

Bexhill to Hastings Link Road

Chapter 3A: Scheme Information

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3A Description of the Scheme

3A.1 Existing Situation

Description of Existing Situation

3A.1.1 The two adjacent towns of Bexhill and Hastings are located on the south coast of England some 100km to the south east of London and 26km to the east of Eastbourne in the county of East Sussex. The town centres are located within 8km of each other and the built-up areas nearly join. They are separated by the Combe Haven Valley, containing extensive wetlands and several environmentally protected areas including two Sites of Special Scientific Interest (SSSI) and areas of semi-natural ancient woodlands. To the north of the valley lies the High Weald Area of Outstanding Natural Beauty (AONB). Details of the existing highways network are shown on Figure 3.1.

3A.1.2 The Scheme would run across the valley between the A259 Belle Hill in Bexhill, which lies in Rother District, and the B2092 Queensway in Hastings, located within Hastings Borough.

3A.1.3 Queensway provides a direct link to the A2100 The Ridge (West) and thence to the A21 trunk road in north Hastings. To the south the B2092, Crowhurst Road/Harley Shute Road, connects to the A259 on the western outskirts of Hastings.

3A.1.4 The only significant road link between the towns is the single carriageway A259 Bexhill Road. The only alternatives to this route are either a cross-country route on narrow lanes to the north, a route only suitable for low volumes of traffic, or a very long circuit via principal roads, the A271 and the A2100, further to the north of the towns, both of which pass through or on the edge of parts of the AONB.

3A.1.5 The A259 runs east west and from Bexhill along Barnhorn Road, Little Common Road, Belle Hill, King Offa Way, Bexhill Road, and the Marina in Hastings. The A259 continues along the seafront of Hastings until turning inland along the A259 Old London Road.

3A.1.6 The Bexhill Road section of the A259 between Bexleigh Avenue and the Harley Shute Road is designated an Air Quality Management Area (AQMA). Studies by Hastings Borough Council predicted 45 breaches of the 24-hour PM₁₀ objective (50µg/m³) in the year 2004 and subsequently resulted in this section's designation.

3A.1.7 The key link roads in Bexhill and Hastings carry high volumes of traffic for single carriageway urban roads. The A259, particularly along the Bexhill Road section, carries significant levels of traffic throughout the working day, with off-peak hourly flows being only 11 or 12 per cent lower than the peak hour flows. This constant traffic demand serves to reduce vehicles speeds along the road and results in heavy congestion, increased travel times, and little spare capacity to cater for unexpected events. This has been

identified by businesses as a major constraint on economic activity in the area.

3A.1.8 Public transport routes between Bexhill and Hastings are slow and unreliable. Bus operations are affected by the congestion and variable conditions. Because of the unpredictable congestion it is difficult to schedule buses in an efficient manner, and the operators running services between the two towns currently build in considerable float time to maintain schedules, which in turn make the efficiency of operation difficult and costly.

3A.1.9 The Bexhill Road has a very poor accident record with 65 personal injury accidents over a five year period; three times greater than the national average for this type of road. The accident records on the A259 Little Common Road (Bexhill) and Church Wood Drive (Hastings) are also very poor (twice the national average).

3A.1.10 Existing links across the proposed alignment of the Scheme are as follows:

- Chapel Path (FP 17) runs from King Offa Junior School and south of Bexhill High School to the A269 London Road;
- Bancroft Road footpath (FP 66) connects a path from the southern end of Bancroft Road to London Road;
- Woodsgate Park linking the residential area west of the disused railway to the London Road;
- Ninfield Road carrying the A269 over the disused railway;
- Glovers Farm is accessed via a byway (BOAT 81) from the end of Glovers Lane;
- Acton's Farm is accessed via a byway (BOAT 76) accessed from Buckholt Lane;
- A bridleway (BW 34a) continues from Acton's Farm and turns north running past Hillcroft Farm towards Crowhurst, crossing the route again south of Hillcroft Farm (BW 13a/13b);
- The section of the 1066 Country Walk (FP 16) from Glyne Gap joins the Powdermill Stream near Adam's Farm and continues north towards Crowhurst;
- From its intersection with Queensway, opposite Mayfield Lane, Crowhurst Road crosses the London to Bexhill Railway line and then turns north continuing towards Crowhurst;
- The Bexhill railway line in this section runs through a cutting between Crowhurst Road and Queensway; and,
- Egerton Stream, Combe Haven, Watermill Stream, Powdermill Valley Stream, and Decoy Pond Stream also cross the proposed alignment of the Scheme.

Existing Traffic Flows

3A.1.11 Details of existing traffic conditions are given in Chapter 6: Travel and Transport.

