude of effect assessed for each of the representative viewpoints (see **Appendix G.3**).

Residents

12.9.4 During construction, residents along Sedlescombe Road (A21), would experience residual visual effects of major adverse short term and temporary (significant). This is due to their close proximity to the proposed development and the position and location of the proposed development on top of the local ridgeline opposite these properties. Although these residual effects are significant they would be viewed for a relatively short period of time and would also be viewed in combination with traffic on the busy A21. Residents north of Beauport Home Farm Close, residents within Beauport Home Farm Close, and residents within Beauport Gardens would experience residual visual effects of moderate adverse nature, short term and

temporary. This is due to the existing vegetation, and varying topography partially screening views towards the construction activities on site. Residents of Beauharrow Road, Maplehurst Road, and The Ridge are further away from the proposed development and would experience residual visual effects ranging from minor to moderate adverse short term and temporary. This is predominantly due to their distance from the construction activities, existing vegetation and varying topography, all of which contribute to containing views.

12.9.5 On completion (operational year 1), before the proposed mitigation planting has begun to establish, residents along Sedlescombe Road (A21), would experience residual visual effects of major adverse significance medium term and non- reversible (Significant). This is predominantly due to their close proximity to the built development and the varying topography. Residents north of Beauport Home Farm Close, residents within Beauport Home Farm Close, residents within Beauport Gardens and residents just south of Beauport Gardens, would experience residual visual effects ranging from negligible to moderate adverse medium term and non- reversible. This is due to their predominantly existing sub urban settings, the varying topography and proximity to the link road. Further away from the link road, residents of Beauharrow Road, Maplehurst Road, and The Ridge would experience residual visual effects ranging from negligible to moderate adverse medium term and non-reversible. This is predominantly due to their distance from the link road, existing vegetation and varying topography, all of which contribute to containing views.

12.9.6 At operational year 15, once the proposed mitigation planting has established and matured, residents along Sedlescombe Road (A21), would experience residual visual effects of moderate adverse nature long term and permanent. This is predominantly due to their close proximity to the proposed development and the varying topography. Residents north of Beauport Home Farm Close, residents within Beauport Home Farm Close, residents within Beauport Gardens and residents just south of Beauport Gardens, would experience residual visual effects of negligible adverse nature long term and permanent (Not significant). This is predominantly due to the mitigation planting reaching maturity and therefore screening many views. Further away from the link road, residents of Maplehurst Road, and The Ridge would experience residual visual effects of minor adverse nature, long term and permanent (not significant). This is due to their elevated location, and the varying topography of the link road. There would be negligible impact on the residents of Beauharrow Road, this is predominantly due to the distance at which the road is viewed from, the varying topography, and the proposed and existing mature planting surrounding the road, all of which aid in screening views toward the link road.

Users of the local PRoW

12.9.7 During construction, users of PRoW number Hastings 129, PRoW number Hastings 131a#2, and PRoW number Hastings 130 would experience residual visual effects of major adverse short term and temporary (significant). This is due to their close proximity to the application site and temporary closure/ redirection of these PRoWs. Users of PRoW number/ Access Track Hastings 131a#1, and PRoW number Hastings 129 would experience residual visual effects ranging from negligible to moderate adverse short term and temporary.

12.9.8 On completion (operational year 1), before the proposed mitigation planting has begun to establish, users of PRoW number Hastings 129, PRoW number Hastings 131a#2, and PRoW number Hastings 130 would experience residual visual effects of major adverse medium term and non- reversible (significant). This is due to their close proximity to the application site. Users of PRoW number/ Access Track Hastings 131a#1, and PRoW number Hastings 129 would experience residual visual effects ranging from negligible to moderate adverse medium term and non- reversible.

12.9.9 At operational year 15, once the proposed mitigation planting has established and matured, users of PRoW number Hastings 129, PRoW number Hastings 131a#2, PRoW number Hastings 130, PRoW number/ Access Track Hastings 131a#1, and PRoW number Hastings 129 would experience residual visual effects ranging from negligible to moderate adverse long term and permanent.

Road users

12.9.10 During construction, users of the local roads in the immediate and wider context of the proposed development such as users of the A2100, A21, B2092 would experience residual visual effects ranging from **minor** to **moderate** adverse short term and temporary.

12.9.11 On completion (operational year 1), before the proposed mitigation planting has begun to establish, users of the local roads in the immediate and wider context of the proposed development such as users of the A2100, A21, B2092 would experience residual visual effects ranging from **minor** to **moderate** adverse medium term and non- reversible.

12.9.12 At operational year 15, once the proposed mitigation planting has established and matured, users of the local roads in the immediate and wider context of the proposed development such as users of the A2100, A21, B2092 would experience residual visual effects ranging from **negligible** to **moderate** adverse long term and permanent.

Local Businesses

12.9.13 During construction, the local businesses immediately surrounding the proposed development along the A21, Whitworth Road, and along the A2100 would experience residual visual effects ranging from **minor** to **moderate** adverse short term and temporary.

12.9.14 On completion (operational year 1), before the proposed mitigation planting has begun to establish, the local businesses immediately surrounding the proposed development along the A21, Whitworth Road, and along the A2100 would experience residual visual effects ranging from **minor** to **moderate** adverse medium term and non- reversible.

12.9.15 At operational year 15, once the proposed mitigation planting has established and matured, the local businesses immediately surrounding the proposed development along the A21, Whitworth Road, and along the A2100 would experience residual visual effects of **minor** adverse long term and permanent (**not significant**).

Visitors to the recreation ground

12.9.16 During construction of the proposed link road, and on completion (operational year 1) before the proposed mitigation planting has begun to establish, visitors to the recreation ground off Harrow Lane would experience residual visual effects of **negligible** adverse nature, short term and temporary (**not significant**) during construction and **negligible** adverse medium term and non- reversible impacts (**not significant**) in operational year 1. This is predominantly due to varying topography, existing vegetation, and the viewing distance, all of which contribute to views from this location being partially screened.

12.9.17 During operational year 15, once the proposed mitigation planting has established and matured, visitors to the recreation ground off Harrow Lane would experience residual visual effects of **negligible** adverse nature, long term and permanent (**not significant**). This is predominantly due to varying topography, existing and mature mitigation planting, and the distance from the vantage point, all of which partially obscure views from this location.

Users of the Esso Garage and the Sainsbury's store

12.9.18 During construction, users of the Esso Garage and the Sainsbury's Store would experience residual visual effects ranging from **minor** to **moderate** adverse short term and temporary. This is predominantly due to their relatively low sensitivity, orientation of the proposed development, and varying topography.

12.9.19 On completion (operational year 1), before the proposed mitigation planting has begun to establish, users of the Esso Garage and the Sainsbury's Store would experience residual visual effects ranging from **minor** to **moderate** adverse medium term and non- reversible. This is predominantly due to the orientation of the link road, and varying topography.

12.9.20 At operational year 15, once the proposed mitigation planting has established and matured, users of the Esso Garage and the Sainsbury's Store would experience residual visual effects ranging from **minor** to **moderate** adverse long term and permanent. This is predominantly due to the orientation of the link road, varying topography, and the mature mitigation planting which will aid in screening the link road.

Summary of Residual Visual Effects during Construction

12.9.21 The following table provides a summary of the identified residual effects for each main group of receptors during construction of the proposed development.

Table 1: Summary of Residual Visual Effects during Construction

Receptor	Sensitivity	VP ref	Magnitude of Impact	Nature of effect	Significance of effect
Residents	High	1, 2	Medium	Major	Significant
Residents	High	7, 8, 10, 11	Low	Moderate	Significant
Residents	Medium	15	Medium	Moderate	Significant
Residents	Medium	5	Low	Minor	Not significant
PRoW users	Medium	6, 12, 16	High	Major	Significant
PRoW users	Medium	14	Medium	Moderate	Significant
PRoW users	Medium	4, 7	Low	Minor	Not significant
PRoW users	Low	8	Low	Minor	Not significant
PRoW users	Low	17	Negligible	Negligible	Not significant
Road users	Low	16	High	Moderate	Not significant
Road users	Low	1, 2, 9, 13, 15	Medium	Minor	Not significant
Road users	Low	11	Low	Minor	Not significant
Local Businesses	Low	3, 16	High	Moderate	Not significant
Local Businesses	Low	1, 2, 14, 15	Medium	Minor	Not significant
Visitors to the recreation ground	Medium	17	Negligible	Negligible	Not significant
Users of the Esso Garage and the Sainsbury's store	Low	3, 16	High	Moderate	Not significant
Users of the Esso Garage and the Sainsbury's store	Low	1, 2,	Medium	Minor	Not significant

Summary of Residual Visual Effects during Operational year 1

12.9.22 The following table provides a summary of the residual visual effects for each of the main groups of receptors during operational year 1; before the mitigation planting has established and matured.

Table 2: Summary of Residual Visual Effects during Operational- Year 1

Receptor	Sensitivity	VP ref	Magnitude of Impact	Nature of effect	Significance of effect
Residents	High	1, 2	Medium	Major	Significant
Residents	High	7, 8, 10, 11	Low	Moderate	Significant
Residents	Medium	5	Negligible	Negligible	Not significant
Residents	Medium	15	Medium	Moderate	Significant
PRoW users	Medium	6, 12, 16	High	Major	Significant
PRoW users	Medium	14	Medium	Moderate	Significant
PRoW users	Medium	4, 7	Low	Minor	Not significant

PRoW users	Low	8	Low	Minor	Not significant
PRoW users	Low	17	Negligible	Negligible	Not significant
Road users	Low	16	High	Moderate	Not significant
Road users	Low	1, 2, 9, 13, 15	Medium	Minor	Not significant
Road users	Low	11	Low	Minor	Not significant
Local Businesses	Low	1, 2, 14, 15	Medium	Minor	Not significant
Local Businesses	Low	3, 16	High	Moderate	Not significant
Visitors to the recreation ground	Medium	17	Negligible	Negligible	Not significant
Users of the Esso Garage and the Sainsbury's Store	Low	3, 16	High	Moderate	Not significant
Users of the Esso Garage and the Sainsbury's Store	Low	1, 2	Medium	Minor	Not significant

Summary of Residual Visual Effects during Operational year 10

12.9.23 The following table provides a summary of the residual visual effects for each of the main groups of receptors during operational year 10; once the mitigation planting has established and matured.

Table 3: Summary of Residual Visual Effects during Operational- Year 10

Receptor	**Sensitivity**	**VP ref**	**Magnitude of Impact**	**Nature of effect**	**Significance of effect**
Residents	High	7, 8, 10, 11	Negligible	Negligible	Not significant
Residents	High	1, 2	Low	Moderate	Significant
Residents	Medium	15	Low	Minor	Not significant
PRoW users	Medium	5	Negligible	Negligible	Not significant
PRoW users	Medium	6, 12, 14, 16	Medium	Moderate	Significant
PRoW users	Medium	4, 7	Negligible	Negligible	Not significant
PRoW users	Low	8	Negligible	Negligible	Not significant
PRoW users	Low	17	Negligible	Negligible	Not significant
Road users	Low	16	Medium	Minor	Not significant
Road users	Low	1, 2, 9, 13, 15	Low	Minor	Not significant
Road users	Low	11	Negligible	Negligible	Not significant
Local Businesses	Low	3, 14, 16	Medium	Minor	Not significant
Local Businesses	Low	1, 2, 15	Low	Minor	Not significant
Visitors to the recreation ground	Medium	17	Negligible	Negligible	Not significant
Users of the Esso Garage and the Sainsbury's store	Low	16	Medium	Minor	Not significant
Users of the Esso Garage and the Sainsbury's store	Low	3	Medium	Minor	Not significant
Users of the Esso Garage and the Sainsbury's	Low	1, 2	Low	Minor	Not significant

store					

12.10 Assessment of Cumulative Effects

Cumulative developments

12.10.1 There are two cumulative developments which have been considered within this LVIA, however they are located outside of the LVIA study area. These cumulative developments have been identified by Sea Change Sussex and have potential to cause cumulative landscape and visual effects with the proposed link road development. These cumulative developments are the Bexhill Link Road (BHLR) approximately 2.76km south west of the proposed development/ application site and the Bexhill Enterprise Park (BHEP) approximately 5.80km south west of the proposed development/application site.

Cumulative Landscape Effects

12.10.2 The cumulative assessment methodology is the same as that set out for the main LVIA reported above.

12.10.3 The implementation of the proposed development in combination with the BHLR would not cause any significant cumulative effect on any landscape receptors within the LVIA study area in addition to the residual operational effects of the standalone proposed development. This is due to the distance between the BHLR and the proposed link road development, existing mature vegetation, existing built form, and the horizontal nature of both developments. As such, cumulative assessment judgements for the landscape and visual receptors would be as reported in the main LVIA above.

12.10.4 The implementation of the proposed development in combination with the BHEP would cause very negligible cumulative effects on the landscape receptors within the LVIA study area. This is due to the distance between the BHEP and the proposed link road development, existing mature vegetation, existing built form. As such, cumulative assessment judgements for the landscape and visual receptors would be as reported in the main LVIA above.

Cumulative Visual Effects

12.10.5 The cumulative assessment methodology is the same as that set out for the main LVIA reported above.

12.10.6 The implementation of the proposed development in combination with the BHLR would not cause any significant cumulative effect on any visual receptors within the LVIA study area in addition to the residual operational effects of the standalone proposed development. This is due to the distance between the BHLR and the proposed link road development, existing mature vegetation, existing built form, and the horizontal nature of both developments. As such, cumulative assessment judgements for the landscape and visual receptors would be as reported in the main LVIA above.

12.10.7 The implementation of the proposed development in combination with the BHEP would cause very negligible cumulative effects on the visual receptors within the LVIA study area. This is due to the distance between the BHEP and the proposed link road development, existing mature vegetation, existing built form. As such, cumulative assessment judgements for the landscape and visual receptors would be as reported in the main LVIA above.

12.11 Summary and Conclusions

Introduction

12.11.1 The Landscape and Visual Impact Assessment of the proposed development has been completed in accordance with published good practice guidance (LI/IEMA publication, Guidelines for Landscape and Visual Impact Assessment, 3rd Edition).

12.11.2 An assessment of landscape and visual components of the application site and the wider LVIA study area was undertaken through desktop and field study. This identified the main landscape and visual receptors, and resulted in a baseline appraisal in the context of which landscape and visual impacts could be assessed.

12.11.3 The main landscape and visual implications of the proposed development and the potential impacts were identified. Considering the sensitivity of each receptor with the magnitude of effect that the proposed development would have on that receptor, enabled the significance of the residual impacts (following the implementation of the identified landscape and visual mitigation measures) to be assessed.

Landscape Assessment

12.11.4 The proposed development would not cause any significant effects on areas of designated landscape, such as the High Weald AONB, and local landscape character areas including landscape elements and features surrounding the site. However, the residual landscape impact would be **moderate** adverse within the application site due to the contained nature of impact and presence of comparable landscape elements nearby.

12.11.5 During operational year 15, once the proposed mitigation planting has matured, the significance of landscape effect on the character and features within Hastings Urban Area 31 is assessed as negligible adverse, long-term and permanent (not significant). This effect would be confined to the immediate surroundings of the application site due to the physical impacts of the proposed development within the application site itself and localised change to its landscape features. As such only a small part of the character area would be affected. The overall key characteristics of these LCA would not be significantly affected. There would no impact on the neighbouring LCAs.

Visual Assessment

12.11.6 The visual effects of the proposed link road development would be very limited in the context of the entire LVIA study area. This is due to the flat nature of the proposed development, existing intervening vegetation, and varying topography surrounding the proposed link road development. The key views which would experience the most change would be from the immediate area of Sedlescombe Road (A21) and from PRoWs within the application site. Further away from the proposed link road development, views from the north, east, south, and west towards the application site, would be contained by existing mature vegetation, varying topography and built form.

12.11.7 The construction of the proposed scheme would cause significant visual effects only for a small group of residents and PRoW users in the immediate vicinity and from within the application site. The significance of the residual visual effects for the residents along Sedlescombe Road (A21), and PRoW users from within the site would be **major** (Significant), however, this effect would be localised in scale, temporary and short term.

12.11.8 On completion of the scheme (operational year 1), before the mitigation planting has begun to mature, a small group of residents and PRoW users in the immediate vicinity and from within the application site would experience significant visual effects. The significance of the residual visual effects for the residents along Sedlescombe Road (A21), and PRoW users from within the site would be **major** (Significant), however, this effect would be localised in scale, medium term and non- reversible.

12.11.9 At operational year 15, once the proposed mitigation planting has established and matured, the receptors would experience residual visual effects ranging from **negligible** to **moderate** (Not significant). This is due to the flat nature of the proposed development, varying topography, and mature existing and proposed mitigation planting, aiding the screening of views from the surrounding areas.

Cumulative Assessment

12.11.10 The significance of cumulative landscape and visual effects would be the same as reported for the operational phase of the proposed development.

12.12References

National Planning Policy Framework, Department of Communities and Local Government, March **2012;**

Hastings Borough Council Local Plan, Hastings Borough Council, 2004-2011 – saved policies Adopted 2004;

Rother District Council Local Plan, Rother District Council – saved policies Adopted, July 2006;

Hastings Local Plan Proposals Map, Hastings Borough Council, 2014, online resource accessed at:

http://www.hastings.gov.uk/environment_planning/planning/local_plan_active/map_index.html#proposals_inset_maps

Rother Local Plan Proposals Map, Rother District Council, 2014, online resource accessed at:

http://rother.devplan.org.uk/map.aspx?map=19&layers=all

National Character Area profile: 122: The High Weald, Natural England, 2013;

East Sussex Landscape Character Assessment, East Sussex County Council, 2010;

Guidelines for Landscape and Visual Impact Assessment (GLVIA) Third Edition, Landscape Institute and IEMA, 2013;

Landscape Character Assessment Guidance, Former Countryside Agency, 2002;

The Highways Agency (HA), "Design Manual for Roads and Bridges: Volume 11, Section 3", 1993.

13 Ground Conditions

13.1 Introduction

13.1.1 This chapter identifies the likely significant effects of the proposed development in relation to ground conditions with consideration given to potential ground stability and contamination related impacts. This chapter has been prepared by CampbellReith and is supported by a Phase I Geoenvironmental and Geotechnical Desktop Study report comprising a ground stability appraisal and a Tier 1 qualitative contamination risk assessment (herein referred to as 'CampbellReith 2014') presented as **Appendix H**.

13.1.2 Surface water drainage including water quality is addressed in **Chapter 14** of this ES.

13.1.3 The chapter describes the baseline conditions existing at the site and surroundings, the potential direct and indirect effects of the ground conditions, the methods used to assess the impacts, the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual effects after these measures have been employed.

Impacts considered

13.1.4 This chapter considers the effects relating to both:

- Potential geotechnical issues arising from land instability (under NPPF); and,
- Potential contamination issues associated with historical land-use in the east 'brownfield' part of the site; and,
- Potential contamination issues associated with future land-use such as chemical storage and waste disposal.

13.1.5 **T**he presence of contamination can impact human health and the environment, adversely affecting or restricting the beneficial use of land. Without appropriate mitigation, the presence of substances with potential to cause harm to human health, property and the wider environment may limit or altogether preclude development.

13.1.6 In addition, it is recognised that certain soils can be a cause of land instability, either as a result of natural processes or as a result of historical anthropogenic activities such as mining or excavation, resulting in landslides or slips, soil creep, and ground compression. Where there are reasons for suspecting instability, appropriate assessments are undertaken to determine whether a development will be threatened by unstable ground conditions

Study Area for Ground Conditions

13.1.7 The commentary presented in this chapter is focussed on a study area comprising the site. Searches were centred on an approximate grid reference 579452, 113063) with radius of up to 1km from this point (the 1:2500 scale historical maps were based on a search radius of 250m).

13.2 Policy Context

13.2.1 The protection and conservation of the soil and groundwater environment is covered within a variety of legislative and policy frameworks.

13.2.2 UK legislation on contaminated land is principally contained in Part 2A of the Environmental Protection Act, 1990, as amended by the Environment Act 1995. The Statutory Guidance that accompanies the Act has recently been revised and was issued by DEFRA in April 2012 (Department of Environment, Food and Rural Affairs Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance).

13.2.3 Contaminated Land for the purpose of Part 2A is defined as: "…any land which appears to the local authority in whose area it is situated to be in such condition, by reason of substances in, on or under land that: (i) Significant harm is being caused or there is significant possibility of such harm being caused; or (ii) Pollution of controlled waters is being, or is likely to be, caused."

13.2.4 Part 2A defines 'harm' as "harm to the health of living organisms or other interference with the ecological systems of which they form part, and, in the case of man, includes harm to his

property". The notion of 'significant harm' and the 'significant possibility' of such harm being caused is also set out within Part 2A. The local authority is required to assess whether the harm, or the possibility of the harm being caused, is significant. The definition is modified where harm is attributable to radioactivity.

13.2.5 The principle of risk assessment underlies the determination of whether these definitions apply in the identification of contaminated land. Risk assessment is carried out via 'source-pathway-receptor' principles to evaluate the potential for pollutant linkages and to identify unacceptable risk. The application of risk assessment techniques to the management of contaminated land is set out in the technical framework presented in the Model Procedures for the Management of Contaminated Land (EA 2004).

13.2.6 DEFRA recently reviewed the contaminated land regime in England for the first time could be made to the regime, taking into account the experience of nearly ten years of delivery and the latest scientific evidence. The review found the primary legislation (Part 2A of the Environmental Protection Act 1990) remained fit for purpose, and there was a strong need to keep it, however there were flaws in the accompanying Statutory Guidance which had undermined the effectiveness of the regime and created considerable regulatory uncertainty.

13.2.7 Following the review of the contaminated land regime including public consultation, revised Statutory Guidance was issued and the Contaminated Land (England) (Amendment) Regulations 2012 (SI 2012/263) and the Contaminated Land Statutory Guidance for England 2012 came into force on 6th April 2012. This revised Statutory Guidance while still taking a precautionary approach allows regulators to make quicker decisions about whether or not land is contaminated under Part 2A preventing costly remediation operations being undertaken unnecessarily. It also offers better protection against potential health impacts by concentrating on the sites where action is actually needed.

13.2.8 The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive2006/118/EC of the Water Framework Directive 2000/60/EC (WFD) are the main European legislation in place to protect groundwater. Under Article 22 of the WFD the 1980 Directive was repealed in December 2013.

13.2.9 Controlled waters are also protected by Part 2A of the Environmental Protection Act 1990.

13.2.10 The Environment Agency has a remit to prevent or reduce the risk of water pollution, wherever possible, and to ensure that it gets cleaned up if pollution occurs that might lead to effects on ecosystems or people. A regulatory regime supporting this policy has been introduced by the Water Resources Act 1991 (as modified by the Environment Act 1995), the Environmental Permitting Regulations 2010.

National Planning Policy Framework

13.2.11 The publication of the National Planning Policy Framework (NPPF) in March 2012 and its immediate implementation has resulted in the withdrawal of the following national planning policies associated with ground conditions:

- Planning Policy Statement (PPS) 9: Biodiversity and geological conservation;
- Planning Policy Guidance (PPG) 14: Development on unstable land;
- Planning Policy Statement (PPS) 23: Planning and pollution control; and
- Letter to the Chief Planning Officers: Model planning conditions for development on land affected by contamination.

13.2.12 Associated with the release of the NPPF is the review of the technical guidance that accompanies Section 57 of the Environmental Protection Act (EPA). This guidance came into force on the 6th April 2012 and reviews the way contaminated land is assessed under the EPA.

13.2.13 Section 11, Paragraphs 120 and 121 of the National Planning Policy Framework (NPPF) (DCLG 2012) describe the policy considerations the Government expects Local Planning Authorities (LPA) to have in regard to land affected by contamination when preparing policies for development plans and in taking decisions on applications.

13.2.14 For planning purposes, the NPPF requires that the assessment of risks arising from contamination and remediation requirements should be considered on the basis of the current environmental setting, the current land use, and the circumstances of its proposed new use. The NPPF stipulates that planning policies and decisions should ensure that:

- *"The site is* suitable *for its new use taking account of ground conditions and land instability, including from natural hazards or former activities from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation"; and that*
- *"After* remediation*, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990; and adequate site investigation information, prepared by a competent person, is presented."*

Regional Spatial Strategy

13.2.15 The Regional Spatial Strategy for the South East was revoked on 25th March 2013, with the exception of two spatially specific policies. Neither of these retained policies relate to the proposed development, as they are spatially specific.

Local Planning Policy

13.2.16 The Rother Local Plan was adopted in June 2006. The Local Plan is the statutory local plan for Rother District. The Local Plan 2006 sets out a framework of policies to guide and encourage development in the Rother District, whilst safeguarding and enhancing the environment. The following policies from the Local Plan are considered relevant in relation to ground conditions.

Policy DS1

13.2.17 In determining whether development is appropriate in a particular location, proposal should accord with the following principle (xiii) to "*avoid development on unstable land except where the proposal demonstrates that actual or potential instability can reasonably be overcome*":

Policy DG1

13.2.18 All development should meet the following criteria: *(xiii) which states that the development should properly address any known or suspected contamination of the site, or threat from landfill gas, through site investigations and suitable remediation.*

13.2.19 Appendix 2 of the Local Plan, refers to Key Structure Plan and Waste Local Plan policies as referenced in the Local Plan and includes: *Twenty One Criteria for the 21st Century*

(g) protecting and enhancing water quality and maintaining groundwater and river levels for human consumption, industrial and agricultural water supply and to support local biodiversity;

(h) avoiding the development of land which is unstable, at risk to flooding or which would be likely to increase the risk of flooding elsewhere;

(j) according with the objectives of and not causing damage to the Sussex Downs and High Weald Areas of Outstanding Natural Beauty (AONB), Ashdown Forest, downland, wetland, open heathland, ancient woodlands, undeveloped coast (including Heritage Coast), Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA), Special Areas of Conservation (SAC), Ramsar sites, nature reserves, ancient monuments, conservation areas, historic parks and gardens, battlefields and other areas of designated or recognised important landscape, archaeological, geological, ecological or historical character and their settings;

Nature Conservation

13.2.20 EN17 states that the:

"existing natural resource of species, habitats and geological features, including statutory sites of national and international importance and their settings, ancient woodland, and other sites of demonstrable geological, landscape or wildlife importance (including the active residence of specially protected species) will be protected from damage. Particular regard will be paid to the protection of river corridors and the special habitats of downland, wetland, open heathland, ancient woodland, meadows, salt marsh and shingle. *This policy includes*

sites notified under the Ramsar convention, Special Protection Areas (SPA) and Special Areas of Conservation (SAC); Sites of Special Scientific Interest (SSSI), National, Marine and Local Nature Reserves (NNR, MNR, LNR); and non-statutory sites such as Sites of Nature Conservation Importance (SNCI) and Regionally Important Geological Sites (RIGS)."

Guidance

13.2.21 There are numerous technical guidance documents on the assessment and management of contamination including Contaminated Land Report CLR 11 (EA 2004).

13.2.22 A summary of the guidance relating to the protection of groundwater resources is presented in the publication by the Environment Agency (EA) entitled 'Groundwater Protection: Principles and Practice (GP3)' (EA, 2012).

13.3 Methodology

13.3.1 An EIA Scoping Opinion was sought from HBC on the 7th October 2014. In relation to ground conditions the development was identified as being on agricultural land "*unlikely to include significant contamination*". It was therefore proposed that the ground conditions chapter would be based on a Tier 1 Ground Conditions Assessment. RDC's EIA Scoping Opinion supported the proposed approach.

13.3.2 Model Procedures for the Management of Contaminated Land Report CLR 11 (EA 2004) promotes a tiered approach to the assessment of land and water quality as follows:

- Tier 1 – a *qualitative* assessment of historical and published information, together with a site reconnaissance, undertaken in order to develop a preliminary conceptual site model and inform a preliminary risk assessment;
- Tier 2 – an *assessment* of ground condition data using published generic assessment criteria to screen the site and establish whether there are actual, or potential, unacceptable risks; and
- Tier 3 - detailed - a quantitative assessment involving the generation of site specific assessment criteria (if deemed necessary).

13.3.3 In order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences a source-pathway-receptor methodology is adopted, with the underlying principle the identification of pollutant linkages. A pollutant linkage consists of the following three elements:

- A source/hazard (a substance or situation that has the potential to cause harm or pollution);
- A pathway (a means by that the hazard moves along / generates exposure);
- A receptor/target (an entity that is vulnerable to the potential adverse effects of the hazard).

13.3.4 Without a pollutant linkage the contamination may be a hazard but does not constitute a risk unless all three elements are present. Therefore, in assessing the potential for contamination to cause a significant effect, the extent and nature of the potential source or sources of contamination must be assessed, pathways identified, and sensitive receptors or resources identified and appraised, to determine their value and sensitivity to contamination related impacts.

13.3.5 The methodology that has been used for the assessment of significant effects is presented below and includes assessment of:

- The effects of the existing ground conditions on the proposed development; and,
- The effects of the proposed development on the ground conditions i.e. construction and operational impacts.

13.3.6 Where relevant, reference is made to other specialist chapters within this Environmental Statement.

13.3.7 The assessment has been carried out with reference to the requirements of the Design Manual for Roads and Bridges (DMRB) Volume 4, Section 1 (Earthworks), Part 7 and DMRB Volume 11, Section 3 (EIA Techniques), Part 11 which requires:-

- Identification of Baseline Conditions, in this instance these have been determined from a review of available published information as described in the Phase I report in **Appendix H+**;
- Prediction of the changes to the baseline conditions as a result of the proposed development;
- Identification of the mitigation measures required;
- Assessment of the residual construction impacts in the context of the proposed mitigation;
- Assessment of the residual operational impacts in the context of the proposed mitigation; and,
- Conclude the key findings.

13.3.8 The methodology adopted in this chapter is qualitative with a progression from factual information (stated with reasonable certainty) regarding the baseline conditions, to appraisal informed by professional judgement and expression of opinions on the relative significance.

13.3.9 Baseline conditions have been identified using CampbellReith 2014, a Phase I Geoenvironmental and Geotechnical Desktop Study report which presents information on the geoenvironmental and geotechnical setting of the site, attached as **Appendix H**. CampbellReith 2014 describes the types and locations of:

- Potential sources of contamination, based on identification of current and historic land-uses; and,
- Potential geotechnical hazards, based on identification of geotechnical hazards (such as slope stability, shallow groundwater and shrinkage/swelling of clay stratum).

13.3.10 The report also identifies the type and sensitivity of potential receptors (including consideration of human health, buildings, groundwater, surface water and ecological systems) and, identification of associated pathway between sources and receptors.

13.3.11 Whilst there are some inherent limitations associated with Phase I studies, it is considered that any uncertainties with the land and water quality baseline dataset for the proposed development are small.

13.3.12 A Phase I report presents information from the following sources:

- Historical and current Ordnance Survey maps;
- Review of available published British Geological Society (BGS) geological maps and memoirs;
- Review of BGS Borehole Records (if appropriate/available);
- Search databases holding environmental information in the public domain (Landmark Envirocheck Report);
- Review of CampbellReith's internal database of ground investigation reports and surveys;
- Review of radon risk;
- Review of published maps on hydrogeology and groundwater vulnerability;
- Requests to the Council for information;
- Inspection of the site and surrounding area for visual evidence of potentially contaminative and geotechnically important features.

13.3.13 A potential risk exists when a pollutant linkage is identified when all the three elements are connected. The level of “Risk” involves establishing what degree of harm might result to defined receptors (consequence) and how likely (the probability of the event occurring).

13.3.14 Significance of effect is a function of the magnitude of impact (deviation from the baseline condition), the sensitivity and value of the receptor/resource, the duration and reversibility.

13.3.15 A receptor is classified in terms of its value or sensitivity; the criteria used in this ground conditions chapter are described in **Table 13.1**. The classifications have been generated using descriptions of environmental receptor importance and value given in various guidance documents including NHBC 2008 and DETR 2000. Human health and buildings classifications have been generated by CampbellReith using the attribute description for each class.

TABLE 13.1 CRITERIA USED IN GROUND CONDITIONS FOR CLASSIFYING RECEPTOR VALUE OR SENSITIVITY

Classification	Definition
High Receptor of national or international importance	Groundwater: Source Protection Zone & Principal Aquifer Surface water: High Ecological Status Ecology: Special Areas of Conservation (SAC and candidates), Special Protection Areas (SPA and potentials) or wetlands of international importance (RAMSAR) Buildings: World Heritage site or Conservation Area Human health: Residential and uses where children are present
Medium Receptor of county or regional importance	Groundwater: Secondary A aquifer Surface water: Good or Moderate Ecological Status Ecology: SSSI, National or Marine Nature Reserve (NNR or MNR) County wildlife sites Buildings: Area of Historic Character Human health: Employment
Low Receptor of local importance	Groundwater: Secondary B Aquifer or Unproductive Surface water: Poor Ecological Status Ecology: local habitat resources or no designation Buildings: Local value Human health: Transient or Limited Access

13.3.16 For the purposes of this ground condition chapter the following criteria have been adopted to describe magnitude in **Table 13.2**.

TABLE 13.2: DESCRIPTIONS OF MAGNITUDE

Magnitude	Description
Very Large	Extensive spatial distribution of contaminants with concentrations in excess of applicable thresholds (e.g. SGVs/GACs) and where a full pollutant linkage has been identified.
Large	Concentrations of contaminants in excess of applicable thresholds (e.g. SGVs/GACs) and where a full pollutant linkage has been identified
Medium	Concentrations of contaminants are below applicable thresholds (e.g. SGVs/GACs) but a full pollutant linkage has been identified
Small	Concentrations of contaminants in excess of applicable thresholds but where

	no pollutant linkage has been identified.
Negligible	Concentrations of contaminants are below applicable thresholds (e.g. SGVs/GACs) and no pollutant linkage has been identified

13.3.17 The matrix for assigning the various significance criteria is presented as **Table 13.3**.

Sensitivity/Value of Receptor	Magnitude of Effects			
	Large	**Moderate**	**Small**	**Negligible**
High	Severe	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Not significant
Low	Moderate	Minor	Not significant	Not significant

13.3.18 The proposed mitigation measures used to manage any likely significant effects (including management of risk or elimination of pollutant linkage) are identified using professional judgement and experience, drawing upon relevant guidance.

13.3.19 Residual effects are then identified and further assessment of significance carried out. Significance considers the scale and duration of the effect creating the impact so that a localised (small scale), short term impacting event is assigned a lower significance than a regional (large scale) or long term event. Additionally, greater significance is assigned to pollution or damage that is non-reversible.

13.4 Baseline Conditions

13.4.1 This section describes the baseline conditions current at the time of reporting.

Geological Setting

13.4.2 The geology at the site is anticipated to comprise Made Ground over the Ashdown Formation. Wadhurst Clay is indicated to overly the Ashdown Formation to the east of the site. Historic borehole records available on the BGS website have been used to determine the anticipated site geology, as summarised in **Table 13.4**.

13.4.3 A total of six borehole records have been consulted, which were undertaken by Norwest Holst in 1993 for the A259 Bexhill and Hastings Western Bypass, which closely follow the proposed alignment. All of the borehole were initially sunk using cable percussive techniques, before progressing with rotary drilling through harder soil and rock. Three out of six of the boreholes, located close to the eastern half of the proposed alignment, encountered Wadhurst Clay to the base of the boreholes, whereas the other three, close to the western half of the proposed alignment, encountered only the Ashdown Formation.

TABLE 13.4: SUMMARY OF GEOLOGY

Strata	Depth to Base (m bgl)	Thickness (m)	Description
Made ground	0.30 – 1.50*	0.30 – 1.50*	Topsoil over soft to firm brown sandy CLAY.
Wadhurst Clay	>15	>15	Where encountered, generally comprised interbedded stiff to very stiff grey and orange silty CLAY with weak to very strong brown moderately weathered SANDSTONE, medium to thickly bedded grey orange brown completely to slightly weathered SILTSTONE and very weak to moderately strong thinly laminated extremely closely fissured grey CLAYSTONE. Locally, greenish grey fresh clayey moderately strong LIMESTONE was also recorded.
Ashdown Formation	>20	>20	Where encountered, generally comprised interbedded stiff to hard grey brown silty CLAY with very weak to

			moderately strong very thinly spaced brown fine SANDSTONE, weak to medium strong very closely fissured grey slightly to moderately weathered CLAYSTONE and moderately strong light grey SILTSTONE.

* These depths reflect the Made Ground of the surrounding area. The depth may vary significantly on site.

13.4.4 The High Beech Fault runs through the centre of the proposed alignment in a south west to north east direction, with the downthrown side to the south east.

Hydrogeological Setting

13.4.5 The Ashdown Formation is designated a Secondary A (formerly Minor) Aquifer with the Wadhurst Clays designated as Unproductive Strata (formerly a Non-Aquifer).

13.4.6 There are no reported licensed groundwater abstractions within 1km of the site centre.

13.4.7 The site is not located within any groundwater Source Protection Zone (SPZ).

13.4.8 Groundwater is likely to flow in a south westerly direction. The site is considered to have a **Low-Medium** sensitivity with respect to hydrogeology.

13.4.9 A stream and saturated ground were observed during a site walkover undertaken by CampbellReith. There is potential for shallow groundwater and soft ground to be present on site.

Hydrological Setting

13.4.10 The nearest surface water course is Hollington Stream located on site. Various unnamed surface water features have been identified on the site including drains and issues.

13.4.11 **I**t is understood that Hastings Borough Council abstract surface water from the Hollington Stream approximately 100m south west of the site.

Land-Use

13.4.12 The site currently generally comprises undeveloped greenfield land (to the west) and historic development to the east, and is designated as a site of Nature Conservation Importance by Hastings Borough Council. The land generally slopes up from the south west to the north east.

13.4.13 A small footpath is located off the A21, Sedlescombe Road North, which tracks west adjacent to the north side of the proposed alignment. This footpath falls gently from 117m AOD at the A21, to 116m AOD, close to the bend in Whitworth Road, and then slopes up to a high point of 118.50m AOD, before falling down to 112.50m AOD at the end of the footpath, which is at the location of the proposed roundabout midway along the road alignment. The land along the proposed alignment then falls to a low point of around 103m AOD, approximately two thirds of the way along the road, before rising up to 114m AOD at the end of the alignment, at the base of the embankment to the B2092 Queensway Road.

13.4.14 Several footpaths and two bridleways traverse the site, some of which are segregated by fencing. The west of the site is generally open grassland, while the east is heavily vegetated by trees, bushes and brambles.

13.4.15 A shallow stream (Hollington Stream) is located approximately a third of the way from the western end of the proposed alignment, which flows in a south westerly direction at the base of a shallow valley. To the immediate north of the source of the stream is an area of saturated, boggy ground with standing water. Within the stream, hydrocarbon sheens and orange iron staining were observed. A cloudy discolouration of the standing water was noted near to Whitworth Road. This may be indicative of a form of diffuse urban pollution or could be wash-out from the Ashdown Formation.

13.4.16 At the eastern end of the alignment, possible Japanese Knotweed was observed. This is consistent with the observations made by Applied Ecology Ltd in the Phase 1 habitat survey (**Appendix F**).

13.4.17 There were several indications of ground movement across sloping areas of the site. These comprised small instances of soil creep evidenced by hummocky ground and curved tree trunks.

13.4.18 Outcrops of Ashdown Formation, in the form of mudstone and sandstone were observed in the western corner of the Sainsbury's car park and to the immediate south of the western end of Whitworth Road.

13.4.19 The ground between Sainsbury's car park up to Whitworth Road comprised a predominantly 1 in 2 embankment slope supported by a crib retaining wall, up to 3m in height. The slope, which forms part of the western end of the proposed alignment, was heavily vegetated.

13.4.20 Queensway Road to the west is constructed on an embankment, which ranges between approximately 3 and 10m higher than the site, with slopes of approximately 1 in 2.

Potential Receptors

13.4.21 **Human Health** – the future on site land users will be transient in nature i.e. road users. During the construction phase there will be worker occupation at the site. Off site land users consist of commercial, including a coach depot, waste management facility, scrap metal merchant, car dealership and supermarket (to the east). The development of proposed employment use on the adjacent land will introduce human receptors. Construction workers and commercial end-users have been considered as potential receptors during the construction phase and operational phase respectively. A **Low** sensitivity is adjudged appropriate for human health receptors.

13.4.22 **Controlled Waters** – on site surface water bodies and groundwater have been considered as potential receptors during both the construction phase and operational phase. A sensitivity value of **Low-Medium** has been used for controlled water receptors.

13.4.23 **Ecological Systems** – the site is designated as an area of Nature Conservation Importance. Two Sites of Special Scientific Interest (SSSI) are located 504m E and 630m W (Maplehurst Wood and Marline Valley Woods, respectively). A Nitrate Vulnerable Zone is located 200m N of site and a Local Nature Reserve (Marline Wood) is located 705m SW. A sensitivity value of **Medium** is considered appropriate.

13.4.24 **Archaeology, Ancient Monuments and Industrial Heritage** – based on the land use information identified these have been eliminated as potential receptors for the purposes of the ground condition assessment. As such a sensitivity value of **Low** is considered appropriate.

13.4.25 **Other (to include buildings/structures, services/pipes)** – the current on site land use is undeveloped greenfield land/woodland, designated as a site of Nature Conservation Importance by Hastings Borough Council. The QGW will introduce construction materials and services. Consideration is given to chemical attack (aggressive ground conditions) and physical failures due to instability hazards. A sensitivity value of **Low** has been used for these receptors.

Potential Geotechnical Hazards (PGH)

13.4.26 NPPF paragraph 121 requires an assessment of potential constraints associated with ground instability. Five geotechnical hazards have been identified as follows:

13.4.27 **PGH1 Shallow groundwater and compressible ground** – a stream and areas of saturated ground were observed during the site walkover. There is the potential for shallow groundwater and soft ground to impact the proposed development. PGH1 has been assigned the potential to cause a Moderate magnitude of change.

13.4.28 **PGH2 Ground movement** – signs of soil creep on slopes were observed during the site walkover. It is currently expected that a significant amount of imported fill material will be required to raise site levels. PGH2 has been assigned the potential to cause a Moderate magnitude of change, although for human health and buildings this could be Large.

13.4.29 **PGH3 Potential for unrecorded mineral workings** – there are 21 BGS recorded mineral sites within 1km of the site, the closest being 95m to the east. All of the entries have ceased operation and were all in relation to opencast mining of the Ashdown Formation or Wadhurst

Clay for sandstone or common clay and shale. There is the potential on site for unrecorded mineral extraction of these commodities. PGH3 has been assigned to potential to cause a Small magnitude of change, although for human health and buildings this could be Large.

13.4.30 **PGH4 Desiccation** – there is the potential for soils on site to have a high volume change (shrink-swell) potential. There are also trees present on site. As such there is the potential for soil desiccation on site. PGH4 has been assigned a Small magnitude of change, although for buildings this could be Large.

13.4.31 **PGH5 Unexploded Ordnance (UXO)** – a detailed UXO risk assessment has concluded on a **LOW-MEDIUM** risk of encountering UXO. PGH5 has been assigned a Large magnitude of change.

Potential Sources of Contamination (PSC)

13.4.32 **PSC 1 – Historic radio/ electronics works**. The eastern part of the site is located on a historic radio/ electronic works. Potential contaminants can be wide ranging including inorganics (metals, acids, alkalis, chlorides, cyanides, fluorides, phosphorus compounds, sulphates, sulphides), organics (fuels (diesel, petrol)), hydraulic oils (mineral oil), lubricating oils, paints, PCBs, solvents). PCS 1 has been assigned the potential to cause a Moderate magnitude of change.

13.4.33 **PSC 2 – Made Ground**. The eastern part of the site may contain a thickness of Made Ground primarily resulting from historic development. Made Ground could present a wide variety of contaminants. PCS 2 has been assigned the potential to cause a Small magnitude owing to likely limited thickness of Made Ground and contaminative status.

13.4.34 **PSC 3 – Other Potentially Contaminative Sources**. There are car mechanical services, general engineering, fuel stations, a scrap metal merchant, a concrete and mortar plant and a waste transfer station located with 250m of the site (i.e. outside the construction works), which may give rise to localised contamination. It is anticipated that PSC 3 maycause a Small magnitude of change.

13.4.35 **PSC 4 – Historic Landfill**. There are two historic landfill entries located outside the construction works with the potential for gas generation and migration, with potential contaminants including flammable and/or asphyxiants. However, due to the nature of the development (a road) the magnitude of change is given as Negligible owing to the absence of basements or underground structures that may allow for potential gas accumulation.

13.4.36 **PSC 5 – Storage of fuels during construction phase with possible spillage**. Potential contaminants include hydrocarbons. PSC5 has been assigned the potential to cause a Moderate magnitude of change.

13.4.37 **PSC 6 – Contaminated run-off from the road**. Potential contaminants include hydrocarbons and metals as well as unknowns associated with spillage of chemicals during transportation. PSC 6 has been assigned the potential to cause a Moderate magnitude of change, but possibly Large for chemical spillages occurring because of accidents, which has the potential to overload the road's drainage/ oil interceptors.

Summary

13.4.38 It is considered that the construction and operation/implementation of QGW are unlikely to alter the Baseline Conditions for ground conditions identified below as it is understood that QGW will include suitable mitigation measures such as surface water collection systems to capture any uncontrolled spillages or fuel leaks prior to discharge to surface to prevent the introduction of contaminative materials.

13.4.39 Whilst the text below is specific to the QGW route (the site) similar conditions are expected to be present for the proposed employment site.

13.5 Assessment and Mitigation of Construction Effects

13.5.1 Construction phase activities could disturb, expose or mobilise existing contamination. The works will introduce new potential contamination sources through the temporary storage of chemicals (fuels) and potentially through the importation of soils for earthworks. Instability

hazards could be activated by the works. Some form of moisture conditioning or treatment may be required to achieve suitable compaction densities.

13.5.2 It is reiterated that for the purposes of this chapter, potential effects have been initially assessed in the absence of mitigation that will be incorporated into the detailed design of the development in order to make the site suitable for use.

13.5.3 PGH1, 2 and 3 are hazards associated with ground instability that could, in the case of an extreme event, cause loss of life to construction workers (a Large magnitude change on a receptor classes as a High sensitivity), could alter surface water drainage (a Large magnitude change on a receptor classified as a Medium sensitivity), could alter local habitats (a Moderate magnitude change on a receptor classified as a Medium sensitivity) and could damage or destroy buildings and infrastructure (a Large magnitude change on a receptor classified as Low sensitivity).

13.5.4 PGH4 Desiccation is not a construction phase hazard as it relates to shrink-swell of soils caused by changes in moisture content over time.

13.5.5 PGH5 Unexploded Ordnance could, in the case of an extreme event, cause loss of life to construction workers and members of the public (a Large magnitude change on a receptor classes as a High sensitivity), could alter surface water drainage (a Large magnitude change on a receptor classified as a Medium sensitivity), could destroy local habitats (a Large magnitude change on a receptor classified as a Medium sensitivity) and could damage or destroy buildings and infrastructure (a Large magnitude change on a receptor classified as Low sensitivity).

13.5.6 PSC1, 2 and 3 are hazards associated with historic land-use and adjacent land-use. Construction workers could come into contact with residual chemicals and dust could be generated by the works and migrate to off-site receptors. The magnitude of change is likely to be Small. Dewatering of excavations could discharge contaminated water into surface water with a Moderate magnitude of change.

13.5.7 PSC4 are historic landfills located outside of the construction works with the potential for gas generation and migration. The magnitude of change is given as Negligible owing to the absence of buildings/ confined spaces.

13.5.8 PSC5 is the storage of chemicals during construction works. The magnitude of change caused by spillage is considered to be Small for Human Health (construction workers) receptors. The hazard could impact controlled waters but due to the relatively small volumes the magnitude of change is assessed as Moderate.

13.5.9 PSC6 are not hazards present during construction phase.

Mitigation of Construction Effects

13.5.10 An intrusive ground investigation will be undertaken, the findings of which will inform the mitigation measures to be implemented.

13.5.11 Soil and/or groundwater remediation is considered unlikely to be required given the nature of the potential contaminant sources identified, however this will be confirmed through the intrusive ground investigation. Mitigation measures will be adopted to reduce the potential impacts of contamination associated with (a) dust generation during earthworks, (b) runoff/ dewatering discharges, (c) chemical storage/spillage and (d) Health and Safety of Workers (H&S) with respect to skin contact, inhalation and ingestion of contaminated material whilst on the site.

13.5.12 The potential impacts of the ground instability hazards (PGH1-5) will be addressed through a UXO risk management plan, intrusive ground investigation and the design of appropriate slope angles, incorporation of groundwater control measures or soil reinforcement as necessary. Ground stabilisation using chemical treatment such as the addition of lime or cement is also an option.

13.5.13 Ground stabilisation will involve on-site mixing with the potential to cause dust. Guidance on mixing is presented in DMRB including management of dust generation (dust mitigation measures are identified in **Chapter 10 Air Quality**). The treated soil could generate an alkaline leachate with the potential to impact controlled water receptors. Field trials would

ensure that behaviour is characterised and the mix is optimised. Construction of earthworks drainage prior to stabilisation operations would prevent uncontrolled run-off. Generation of contaminated run-off could be minimised through the use of compaction layer to prevent infiltration ingress.

13.5.14 In accordance with current health and safety legislation, the contractor will be required to adopt measures to mitigate the risk to site workers.

13.5.15 An earthworks strategy describing removal, handling, storage and placement of will be developed following award of the contract to construct the scheme and will form part of the Construction Environmental Management Plan (CEMP).

13.5.16 The development will seek to promote the re-use of excavated materials through optimisation of cut and fill operations in order to improve the sustainable and cost effective development of land. The use of the Definition of Waste: Development Industry Code of Practice (DoWCoP), Materials Management Plan (MMP), provides a clear, consistent and streamlined process which enables the legitimate reuse of excavated materials on-site or their movement between sites with a significantly reduced regulatory burden. In many instances the DoWCoP can provide an alternative to Environmental Permits or Waste Exemptions when seeking to reuse excavated materials.

13.5.17 The CEMP will document the environmental management procedures during construction include the measures to manage chemical storage. The mitigation measures for management of run-off/dewatering discharges are presented in **Chapter 14: Surface Water and Drainage**. Such measures will follow the pollution prevention guidelines issued by the Environment Agency and CIRIA (2001).

13.5.18 The potential for the off-site landfill to generate gas is not known and a worst case scenario has been assumed. Unless proven otherwise temporary structures should be elevated aboveground level to prevent gas ingress.

13.5.19 Appropriate design requirements for construction materials will be specified to mitigate against risks from land and water quality and the associated hazards

13.6 Assessment and Mitigation of Operational Effects

Assessment of Operational Effects

13.6.1 The proposed new road with associated infrastructure will comprise predominantly hard surfacing that will cap any existing ground contamination that is potentially present in the east of the site (the west being greenfield). However, the proposed development may introduce sources of contamination through the installation of drainage infrastructure if it is not adequately maintained, acting as a preferential pathway. Whilst there is an increased risk of pollution incidents (e.g. accidental spillages) occurring, drainage infrastructure will be designed to mitigate this. As such, no viable pollutant linkage has been identified between existing ground conditions and human receptors with the exception of Controlled Waters. In terms of Controlled Waters, the hard surfacing and controlled drainage will prevent any infiltration of surface water into the ground, potentially mobilising contaminants.

13.6.2 It is reiterated that for the purposes of this chapter, potential effects have been initially assessed in the absence of mitigation measures that will be incorporated into the detailed design of the development in order to make the site suitable for use.

13.6.3 PGH1 and 2 are hazards associated with ground instability that could, in the case of an extreme event, cause loss of life to users (a Large magnitude change on a receptor classes as a High sensitivity), could alter surface water drainage (a Large magnitude change on a receptor classified as a Medium sensitivity), could alter local habitats (a Moderate magnitude change on a receptor classified as a Medium sensitivity) and could damage or destroy buildings and infrastructure (a Large magnitude change on a receptor classified as Low sensitivity).

13.6.4 PGH4 Desiccation is a ground instability hazard associated with the shrink-swell of soils. The impacts of this hazard are predominantly to the road development and as such could cause a Moderate magnitude of change on a receptor classified as Low sensitivity.

13.6.5 PGH3 and PGH5 are ground instability hazards primarily associated with the construction phase and as such should not affect the operation of the road.

13.6.6 PSC1-3 are hazards associated with historic land-use. The development will create a cap over soils potentially impacted and also prevent direct infiltration which will reduce the current contaminant load and it is considered that the magnitude of change is Small and beneficial. PSC4 are two historic landfills located outside of the site with the potential for gas generation and migration. The magnitude of change is given a worst case of Large for loss of life in the case of explosive atmosphere. There is not considered to be a hazard any other receptors.

13.6.7 PSC5 is associated with contaminated run-off from the QGW entering the drainage system. The hazard could impact controlled waters with the magnitude of change assessed as Moderate, worst case Large should an extreme event occur.

Mitigation of Operational Effects

13.6.8 A more comprehensive assessment of slope stability will be undertaken as part of further investigations and stability constraints developed to inform the earthworks design. Appropriate design of counterfort drains, toe and crest drainage will be incorporated to enable control of both groundwater and surface waters. If necessary, soil reinforcement and or retaining walls will be used to support exposed soils for steeper slopes.

13.6.9 Measures to mitigate the effects of compressible ground hazard will be refined as the design is progressed based on the findings of the ground investigation. Measures could include specifying a maximum thickness and compaction requirements for the earthworks. The surface water drainage strategy will incorporate measures such as interceptors to protect the quality of controlled waters.

13.6.10 The placement of hardcover will mitigate against the risk of infiltration and potential mobilisation/ migration of any residual potential contaminants.

13.6.11 The principal risk to controlled waters following construction will result from the potential release of pollutants associated with uncontrolled/accidental spillage either through run-off or discharge via drainage collection systems. Measures to manage/collect run-off and prevent uncontrolled discharges will follow the guidance given in pollution prevention guideline (PPG1) issued by the Environment Agency.

13.7 Assessment and Mitigation of Cumulative Effects

13.7.1 There is a need to consider the cumulative effects of development of the QGW and the associated proposed employment development.

13.7.2 Development of land adjacent to the site could have a cumulative effect in relation to PGH1-3and PGH5. In the case of an extreme event, development on the adjacent land could cause loss of life to construction workers and members of the public (a Large magnitude change on a receptor classes as a High sensitivity), could alter surface water drainage (a Large magnitude change on a receptor classified as a Medium sensitivity), could alter or destroy local habitats (a Moderate to Large magnitude change on a receptor classified as a Medium sensitivity) and could damage or destroy buildings and infrastructure (a Large magnitude change on a receptor classified as Low sensitivity).

13.7.3 PGH4 is a ground instability hazard associated with shrink-swell of soils. The impacts of this hazard are predominantly on the road development. Development on adjacent land is unlikely to have a cumulative effect in relation to this hazard as it is location specific.

13.7.4 PSC1-3 are hazards associated with historic and adjacent land-use (in the east) and are unlikely to have a cumulative effect.

13.7.5 PSC4 are two historic landfills located south and north west of site with the potential for gas generation and migration towards the site. Development is not understood to comprise building or confined spaces and so the potential risk from ground gas is Negligible.

13.7.6 PSC5 contaminated run-off from the road entering the drainage system and PSC6 chemical storage on the proposed employment site (the nature of the contaminants are unknown at this stage) could have a cumulative effect in relation to controlled waters which will require

appropriate measures to be incorporated in the drainage strategy for the proposed employment site. Measures to manage/collect run-off and prevent uncontrolled discharges will follow the guidance given in pollution prevention guideline (PPG1) issued by the Environment Agency. The proposed drainage strategy will mitigate potential cumulative impacts (if maintained adequately).

13.7.7 It is considered that there should not be any significant cumulative effects as a result of the proposed QGW.

13.8 Summary of Residual Effects

13.8.1 The potential effects related to the construction and operation of the QGW have been reassessed on the basis of the mitigation measures identified above. Residual effects are presented in Tables 13.4, 13.5 and 13.6.

TABLE 13.4: ASSESSED RESIDUAL EFFECTS RELATED TO GROUND CONDITIONS (CONSTRUCTION)

Receptor	Residual Effect Significance	Justification
Built Environment	Not significant	QGW will be designed to incorporate mitigation measures to manage the instability hazards, based on a UXO risk management plan and an intrusive ground investigation that will further clarify risks and mitigation requirements. The Contractor will supply method statements and risk assessments for construction of QGW.
Human Health	Not significant	As per 'Built Environment' above. The Contractor will also specify appropriate health and safety measures. The CEMP will document the procedures to minimise and manage spillages from chemical storage, dust generation, dewatering discharges and run-off.
Controlled Waters	Not significant	As per 'Built Environment'. The CEMP will document the procedures to minimise and manage spillages from chemical storage, dust generation, dewatering discharges and run-off.
Ecology	Not significant	As Controlled Waters.

TABLE 13.5: ASSESSED RESIDUAL EFFECTS RELATED TO GROUND CONDITIONS (COMPLETED DEVELOPMENT)

Receptor	Residual Effect Significance	Justification
Built Environment	Not significant	Mitigation measures will be incorporated in the detailed design in relation to potential ground instability hazards.
Human Health	Not significant	The potential for significant contamination is considered low.
Controlled	Not significant	Beneficial effects from reduced infiltration due to hard standing. QGW will incorporate environmental mitigation design i.e. use of petrol interceptors.
Ecology	Minor	Removal of localised sources of contamination if encountered. QGW and wider area are allocated for development and in this context, and given the relatively small scale, the significance of the effect is reduced to Minor.

TABLE 13.6: ASSESSED RESIDUAL EFFECTS RELATED TO GROUND CONDITIONS (CUMULATIVE)

Receptor	Residual Effect Significance	Justification
Built Environment	Not significant	Mitigation measures will be incorporated in the detailed design in relation to potential ground instability hazards.
Human Health	Not significant	The potential for significant contamination is considered

		low/moderate.
Controlled	Not significant	The development will incorporate environmental mitigation design e.g. use of petrol interceptors the design of which should consider future developments.

13.9 Summary

13.9.1 An assessment has been undertaken of the likely significant effects of the proposed development in relation to ground conditions with consideration given to potential ground stability and contamination related impacts.

13.9.2 Baseline conditions have been identified using published desk based information on the setting of the site and historical uses. The baseline describes the types and locations of (i) Potential Sources of Contamination (PSCs), based on identification of current and historic land uses and (ii) Potential Geotechnical Hazards (PGHs), and based on identification of geotechnical hazards. The assessment also identifies the type and sensitivity of potential receptors (including consideration of human health, buildings, groundwater, surface water and ecological systems) and identification of possible migration or transportation pathways for a receptor to be effected by a PSC or PGH.

13.9.3 A qualitative approach has been adopted, with a progression from factual information (stated with reasonable certainty) regarding the baseline conditions, to appraisal informed by professional judgement, guidance, standards, etc. and expression of opinions on the relative significance.

13.9.4 Although potential sources of contamination have been identified on and off site based on their nature it is considered that remediation of soil and groundwater is unlikely. Typical of construction good practices and documented in the CEMP will reduce the potential effects associated with contamination during construction phase to 'Not Significant' without the need for additional mitigation.

13.9.5 During operation there is potential for QGW to introduce contaminated run-off and chemical spillages from accidents. However, the drainage design will incorporate sufficient measures to minimise the impacts of such occurrences through the provision of interceptors. Mitigation measures will reduce the likely effects associated with contamination during operational phase to 'Not Significant'.

13.9.6 QGW may include lime/cement stabilisation of some soils to enhance their geotechnical suitability. Mitigation measures typical for good construction practice will ensure that the effects to controlled waters and ecology will be not significant.

13.9.7 Instability hazards have been identified and further investigations and assessment will be undertaken to inform the detailed design stage. Provided the relevant mitigation measures are implemented it is considered unlikely that the construction and operation of QGW would adversely affect the geology.

13.9.8 An intrusive ground investigation will be undertaken to inform the design of the mitigation measures to be adopted.

13.10References

Environment Agency, 2004. Model Procedures for the Management of Contaminated LandReport CLR11 Environment Agency (EA), 2004

Environment Agency, 2012. Groundwater Protection: Principles and Practice (GP3) Environment Agency (EA), 2012

NHBC, 2008. Guidance on the safe development of housing on land affected by contamination R&D publication 66 Vol 1 and 2 National House Builders Council (NHBC)

DETR, 2000. Methodology for Multi Modal Studies. Volume 2 Section 4. The Environmental Objective. Department of Environment, Transport and the Regions (DETR)

14 Water Quality and Drainage

14.1 Introduction

14.1.1 This chapter assesses the likely significant effects of the proposed development on water quality and drainage. In assessing the likely significant effects of water quality, the water environment is assessed. Flooding and surface water are also included. Foul drainage is not considered as the proposed development does not itself generate any foul drainage flow. This chapter is supported by a Flood Risk Assessment (FRA) at **Appendix I**.

14.1.2 The chapter describes the assessment methodology; the baseline conditions existing at the site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and any likely residual effects.

14.1.3 This chapter has been prepared by Campbell Reith Hill LLP (CRH)

14.2 Policy Context

14.2.1 There is a wide range of international and national legislation relevant to the assessment of potential adverse impacts to water quality and drainage. Consequently there are many guidance documents concerned with mitigating potential impacts. Relevant documents are listed in **Table 14.1** below.

Table 14.1: Relevant key Legislation and Guidance Documents

Context	Legislation, Policies and Guidance Documents
International	Water Framework Directive 2000/60/EC
	The Groundwater Directive 80/68/EEC
	EC Dangerous Substances Directive 76/464/EEC and daughter directives
	EC Freshwater Fish Directive 76/659/EEC and daughter directives
	Drinking Water Directive 80/778/EEC
National	The Water Act 2003
	The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003
	The Control of Pollution (Oil Storage) (England) Regulations (2001)
	The Groundwater Regulations 1998
	The Surface Waters [Dangerous Substances (Classification)] Regulations 1998
	Control of Substances Hazardous to Health (COSHH) Regulations (1998)
	The Environment Act 1995 (as amended)
	The Surface Water (River Ecosystem) (Classification) Regulations 1994
	The Water Resources Act 1991 (as amended 2003)
	The Land Drainage Act 1991 (as amended)
	Food and Environment Protection Act 1985
	WEBTAG Unit 3.3.11 The Water Environment Sub-Objective
	CIRIA Report 648 (2006) Control of water pollution from linear construction sites
	CIRIA Report 609 (2004) Sustainable Drainage Systems – Hydraulic, structural and water quality advice
	CIRIA Report 532 (2001) Control of water pollution from construction sites
	CIRIA Report 522 (2000) Sustainable urban drainage systems – design manual for England and Wales

	CIRIA Report 156 (1996) Infiltration Drainage – manual of good practice
	CIRIA Report 142 (1994) Control of Pollution from Highway Drainage Discharges
	Code of Good Agricultural Practice for the Protection of Water (the "Water Code") (DEFRA 1998 as amended 2002)
	Guidelines for the use of herbicides on weeds in or near watercourses and lakes (DEFRA 1995 PB2289)
	Environment Agency Pollution Prevention Guidelines (PPG), the most relevant being: • PPG 1 – General guide to water pollution and prevention; • PPG 2 – Above ground oil storage tanks; • PPG 3 – Use and design of oil separators in surface water drainage systems; • PPG 5 – Works in, near or liable to affect watercourses; • PPG 6 – Working at construction and demolition sites; • PPG 8 – Safe storage and disposal of used oils; • PPG 9 – Prevention of Pollution by Pesticides; • PPG 21 – Pollution incidence response planning; • PPG 22 – Dealing with spillages on highways; and • PPG 23 – Maintenance of structures over water.

Legislative Framework and Objectives

14.2.2 In terms of the water environment, the Water Framework Directive (WFD) is the overriding piece of legislation in place. The WFD is transposed to English law through the implementation of The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. The WFD aims to establish "*good ecological and chemical status in all surface waters and groundwaters*." It also promotes the importance of sustainable water use.

14.2.3 At a national level, the central government strategy document *A Better Quality of Life – A Strategy for Sustainable Development for the United Kingdom* recognises the fundamental importance of good water quality to health and the environment. It identifies the major challenges to water quality which it states are: i) growing demand for water supplies, ii) pollution pressures from new development, iii) diffuse pollution inputs, iv) changed weather patterns, and v) loss of habitats.

14.2.4 The storm water runoff from the Queensway highway development does not directly drain into a Main River and therefore is not liable for consideration by the EA under the Land Drainage Act (1991) and the Water Resources Act (1991). Consent from the EA is required for any proposed discharges to controlled waters. Consent would also be required for any development within 8m of a watercourse and for any permanent or temporary works within the flood plain, such as temporary/ permanent culverting, under the Land Drainage Act.

14.2.5 The Water Resources Act 1991 sets out the regulatory controls and restrictions that provide protection to the water environment through controls on abstractions, impounding and discharges, as well as identifying, amongst other things conservation, water quality and drought provisions. The Act is supplemented by:

- The Environment Protection Act 1991 which established the Environment Agency; and
- The Environment Act 1995 which provides for integrated pollution control.

14.2.6 Consent for any works affecting ordinary watercourses would need to be obtained from the Lead Local Flood Authority (LLFA), and these bodies would be consulted as the design progresses about obtaining the relevant consents.

14.2.7 The Highways Act (1980, Section 299) gives a highway authority the right to discharge water; consent is needed to "*interfere*" with watercourses, and the Act states that this consent should not be *"unreasonably withheld".* There is also a duty on highway authorities not to pollute. The overarching principle is that discharges to watercourses will be acceptable, but that this needs to be agreed with the EA, and appropriate mitigation provided.

14.2.8 In order to manage the water environment more effectively, the Floods and Water Management Act 2010 (FWMA) introduced powers for local authorities to manage flood risk, and encourages the use of sustainable drainage systems (SUDS). Under the act local

authorities are identified as LLFA. Secondary legislation under this act will provide new powers for LLFA to approve SUDS, with SUDS Approval Bodies (SABs) approving, adopting and maintaining SUDS in the future. National standards are currently being developed to take this forward, which are expected to be published in the near future.

14.2.9 Other important legislation this chapter refers to includes the Water Act 2003 and the Groundwater (England and Wales) Regulations 2009.

14.2.10 The National Planning Policy Framework (NPPF) was published by the Government in 2012 and sets out a framework for the planning process in England. Contained within the NPPF are guidelines for planning authorities with regard to development in areas at risk of flooding and consideration of climate change.

14.2.11 In conjunction with the NPPF, the Government published the *Technical Guidance to the National Planning Policy Framework* which provides additional guidance to local authorities to ensure the effective implementation of planning policy on development in areas at risk of flooding. This document elaborates on the requirements for the Sequential and Exception Tests with regard to new development.

14.2.12 The NPPF and the Technical guidance have been now superseded by the National Planning Policy Guidance (NPPG).

14.2.13 Other national guidance which is relevant to the scheme includes:

- Building Regulations 2010 Requirement H3 which stipulate that rainwater from roofs and paved areas is carried away from the surface to discharge to one of the following, listed in order of priority:
  - An adequate soakaway or some other adequate infiltration system, or where that is not reasonably practicable;
  - A watercourse, or where that is not practicable;
  - A sewer.
- Construction Industry Research and Information Association (CIRIA) C697, 2007. The SuDS Manual provides guidance to deal with surface water as close to the source as possible and reproduce natural drainage patterns to prevent an increase in the volume and peak discharge from development sites.

Local Policy Framework Objectives

14.2.14 A review of the Hastings Planning Strategy 2011-2028 found, The Council will support development proposals that avoid areas of current or future floodrisk, and those that do not increase the risk of flooding elsewhere.

14.2.15 The Council will adopt a risk-based sequential approach to determining the suitability of land for development, in accordance with the principles set out in national planning policy relating to Flood Risk and the Hastings Strategic Flood Risk Assessment 2008.

14.2.16 Following application of the sequential and exception tests where necessary, development proposals will need to:

- be of flood resistant or resilient design
- ensure the most vulnerable land uses are directed away from the areas at highest flood risk on a site where there is more than one flood zone.
- manage surface water run-off appropriately, particularly in the Combe Haven Catchment Area, in accordance with the Council's adopted Surface Water Management Plan and its standing advice Developers will particularly need to address flood risk in areas at the highest risk, such as Bulverhythe, Combe Valley Countryside Park and Hastings Town Centre. Adaptation of all developments to reduce the risk of flooding will be sought through a variety of suitable measures, including the use of Sustainable Drainage Systems. Proposals for the long-term management of these should be submitted to the Council at or before the planning application stage.

Environment Agency

14.2.17 The Environment Agency (EA) has requested that Greenfield Runoff Rates be incorporated, where feasible to reduce the risk of surface water flooding downstream.

14.2.18 In addition, the EA have requested that a number of SuDS devices be explored in the proposed development. They also recommend that details are submitted of specific measures to minimise the risk of deterioration in water quality of receiving watercourses and waterbodies downstream (for both the construction and operational phases of the development).

14.2.19 Erection of flow control structures or any culverting of an ordinary watercourse requires consent from the Lead Local Flood Authority which in this instance is East Sussex County Council. It is best to discuss proposals for any works with them at an early stage.

Strategic Flood Risk Assessment (SFRA)

14.2.20 Faber Maunsell was appointed by Hastings Borough Council on 27th April 2007 to undertake a Strategic Flood Risk Assessment of Hastings Borough. The 2008 Strategic Flood Risk Assessment (SFRA) identifies that flood risk in Hastings is attributed to several sources. These include tidal and river flooding, groundwater and sewer flooding and surface water runoff. The most significant flood risk problem exists towards the west of the town around the Bulverhythe area, where groundwater, surface Water run-off and tide locking combine to create high levels of flood risk. Higher flood risk areas are also mostly apparent along the Seafront and around the Hollington Stream and Combe Haven River.

14.3 Methodology

Pollution Control and Water Quality

14.3.1 As part of the proposed drainage strategy, the management of the existing watercourse has been explored. It is proposed to allow the watercourse to follow the existing route of flow. The watercourse is not identified by the Environment Agency as a main river and therefore it is anticipated that the overland flows from the catchment area north of the proposed link road contribute into the watercourse.

14.3.2 Prior to being discharged into the watercourse, water quality treatment is proposed to be provided by a permanent pool in the pond) sedimentation, bio-chemical and other processes) and also filtering and adsorption provided by swales and detention basins. The ponds will collect and treat flows entering the system and then discharge at a restricted flow rate into the watercourse. Ponds can provide significant water quality improvements by capturing small events which allow the settling of suspended solids and promote plant and microbial activity to encourage adsorption and biodegradation of contaminants and nutrient removal. A permanent pond volume is the volume of water that remains in ponds during the dry weather periods between rainfall events. According to CIRIA, 2006, this permanent pond level is known as the Water Quality Treatment Volume (Vt) and is advised that it should be sized to accommodate at least 10mm of runoff from the impermeable surfaces.

14.3.3 The following calculation is also found in CIRIA, 2006 in BOX 4.12.

Treatment storage can be calculated using either 15mm rainfall depth which is the fixed rainfall depth which accounts for rainfall depths typically 11mm to 15mm, or the equation on Box 4.12 which is the variable rainfall depth method.

The Wallingford Map for Rainfall depths (M5-60) indicates the area of Hastings to receive 19mm of rainfall. Therefore, the variable rainfall depth method will be used.

A TVt of 116 m3 is selected. This volume will provide efficient final polishing together with the high amenity and biodiversity benefits. The total treatment volume should be proportional between the design catchment areas. This 116 m3 of volume is not used for attention purposes and its sole function is for the treatment of water.

In addition to the treatment above, the pond will also be designed to accommodate storm water for the 100 Year + 20% Climate Change event and an additional 200mm freeboard allowance.

An approximate storage of 1240 m3 is required in addition to the 116m3. This is provided in the form of a pond structure. The discharge rate is restricted using a hydrobrake; however a number of flow control measures can be incorporated into the design.

Flood Risk and Surface Water Flooding

14.3.4 Flood risk has been assessed in accordance with the approach outlined within the NPPF, which considers the risk and impact of flooding at the site, as well as the impact of flooding as a result of the development.

14.3.5 A Flood Risk Assessment (FRA) has been undertaken for the site in accordance with the Technical Guidance to the NPPF. The baseline flood risk has been established through consultation with the Environment Agency, and the Level 1 and 2 SFRA.

14.3.6 Initial information on potential sources of flooding, historical flooding and expected flood water levels within the area was collected from a variety of sources including:

- The Environment Agency – consultation was received on June 2014.

14.3.7 The Environment Agency encourages the use of SUDS to prevent the water environment being adversely affected by increased surface water runoff and the increased risk of pollution and in particular diffuse pollution.

Climate Change

14.3.8 The Environment Agency/DEFRA W5-074/A Preliminary Rainfall Runoff for Development states that *"climate change will be taken into account in hydrological regions by increasing the rainfall depth for computing storage volumes. No allowance for climate change should be applied to calculated Greenfield peak rates of runoff from the site for any hydrological region".*

14.3.9 A parameter of 20% should be adopted for this scheme.

Supporting Information

14.3.10 The following sources were used to gain an appreciation of existing conditions:

- Environment Agency website (SPZ, groundwater conditions, WFD status);
- British Geological Survey website (groundwater conditions);
- South East River Basin Management Plan, 2009;
- Hastings Borough Council Level 1 Strategic Flood Risk Assessment;
- Hastings Borough Council's Level 2 Strategic Flood Risk Assessment;
- Ordnance Survey (OS) mapping;
- Liaison with EA on June 2014.

14.4 Baseline Conditions

14.4.1 The following section describes the baseline conditions for the local water environment at and in the vicinity of the site. The extent of the assessment covers land within the site and any surrounding land that could be impacted or be susceptible to impact by the proposed development and vice versa. Consideration of ground condition that could affect hydrogeological conditions is also described.

Fluvial and Tidal Flooding

14.4.2 The EA Flood Map (EA, 2012) shows that the site is outside of the extent of the 0.1% annual probability (1 in 1,000 year) flood extent. For planning purposes this is within Flood Zone 1. As such the site is considered to be at a Low Probability of fluvial flooding. However, the Hollington

Stream has a fluvial flood plain classified as Zone 3, approximately 50m south of the proposed alignment. Further detail is provided in the Flood Risk Assessment in Appendix I.

Ground Conditions

14.4.3 Details of a ground conditions desk study is presented at Appendix H. In summary:

- Superficial deposits: There are no superficial deposits present within the site or in the vicinity;
- Bedrock: The majority of the site is underlain by the Ashdown Beds described as locally thinly laminated and closely fissured sandstone, siltstone and mudstones. Bands of the underlying "Clay in Ashdown Beds" are shown at surface in the southern half of the site immediately adjacent to woodland and in a narrow band on the flank of the southern slope area. An outcrop of Wadhurst Clay is shown to the east of the site at the top of the northern slope, with further bands of Clay in Ashdown Beds outcropping downslope.

Topography

14.4.4 A topographical survey of the site was undertaken by Omega Geomatics in March 2014.

14.4.5 The levels of the roads are relatively level at 114m AOD at Queensway B2092 and A21 Sedlescombe Road North however the land in between falls to a levels of approximately 100m AOD hence creating a valley type formation.

Hydrogeology

14.4.6 The EA maps show that the site is not within any source protection zone, although it does fall within the zone of a Secondary A aquifer. This means that the permeable bedrock layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Surface Water Features

14.4.7 The EA has no record of flooding however mapping identifies a watercourse to exist on the site.

14.4.8 The 'Flood Map for Surface Water' shows areas where surface water would be expected to flow, as a result of two different chances of rainfall event. The areas at risk of flooding are displayed in two bands showing: a) surface water flooding and b) areas of deeper surface water flooding.

14.4.9 The site is classified as 'greenfield', which means that it drains naturally according to local topography. It generally comprises open grazing and arable land. This will be maintained north of the development site.

14.4.10 Greenfield runoff rates have been calculated for the site and can be found within the Flood Risk Assessment (Refer to Appendix I)

14.5 Assessment and Mitigation of Construction Effects

Assessment

14.5.1 Effects during construction may include the risk of pollution resulting from accidental spillages, increased surface runoff and increased sediment-risk runoff from construction works, increased traffic and reduction of water quality in watercourses.

14.5.2 There would be potential for pollutants to enter the watercourses during the construction phase. The potential for pollutants to enter these would be highest during the construction of the culvert structures, local adjustments to the watercourses near these culverts, and forming/cutting of earthworks. There is as yet no detailed design for the structures; however, general effects in terms of runoff to surface water can be assessed at this stage. Potential pollutants to surface water runoff include:

- Concrete, cement or admixtures spillage from construction of the new carriageways and culverts;
- Sediment run-off from earthworks required for construction of new carriageways, footways and culverts;

- Sediment runoff water or wind-blown dust from spoil heaps; and
- Leakage or spillage of fuel, oil or chemicals.

14.5.3 Sedimentation can have an adverse impact on the water quality and in turn, affect the instream flora and fauna. Suspended solids can also significantly reduce dissolved oxygen levels within the water and this could have adverse effects on aquatic organisms.

14.5.4 Spillage and leakage of oils, fuels and chemicals during construction (commonly during delivery and/or refuelling) could potentially affect surface and groundwaters. Spillages could seep into the ground and enter the groundwater or be washed into nearby ditches through site runoff. Small quantities of oil have the ability to form extensive thin films which cover a large surface area of receiving waters. During turbulent conditions, the oil film can form an emulsion with the water. Oil also has the ability to bind to the surface of sediments, strata, flora and fauna. Even at relatively low concentrations, oil can be toxic to aquatic species and make the water unsafe for human consumption.

14.5.5 Uncured concrete has been shown to increase the pH of a watercourse and this change could seriously affect aquatic life.

14.5.6 The effect on existing groundwater is uncertain until ground investigations are carried out.

14.5.7 There would therefore be some risk of groundwater flooding and contamination where ground levels would be reduced, and where local shallow strikes of groundwater could potentially be encountered during construction. It is unlikely that any reduction in ground levels would require groundwater levels to be reduced to facilitate construction, however, there remains some potential for groundwater flooding and pollution of groundwater left above the surface during construction causing a slight adverse effect on surface water quality.

14.5.8 There will be occasions when materials are stored close to the watercourses during the construction of the scheme. In comparison to the overall area used for construction these areas are very small in comparison. Therefore considering the temporary nature of the construction works and the likelihood of flooding this is considered to be negligible risk.

Mitigation

14.5.9 During construction surface water would be managed by a temporary drainage network strategy until the operational drainage system is constructed.

14.5.10 A Construction Environmental Management Plan (CEMP) will be prepared to document the environmental management procedures to be utilised during the construction period. The CEMP will identify best practice measures which the contractor will adhere to as a minimum, including:

- Pollution Prevention Guidance (PPG) 1 - General guide to the prevention of pollution;
- PPG 5 - Works and maintenance in or near water;
- PPG 6 - Working at construction and demolition sites;
- PPG 18 - Managing fire water and major spillages;
- PPG 21 - Pollution incident response planning;
- PPG 22 - Dealing with spillages on highways; and
- CIRIA - Control of Water from Construction Sites.

14.5.11 In order to mitigate any potential adverse effects to surface waters and groundwater during the construction phase, the following measures will be implemented as appropriate:

- Management of construction works so as to comply with the necessary standards and consent conditions to be identified by the EA and Hastings Borough Council;
- All construction workers to be briefed on the importance of maintaining water quality, the location of surface water features and the location and use of accidental spill kits as part of the site induction;

- The construction drainage network to incorporate measures (e.g. potentially an interceptor) to prevent the discharge of hydrocarbons to surface or ground water systems;
- In areas where there is increased risk of hydrocarbon/chemical spillage and around hazardous substance stores, additional precautions would be taken. These would include bunding (in accordance with EA PPG 8: Safe storage and disposal of used oil), impermeable bases, suitable drainage systems and sited away from any open drainage channels;
- Any stockpiled materials to be stored within enclosed areas to enable the runoff to be stored and treated where required;
- Any concrete works to be carefully controlled, and where required any concrete tankers would be washed out in controlled areas; All plant and machinery to be maintained in a good condition and any maintenance required would be undertaken within safe areas;
- A Pollution Prevention and Spill Response Procedure to be developed by the contractor and a site kit and clean up equipment would be maintained on site;
- Wheel washers and dust suppression measures to be used to prevent the migration of pollutants; and
- Continual monitoring of the surface water courses before, during and after construction to ensure no adverse impacts on water quality.

14.5.12 As the watercourses are not main rivers there is no requirement to obtain Flood Defence Consent for works in, over or under a river under the Water Resources Act (1991) and the Land Drainage Act (1991).

14.5.13 Storage of fuel oils, chemicals etc., would be as far as reasonably practical within the temporary construction compound, which is proposed to be located outside proximity to the watercourses.

14.5.14 As the mitigation measures listed above and in the CEMP form part of the scheme proposals, the majority of the potential effects which could arise during construction would be avoided or effectively mitigated, and it is anticipated that there would be negligible effects during construction.

14.6 Significance of Residual Construction Effects

14.6.1 Any potential effects from construction of the scheme would be temporary and indirect in nature, and with the best practice measures described above (and in the CEMP) in place and followed appropriately, the significance of these effects are envisaged to be not significant.

Mitigation

14.6.2 To mitigate the risk of deterioration in water quality within the watercourses and groundwater bodies, the drainage design for the scheme includes measures to filter, store and treat surface water through use of the “SUDS Management Train‟ approach. This approach is detailed in CIRIA C697 “The SuDS Manual‟, and outlines the most appropriate uses and combinations of SUDS measures to treat surface water runoff and improve water quality through each stage of the surface water management system.

14.6.3 The drainage system would serve to intercept surface water runoff from the carriageway and remove pollutants as near to the source before disposal to the on-site conveyance network. This network is formed of the following components:

- Carrier, filter and fin drains;
- Gullies;
- Kerb and drainage systems;
- Catchpits and manholes;
- Pollution control valves;

- Forebays;
- Attenuation ponds;
- Headwalls; and
- Culverts.

14.6.4 The drainage system proposed for the scheme is described within the FRA, but in summary attenuation ponds are proposed to control the outfall flow which would discharge into the watercourses, and forebays are to be provided adjacent to the attenuation ponds. A total of two ponds are proposed to be constructed as part of the scheme. All drainage from the proposed scheme would be directed through the drainage system prior to discharging to the watercourses, thereby maintaining the level of quality of water discharging to these existing networks.

14.6.5 The following specific measures are proposed to assist with managing water quality further:

- There will be a series of catchpit chambers upstream of the outfall to the attenuation ponds to arrest suspended debris;
- The detailed drainage design in accordance with CIRIA C697 will ensure that sediment and contaminants are captured and water is treated, before being discharged from the site (the FRA provides the Total Treatment Volume required);
- The proposed surface water drainage system includes trapped gullies to reduce sediment and hydrocarbon content; and
- All the pollution prevention devices incorporated in the drainage system would have appropriate signage in order for emergency or highway services to operate and maintain them easily, and would be designed for ease and simplicity of operation and maintenance.

14.6.6 To mitigate any residual risk as a result of climate change a 20% increase in rainfall intensity has been incorporated into the drainage strategy.

14.7 Significance of Residual Operational Effects

14.7.1 With the construction and subsequent operation of a new stretch of road there remains a risk of accidental spillage of fuel through vehicle accidents. This risk is considered to have the potential to result in a minor effect on the groundwater attribute of medium importance. This is an unavoidable consequence of building a new road (as without the road there would be no risk, but with the road there would be some risk, however unlikely), but the risk is considered to be no greater than other local roads has been mitigated and is therefore not significant.

14.7.2 The proposed drainage system, with the mitigation measures taken into account, would reduce any potential effects of routine runoff to groundwater such that they are considered not significant.

14.7.3 The scheme would lead to some local improvements in the biodiversity which would help towards meeting WFD objectives of improving ecological potential to good status. It would also be in line with the NPPF which requires that development should retain, protect and enhance ecological interests. This would be achieved by:

- Incorporation of the SUDS and the introduction of the two attenuation ponds as part of the scheme would introduce habitat that has the potential to encourage ecological enhancement and biodiversity; and
- The use of appropriate native species planting and grass seeding along affected watercourses and within and around the new attenuation ponds.

14.8 Summary

14.8.1 The investigation and assessment of water quality and drainage has shown that the risks to this environmental element are not significant. The site is not affected by flooding, and

surface water mitigation measures are proposed based on a Flood Risk Assessment (FRA) undertaken for Queensway Gateway.

14.8.2 The environmental significance of the effects during construction of QGW has potential to cause short- impacts on water quality. A suite of mitigation measures have been identified which will be implemented into the construction of the proposed development through the CEMP. By implementing these measures the significance of any effect during construction is not significant.

14.8.3 Best-practice drainage design standards have been implemented, including water treatment solutions within the proposed design of the surface water attenuation ponds – this is outlined within the FRA. As a result the environmental effects of the operation of QGW will be not significant.

15 Cultural Heritage

15.1 Introduction

15.1.1 This chapter, firstly, evaluates the effects of the proposed Queensway Gateway road (QGW) and then the cumulative effects with the proposed employment site on the historic environment. It is based on the findings of a heritage desk based assessment which is included in Appendix J.1.

15.1.2 The key objectives of the assessment are to:

- Assess the potential impact of construction of the proposed development on known and potential non-designated archaeological heritage assets (there are no designated heritage assets within the site) and to evaluate the significance of the impact;
- Assess the potential impact of construction and operation of the proposed development on the setting of designated heritage assets and to evaluate the significance of the impact; and
- Identify measures for avoiding or mitigating potential impacts; and detail any residual impacts that cannot be mitigated

15.2 Policy Context

Town and Country Planning Legislation and Procedures

15.2.1 As from March 2012, Government policies relating to planning are given in the National Planning Policy Framework[1]. Section 12 (paragraphs 126 – 141) of the Framework (Conserving and enhancing the historic environment) outlines policies relating to the historic environment and the key role it plays in the Government's definition of sustainable development, the principle which underpins the document.

15.2.2 The Framework requires that local planning authorities 'should set out in their Local Plan a positive strategy for the conservation and enjoyment of the historic environment', recognising that 'heritage assets are an irreplaceable resource' and should be conserved 'in a manner appropriate to their significance'.

15.2.3 The Framework requires that planning applicants should 'describe the significance of any heritage assets affected' by their application, 'including any contribution made by their setting'.

National Planning Policy Framework (NPPF)

15.2.4 In March 2012, the government published the National Planning Policy Framework (NPPF), which replaces national policy relating to heritage and archaeology (Planning Policy Statement 5: Planning for the Historic Environment[2]).

15.2.5 Section 12 of the NPPF, entitled *Conserving and Enhancing the Historic Environment* provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 12 of the NPPF can be summarised as seeking the:

- Delivery of sustainable development;
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment;
- Conservation of England's heritage assets in a manner appropriate to their significance, and

6 DCMS (2012). *National Planning Policy Framework.* London: Department for Culture, Media & Sport.
7 DCLG, DCMS & English Heritage (2010). *PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide.* Department for Communities & Local Government, Department for Culture, Media & Sport and English Heritage.

- Recognition of the contribution that heritage assets make to our understanding of the past.

15.2.6 Section 12 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 128 states that planning decisions should be based on the significance of the heritage asset and that level of detail supplied by an applicant should be proportionate to the importance of the asset and should be *no more than sufficient* to review the potential impact of the proposal upon the significance of that asset.

15.2.7 *Heritage Assets* are defined in Annex 2 of the NPPF as: a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. They include designated heritage assets (as defined in the NPPF) and assets identified by the local planning authority during the process of decision-making or through the plan-making process.

15.2.8 Annex 2 also defines *Archaeological Interest* as a heritage asset which holds or potentially could hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.

15.2.9 A *Designated Heritage Asset* comprises a: World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area.

15.2.10 *Significance* is defined as: The value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

15.2.11 "Non Designated Heritage Assets" - These sites currently benefit from local protection. The National Planning Policy Framework (NPPF) requires that local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal - Paragraph 129.

15.2.12 In short, government policy provides a framework which:

- Protects nationally important designated Heritage Assets (which include World Heritage Sites, Scheduled Ancient Monuments, Listed Buildings, Protected Wreck Sites, Registered Parks and Gardens, Registered Battlefields or Conservation Areas)
- Protects the settings of such designations
- In appropriate circumstances seeks adequate information (from desk based assessment and field evaluation where necessary) to enable informed decisions. Provides for the excavation and investigation of sites not significant enough to merit *in-situ* preservation.

15.2.13 In considering any planning application for development, the planning authority will be mindful of the framework set by government policy, in this instance the NPPF, by Current Development Plan Policy and by other material considerations.

Hastings Local Plan 2004

15.2.14 The Hastings Local Plan was formally adopted by the Borough Council on 14 April 2004. The 2004 Local Plan is the statutory local plan for Hastings Borough, replacing the 1993 Hastings Borough Plan and the Combe Haven Valley District Plan (adopted 1983). The Local Plan 2004 sets out a framework of policies to guide and encourage development in Hastings Borough, whilst safeguarding and enhancing the environment.

15.2.15 The following policies are relevant to the site and reference the numbering sequence utilised in the Plan document:

Listed Buildings

9.127 When a building is described as 'listed' it means that it is included on a list of buildings which are considered to be of sufficient historic or architectural interest to merit special protection.

9.128 The leaflet 'Listed Buildings - a Guide' provides a basic framework of general advice which includes why buildings are listed and how they should be managed. It is available from the Borough Council. Where a number of owners share responsibility for the management of a listed building, the Borough Council will, where appropriate, foster the preparation of listed building management guidelines in accordance with English Heritage recommendations. Proposals to extend or alter a listed building will frequently require planning permission as well as listed building consent. In addition, proposals to demolish a listed building may form part of a development proposal requiring planning permission.

Archaeological Sites and Ancient Monuments

9.137 There are 6 Scheduled Ancient Monuments in the Borough, which are nationally important. The Ancient Monuments and Archaeological Areas Act 1979 requires an application for scheduled monument consent to be made for any work affecting an ancient monument. The Plan aims to prevent any damage resulting from development to these monuments and their settings.

9.138 Certain areas of the town have also been recognised as being of particular archaeological importance.

9.139 Those wishing to carry out development will be expected to comply with practical guidance on the treatment of archaeological sites in the development process as outlined in the British Archaeologists and Developers Liaison Group Code of Practice.

9.140 The Borough Council will identify, record and protect archaeological sites and historic elements in the landscape and encourage and develop the educational, recreational and tourist potential of archaeological sites and monuments through suitable management and interpretation. On sites of archaeological significance, particularly in those areas identified as being 'Areas of Archaeological Interest' on the Proposals Map, the Council will require that the archaeological aspects of development proposals are examined and evaluated before planning applications are determined. The Council regards preservation in situ as more satisfactory than by record.

POLICY C6

Archaeological Sites and Ancient Monuments Planning permission will not be granted for development that would adversely affect a Scheduled Ancient Monument or other nationally important archaeological site or monument or their settings, unless the applicant has:-
(a) Undertaken an adequate assessment of the archaeological implications of the proposal; and

(b) Demonstrated that the particular archaeological site(s), monument(s) and setting(s) will be satisfactorily preserved either in situ or by record (i.e. adequately investigated and the results reported).

The Hastings Borough Council Local Plan 2011 - 2028 (emerging)

15.2.16 Hastings Borough Council is planning for the future and are working to replace the existing Local Plan adopted in 2004.

15.2.17 The Local Development Scheme (LDS) sets out the timetable, resources and monitoring arrangements for production of the new Hastings Local Plan. Since the adoption of the last LDS amendments have been made to the timetable for preparing the Development Management Plan and are as follows:

- Publication of the Development Management Plan (Regulation 19 - Revised Proposed Submission document): March to April 2014
- Submission of the Development Management Plan to the Secretary of State: July 2014
- Adoption of the Development Management Plan: November 2015

15.2.18 The following policies are relevant to the site and reference the numbering sequence utilised in the Plan document:

Chapter 7: Protecting our Environment

The Built Environment

Historic environment

POLICY EN1: Built and Historic Environment

To promote understanding and appreciation of the historic environment the Council will, within three years from the adoption of the Development Management Plan, develop a historic environment strategy for the conservation of the historic environment, including those heritage assets identified as being most at risk through neglect, decay or other threats. This will reinforce the historic environment record for the borough, a key information source in assessing the impact of future development on the historic environment. Importance will be placed on new development making a positive contribution to the quality, character, local distinctiveness and sense of place of historic buildings and areas. Particular care will be given to protecting the significance and setting of the following heritage assets:

a. Listed buildings;

b. Conservation areas;

c. locally listed heritage assets

d. historic parks and gardens;

e. scheduled monument sites; and

f. areas of archaeological potential and known archaeological find sites

There is a presumption in favour of the conservation of heritage assets and their settings. The more important the asset, the greater the weight that will be given to the need to conserve it. As heritage assets are irreplaceable, any harm or loss will require clear and convincing justification.

Development which sustains and enhances the significance of heritage assets and/or their setting will be encouraged. The Council will look for opportunities to enhance or better reveal the significance of the designated heritage assets, such as listed buildings and Conservation Areas, in the town. Investment in the appropriate repair and restoration of heritage assets, where works will enhance their significance, will be encouraged and supported by the Council. There are many areas of the Borough where there is high archaeological potential, but where the extent of the likely finds is, as of yet, unknown. Great care needs to be taken to protect this archaeological resource through the planning process. Detailed design policies to protect the town's heritage assets will be set out in the Development Management Plan.

Ancient Woodland

7.20 Ancient Woodland is a nationally important and threatened habitat which is irreplaceable. Most ancient woodlands have been in existence since the end of the last Ice Age. They are of special cultural, heritage and biodiversity value. National guidance and legislation protects Ancient Woodland from development. Development in the vicinity of such woodland, however, may also impact upon it and these impacts will be considered.

7.21 Across Hastings Borough there are many areas of Ancient Woodland. These are an important wildlife habitat, have great amenity value for the community and are an asset to the wider heritage landscape. Further information on Ancient Woodland is also set out in

background document "Ancient Woodland Inventory of Hastings" (2010), available on our website at:
www.hastings.gov.uk/environment_planning/planning/localplan/evidence_base/#woodland

These areas of Ancient Woodland, as shown on the Polices Map, are therefore, protected from the adverse impact of development by policy EN3 and also as described in policy EN4.

POLICY EN4: Ancient Woodland

Planning permission will only be granted for development near or adjacent to an area of ancient woodland, shown on the Policies Map, if it can be convincingly demonstrated that the proposals will not adversely affect that ancient woodland and the need for development outweighs the importance of them. The layout of any development encroaching into, or close to, such woodland must take account of the designation and be designed so as to minimise the impact upon it. The Council may impose conditions on any planning permission and/or seek to enter into legal agreement(s) to secure the protection, enhancement and management of ancient woodland affected, directly or indirectly, by development proposals

15.3 Methodology

15.3.1 This Desk-based Assessment has been prepared in accordance with the requirements of the National Planning Policy Framework, the *Standard and Guidance for Archaeological Desk-based Assessment* (Institute of Field Archaeologists 2001), and the *Standards for Archaeological Fieldwork, Recording and Post Excavation Work in East Sussex* (ESCC 2008).

15.3.2 The research for this Desk-based Assessment has included an analysis of the following resources:

- ESCC Historic Environment Record (HER Ref. 021/14)
- Historic mapping
- NMR records and aerial photographs
- Hastings Museum & Art Gallery
- East Sussex Record Office (ESRO)
- Sussex Archaeological Society Library
- Defence of Britain database
- WIRG iron site database
- British Geological Survey
- Aerial Photograph search (Cambridge & Sussex Universities)
- Personal & Public library resources

15.3.3 The following maps were used:

- 1843 Hollington Tithe map (ESRO – TD/E/4)
- Plan of Beauport Home Farm (Sale Particulars) - 1860
- Ordnance Survey Map (1878)
- Ordnance Survey Map (1938)
- Ordnance Survey Map (1975)
- Ordnance Survey Map (1986)

15.3.4 The HER data and other sources are listed in Appendix 1 to this report included in **Appendix J** to this ES and mentioned in the text where relevant. The HER data is shown on Fig. 3. Historical and other sources are given as footnotes as appropriate.

15.4 Significance Criteria

15.4.1 Criteria for assessing the magnitude of predicted change are given in **Table 15.1**.

Table 15.1: Criteria for assessing Magnitude of Change on Heritage Receptors

Magnitude	Impact
Major	Total or substantial loss of the significance of a heritage asset. Substantial harm to a heritage asset's setting such that the significance of the asset would be totally lost or substantially reduced (e.g. the significance of a designated heritage asset would be reduced to such a degree that its designation would be questionable; the significance of an undesignated heritage asset would be reduced to such a degree that its categorisation as a heritage asset would be questionable).
Moderate	Partial loss or alteration of the significance of a heritage asset. Considerable harm to a heritage asset's setting, such that the asset's significance would be materially affected/considerably devalued, but not totally or substantially lost.
Minor	Slight loss of the significance of a heritage asset. This can include the removal of fabric that forms part of the heritage asset, but that is not integral to its significance (e.g. the demolition of later extensions/additions of little intrinsic value). Some harm to the heritage asset's setting, but not to the degree that it would materially compromise the significance of the heritage asset. Level of harm perceivable, but insubstantial relative to the overall interest of the heritage asset.
Negligible	A very slight change to a heritage asset. This can include a change to a part of a heritage asset that does not materially contribute to its significance. Very minor change to a heritage asset's setting such that there is a slight impact not materially affecting the heritage asset's significance.
No impact	No change to a heritage asset or its setting.

15.4.2 The sensitivity of the heritage asset will depend on factors such as the condition of the asset and its perceived heritage value and significance. The sensitivity of the heritage asset receptor is defined by its significance in terms of national, regional or local statutory or non-statutory protection and grading of the asset. **Table 15.2** sets out the criteria for assessing sensitivity.

Table 15.2: Criteria for Assessing Sensitivity of Receptors

Sensitivity	Criteria
Very High	World Heritage Sites
High	Scheduled Monuments & Areas of Archaeological Importance Archaeological sites of schedulable quality & significance Registered Historic Parks and Gardens (all grades) Historic Battlefields
Medium	Undesignated sites of demonstrable regional importance
Low	Sites with significance to local interest groups. Sites of which the significance is limited by poor preservation and poor survival of contextual associations.

15.4.3 The sensitivity of the receiving environment, together with the magnitude of change, defines the significance of the impact as set out in Table 15.3, drawing upon the defined terms for each of the significance criteria in Table 15.1.

Table 15.3: Criteria for Assessing Significance of Impact

SENSITIVITY	Very High	Severe	Moderate	Major	Minor
	High	Severe	Moderate	Major	Minor
	Medium	Major	Moderate	Minor	Minor/ Not significant
	Low	Moderate	Minor	Minor	Not significant
		Major	Moderate	Minor	Negligible
		Magnitude of Change			

15.5 Baseline Conditions

15.5.1 The location of sites/structures/finds identified in the text below are shown in **Appendix 1** of the CBAS report attached as **Appendix J** to this Environmental Statement)

Palaeolithic/Mesolithic

15.5.2 There are no Palaeolithic or Mesolithic remains recorded within the study area.

15.5.3 There are some remains from the area the cliffs below Hastings Castle whih have produced numerous pieces of Mesolithic flintwork from fissures in the rock, and further Mesolithic flintwork has subsequently been found eroding from the same cliff face. Other sites are known in open sandy ridgetop locations across the Sussex Weald and the discoveries at Hastings are likely to fall into this latter category, as during the Mesolithic period the hilltop on which the castle is located was situated some distance from the coast.

15.5.4 There is no evidence for Mesolithic activity recorded within the HER study area, or at the site. Although sites dated to this period are known within the High Weald evidence for Mesolithic settlement is very rare, and the likelihood of finding evidence of Mesolithic date activity is considered to be low.

Neolithic

15.5.5 No evidence of Neolithic activity is recorded with the site. However, two Neolithic flint axes have been found to the north (MES893) and north-east (MES1009) of the site suggesting possible evidence for clearance of the woodland in this area. Other Neolithic flintwork and pottery has been recovered from the fissures on Hastings Castle Hill and on East Hill, and further west at Bexhill, and these provide further evidence for Neolithic activity in the area.

15.5.6 he close proximity of the Neolithic date flint tools, discovered c. 60m from the site, and the presence of the trackway believed to date from this period suggest potential activity at this time in the general area. As such the likelihood of finding evidence of Neolithic date activity is considered to be low – low/medium.

Bronze Age

15.5.7 There is no evidence for Bronze Age activity recorded within the HER study area, or at the site. Therefore, the possibility of archaeology dating to this period being present at the site is considered to be unknown/low.

Iron Age

15.5.8 There is no evidence of Iron Age activity recorded within the HER study area, or at the site. Although Iron Age date activity is known from the surrounding area, it is considered unlikely that remains of this date will be present at the site. Therefore, the possibility of archaeology dating to this period being present at the site is considered to be unknown/low.

15.5.9 Ironworking became a major industry during the Romano-British period, with large numbers of iron working sites across the Weald. The extensive iron working site and baths at Beauport Park situated c. 1.5km north of the site appears to have had connections with the *Classis Britannica*23, and appears to have been used from the end of the 1st century AD through to

the early 3rd century and is described as the third largest iron works in the whole Roman empire. Numerous ore pits connected with this site are situated in the surrounding landscape.

15.5.10 A bronze ewer (MES890), was discovered c.800m south of the site and numerous Roman coins have been recovered from the Hastings area, which would seem to confirm that there may have been a settlement, trading centre, and perhaps a port located nearby.

Roman

15.5.11 Although the HER does not record any known Roman date activity within the site area itself, there is significant evidence for Roman activity located just outside the study area, mainly associated with the Roman ironworking industry. It is therefore considered that the possibility of archaeology dating to this period being present at the site is low to medium.

Saxon

15.5.12 There is virtually no archaeological evidence for Saxon activity at Hastings, although King Offa conquered the Hæstingas in 771, and Hastingecentre appears in the Burghal Hidage in the 10th century, assessed at 500 hides26. According to the Domesday Book27, Hollington was held by Godwin and Alstan who 'could go where they would with the land'. It answered for 4½ hides.

15.5.13 There is no evidence of Saxon date activity recorded within the HER study area, or at the site. Therefore, the possibility of archaeology dating to this period being present at the site is considered to be unknown/low.

Medieval

15.5.14 It has been suggested that Church Wood is the site of a deserted medieval village (DMV), with associated earthworks, underlying the surviving woodland (MES19469), however it seems more likely that Hollington was always a dispersed settlement. Another possible medieval hamlet was located at Baldslow (MES15539).

15.5.15 4.8.5 There is no evidence of medieval date activity recorded within the HER study area, or at the site, although medieval activity is recorded from the surrounding area. Therefore, the possibility of archaeology dating to this period being present at the site is considered to be unknown/low.

Post medieval and modern

15.5.16 During this period the site was part of the Beauport Park Estate.

15.5.17 The HER data details three buildings and structures dated to the 18th century, these are Beauport House, c.1km to the north of the site, where a watching brief was conducted during extension works to the building. No previously unrecorded archaeological remains were recorded (MES8678); a Grade II* Listed marble statue of Queen Anne, dated 1711-12 is located c. 600m to the east of the site (MES833/ DES912), which is located near to Holmhurst St Mary's School, also a grade II Listed Building.

15.5.18 There are no significant changes to the area in which the site is located until the late 1930's. The Ordnance Survey Map of 1938 (Fig. 8) indicates that by this time, the area south of the site had been developed with the construction of residential properties along the western extent of the road that passed through the valley basin. The road is labelled as 'Beauharrow Road' on the map of 1938. At the eastern extent of Beauharrow Road the area of 'brickworks' seen in 1878 is illustrated as 'quarries' and appear to be more a formalised light industrial complex of buildings. The site area itself remained as open land at this time.

15.5.19 By 1975 the surrounding area to the site had undergone significant development with larger more substantial, industrial buildings constructed to the south, as well as further residential buildings constructed to the north, east and west. A 'Depot' had been constructed to the north of the eastern extent of the fork from Beauharrow Road, along which the route of the site is proposed. The immediate area in which the site is located remained as open land. The presence of 'drains' is indicated across this open area on the map of 1975; the pond and spring are still indicated as present.

15.5.20 By 1986 the surrounding area to the north of the site had undergone considerable development with the construction of the Queensway Road located immediately north of Beauport Park Home Farm forming the northern extent of the site. The construction of this road destroyed the eastern extent of the link road between Battle Road to the B2083; however a new, more southerly branch of the former road had been constructed within the basin of the small valley which forms the area in which the site is located.

15.5.21 Further development is noted just north of QGW with the construction of Beauport Gardens to the immediate east of 'Hollington Lodge' and the construction of a large 'water works' immediately to its north.

15.5.22 However, the site itself has remained largely undeveloped comprising a mixture of open grassland, scrub and wood.

Designated heritage assets

15.5.23 There are no scheduled monuments, registered parks and gardens, conservation areas or world heritage sites within or near the study area.

15.6 Assessment and Mitigation of Construction Effects

15.6.1 It is anticipated that ground reduction will be required, at least in part, if not the entire length of the proposed route of the road and for the construction of access roads, and/or site storage facilities.

15.6.2 All construction effects on the identified heritage assets are short term, temporary and reversible, as such these are not considered further within the assessment.

15.7 Assessment of Operation Effects

15.7.1 The operation and maintenance of the proposed development will result in the addition of a new element within the landscape.

15.8 Assessment of Decommissioning/Restoration Effects

15.8.1 The activities on-site during decommissioning, should this take place, are considered to appear much the same as during the construction period except that as the period of decommissioning progresses. As such these are not considered further within the assessment.

15.8.2 Table 5 below summarises the effect of the proposed development on the significance of the identified heritage asset.

Table 5: Assessing the effect of the proposed development on the significance of the asset

Asset category	HER Ref No.	Name/Description	Significance of affected aspect of setting to asset	Sensitivity (Based on Cultural Value- Appendix 3)	Magnitude of change to affected aspect of setting (Appendix 3&6)	Overall Signif-icance of Effect
GIILB	DES825	Croft Lodge House (formally Hollington Lodge)	Negligible	High	Very Low	Minor
GIILB	DES631	Beauport Lodge (East And West) Gate Including Gatepiers and Gates to East of Beauport Lodge	Minor/ Moderate	High	Very Low	Minor
GIILB	DES1117	Beauport Home Farm with attached Outbuildings	Negligible	High	Very Low	Minor

GIILB	DES597	Dairy at Beauport Home Farm	Negligible	High	Very Low	Minor
Non-designated	MES15525	Linear Terrace	Negligible/ Minor	Low	Very Low - Low	Negligible

15.8.3 In line with the assessment criteria, it is considered that the proposed development will constituent a 'Very Low to Medium' magnitude of change to the setting of the identified heritage assets, resulting in a potential 'Negligible to Minor' overall effect.

15.8.4 In line with EIA guidance, these effects constitute a finding of not significant.

15.9 Assessment and Mitigation of Cumulative Effects

15.9.1 The proposed QGW will have no cumulative direct or indirect effects on any designated heritage assets.

15.9.2 There will be no direct cumulative effects from the proposed QGW and the proposed employment site on known non-designated heritage assets.

15.9.3 The cumulative effect of the QGW and proposed employment development is therefore unlikely to be significant.

15.10 Summary of Residual Effects

15.10.1 Following the implementation of the proposed mitigation proposals above, there will be no residual effects on designated or non-designated heritage assets, as any affected remains will have been identified and preserved by record.

15.11 Summary

15.11.1 No heritage assets have been identified at the site; however the assessment concludes that the archaeological potential is considered as unknown/low to low for archaeological remains of various dates to be present in all areas of the site.

15.11.2 Consequently, it is recommended that a further programme of archaeological works be undertaken to confirm the presence or absence, and condition of survival of any archaeological remains should they be present at the site, ahead of ground works.

15.11.3 An assessment of potential impacts to the setting of identified heritage assets within a 1km radius of the site has concluded that no significant effects are likely to arises as a result of the proposed development.

15.11.4 All mitigation measures should be discussed with the East Sussex County Council Archaeological Officers.

16 Summary and Impact Interactions

16.1 Introduction

16.1.1 Environmental effects can result from incremental changes caused by the interactions between effects resulting from a project. For the purpose of this assessment, the interactions between effects associated with the proposed development are defined as 'combined effects'.

16.1.2 The direct and indirect effects of the proposed development have been assessed within the relevant topic chapters of the ES prepared by suitable technical specialists. Environmental effects are assessed relative to the topic under consideration. This approach can lead to the interaction of effects being reported in separate chapters but the collective effect on the same environmental resource(s) not being considered.

16.1.3 In response this chapter summarises the principal findings of each topic chapter of the ES to enable assessment of the potential for impact interactions. This chapter also provides a summary of the environmental effects identified throughout the ES and allows a judgement to be made of the overall effect of the proposed development during construction and operation.

16.2 Methodology

16.2.1 The assessment methodology for combined effects involves the identification of impact interactions associated with both the construction and operational phases of the proposed development upon one or more environmental resources. This is undertaken using a qualitative appraisal process.

16.2.2 This approach is commonly used for EIAs and draws upon the following guidance:

- Institute of Environmental Management & Assessment, (2004), Guidelines for Environmental Impact Assessment (IEMA).
- Hyder, (1999), Final Report on the Study on the Assessment of Indirect and Cumulative Impacts, as well as Impact Interactions within the Environmental Impact Assessment (EIA) Process NE80328/D3/2, European Commission Directorate General XI, Environment, Nuclear Safety and Civil Protection.
- Mitigation measures are identified in each of the topic chapters, and have been used to inform the assessment presented in this chapter.

16.2.3 The assessment of the significance of effects has been based on the generic significance criteria provided in **Table 5.1**.

16.3 Construction

16.3.1 The majority of the environmental effects identified during construction either not significant or minor. .

16.3.2 There is expected to be a moderate adverse effect on a small number of residents living close to the site as a result of noise during construction (although this effect will be intermittent during the construction period). Local residents may also be affected by minor adverse effects in relation to driver delay and pedestrian and cyclist amenity. The landscape and visual assessment has established that construction effects will be localised and that such effects while typically not significant in certain locations will be moderate adverse.

16.3.3 The adverse effects of the construction period on the community will be partially offset by a minor beneficial effect in relation to construction employment opportunities.

16.3.4 The only other significant effect identified during construction relates to the loss of existing natural habitat. However, it should be noted that much of this land is designated for development in local planning policy. In addition to the east where there is no Employment designation the road has been designed to follow the present alignment of Whitworth Rd as much as possible to mitigate the loss of habitat.

16.3.5 Overall therefore there is considered to be a minor adverse effect on local communities as a result of the construction of the proposed development.

16.4 Operation Effect

16.4.1 The most significant effects during the operation of QGW relate to the economic benefits of the proposed development. QGW will unlock the delivery of allocated employment space, which provides employment opportunities for local people and a significant boost to the local economy. These economic effects are considered to be major beneficial effects.

16.4.2 The majority of the other effects of the proposed development upon local people (noise, air quality, driver delay, and effects on pedestrians and cyclists) are either **not significant** or **minor** provided the proposed mitigation measures are implemented. The exception is air quality where the additional traffic generated by the BHLR which would use QGW to come to and from the A21 will result in a **moderate** adverse impact on a number of local residential receptors. However, this increase would be generated with or without QGW.

16.4.3 A **minor** adverse effect is anticipated in relation to severance as a result of QGW crossing the routes of public rights of way.

16.4.4 Landscape and visual effects will be localised and are typically not significant in broader terms. There will be some localised **moderate** adverse landscape and **major** visual effects until the proposed landscaping matures, when the majority of effects will be not significant (**negligible** to **moderate**).

16.4.5 The EIA has considered the cumulative effects of QGW and the proposed employment development. The significance of the likely cumulative environmental effects is generally consistent with the operational effects, although there will be increased cumulative landscape and visual effects and loss of habitat allocated as a Site of Nature Conservation Interest (albeit allocated for employment development) as a result of the inclusion of built development.

16.4.6 As a result therefore the proposed development is considered to have a **moderate** beneficial effect on local communities.

17 Glossary

AADT	Annual Average Daily Traffic
ADMS	Comprehensive software for modelling air quality
AEL	Applied Ecology Ltd
AOD	Above Ordnance Datum
AONB	Areas of Outstanding Natural Beauty
AQMA	Air Quality Management Area
BGL	Below Ground Level
BGS	British Geological Survey
BHLR	Bexhill to Hastings Link Road
BIS	Business Innovation and Skills
CA	Countryside Agency
CC	Countryside Commission
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CRTN	Calculation of Road Traffic Noise
DCLG	Department for Communities and Local Government
DEFRA	Department of Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DoWCoP	Definition of Waste: Development Industry Code of Practice
E2	Policy E2 of adopted Hastings Local Plan

EA	Environment Agency
EcIA	Ecological Impact Assessment
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EPUK	Environmental Protection UK
ES	Environmental Statement
ESCC	East Sussex County Council
ESEID	East Sussex Energy, Infrastructure and Development
ESRF	East Sussex Trees and Woodland Strategy
FTE	Full Time Equivalent
GCN	Great Crested Newt
GLA	Greater London Authority
GLVIA	Guidelines for Landscape and Visual Assessment
GP3	Groundwater Protection
HBC	Hastings Borough Council
HDV	Heavy Duty Vehicle
HV	High voltage
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle
LEP	Local Enterprise Partnership
LRA7	Policy LRA 7 of emerging Hastings Local Plan
LRA8	Policy LRA 8 of emerging Hastings Local Plan
LTP	Local Transport Plan
LV	Low voltage
LVIA	Landscape and Visual Impact Assessment

NAQO	National Air Quality Objective as set out in the Air Quality Strategy and the Air Quality Regulations
NEET	Not in Education, Employment or Training
NERC	Natural Environment and Rural Communities
NO2	Nitrogen dioxide
NOx	Nitrogen oxides
NPPF	National Planning Policy Framework
OS	Ordnance survey
PGH	Potential Geological Hazards
PM10	Small airborne particles less than 10µm in diameter
PM2.5	Small airborne particles less than 2.5µm in diameter
PPG	Planning Policy Guidance
PPS	Planning Policy Statements
PSC	Potential Source of Contamination
QGW	Queensway Gateway Rd
RIGS	Regionally Important Geological and Geomorphological Sites
SAC	Special Area of Conservation
SELEP	South East Local Enterprise Partnership
SNCIs	Sites of Nature Conservation Importance
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
TPO	Tree Preservation Orders
WFD	Water Framework Directive