Surface Water

3A.1.12 Egerton Stream emerges onto the disused railway land just to the south of the Sidley Highways Depot. The stream flows south-east for a short distance before passing under the old railway embankment in culvert. It then flows in open channel along the eastern side of the old railway to Chapel Path, where it flows into a culvert under the leisure centre car park. Currently structures along the Egerton Stream restrict the flow of water in extreme events, resulting in large volumes of water being held within the stream and its floodplain. The former railway land forms an important part of the stream's flood storage area.

3A.1.13 The route of the Scheme crosses the valleys of the Combe Haven and its tributaries; Watermill Stream, Powdermill Stream and Decoy Stream. The Combe Haven flows approximately west to east before turning south near Filsham to reach the sea at Bulverhythe, its tributaries flowing in from the north. The Combe Haven and its tributaries all flood regularly, causing problems as far north as Crowhurst village.

3A.2 Changes to the Preferred Route

3A.2.1 Since the announcement of the Preferred Route Option there have been a number of changes made to the Scheme to reduce its impact and the address the concerns of various interested parties.

3A.2.2 A few relatively minor changes have been made to the alignment of the Scheme:

- At Woodsgate Park the horizontal alignment has been moved approximately 4.5m to the west in order to minimise the impact upon significant trees to the east side of the old railway land;
- The vertical alignment has been raised though the cutting north of Ninfield Road to reduce the length of retaining walls required and minimise loss of existing vegetation;
- At Adam's Farm the alignment has been moved approximately 10m further south to reduce the impact of the earthworks on Adam's Farm. The alignment has also been raised to reduce the depth of the Adam's Farm cutting. An effect has also been that the diversion of the 1066 Country Walk over the Adam's Farm Overbridge can be avoided and the path can pass beneath the road using the new road bridge. The road level in the Decoy Stream Valley has been lowered slightly to reduce the environmental impact. Doing this has meant the removal of the proposed vehicular accommodation crossing but the Highways Authority will provide a cattle creep if the farmer wishes;
- South of Chapel Wood the alignment has been moved by up to 15m to reduce impact on the wood; and,
- The point at which the Scheme crosses the railway has been moved north by approximately 150m to reduce the span of the bridge and avoid diverting the high pressure gas main.

3A.2.3 A number of changes have also been made to the earthworks and drainage proposals to reduce the impact of the Scheme:

- The proposed surface water storage tank at London Road has been moved from the west side of the road, where it was situated within the existing school site. It is now proposed that it would be situated in the area between the new bus only junction and the new link to London Road. This significantly reduces the land take from and impact on the school;
- Over the whole length of the Scheme numerous changes have been made to the earthworks proposals, which together with the extensive noise fence, serve to minimise noise impact; and,
- In order to win enough material for the earthworks required for the landscape proposal and to meet flood water storage and wildlife requirements, the Scheme draws on the Powdermill Valley floor.

3A.2.4 There have been changes to the structures proposals at Chapel Path, Glovers Farm and Adam's Farm.

- A pedestrian underpass has been introduced at Chapel Path to provide a safe pedestrian link between London Road and the two schools;
- In the Preferred Route Option of the Scheme, an accommodation bridge was proposed at Glover's Farm with a second bridge at Chainage 1850 for the Greenway crossing. These have been rationalised to a single bridge crossing the Scheme immediately to the north of Glovers Farm, which provides both access to the farm and a route for the Greenway.
- The new bridge proposed at Adam's Farm has been moved west from its original position. Although physically closer to the farm building the topography means that the impact on the Adam's Farm is reduced in this location.

3A.2.5 The Greenway has changed substantially from the route shown in the Preferred Scheme. The route of the Greenway predominantly followed quite closely to the route of the road. The one significant exception was at the western end of the Scheme where it diverted away from the road to run roughly parallel to it but separated by about 250m, passing to the south of Upper Wilting Farm.

3A.2.6 In order to minimise the effects of road noise on the Greenway, it has been realigned to be separate from the road corridor with, where possible, separate routes for horses, and pedestrians and cyclists. For example between Glovers Farm and Acton's Farm the two routes are on opposite sides of the new road. Once again an exception has been made in the Upper Wilting Farm area. Here, in order to address the concerns of the tenants and land owner and reduce impact on the farm, the route has been realigned to follow along the top of the new cutting.

3A.3 Scheme Description

3A.3.1 This section describes the engineering proposal for the Scheme including any engineered bunding that would be required as part of the environmental mitigation. Details of the mitigation proposals are discussed below and details of measures to reduce noise in Chapter 11: Noise and Vibration of the ES.

Highway Design

3A.3.2 The Scheme is 5.6km long from its junction with the A259 in Bexhill to its junction with Queensway in Hastings. Plans of the Scheme are shown in Figures 3.3 to 3.9 with longitudinal sections in Figures 3.10 to 3.12 and cross sections being shown in Figures 3.13 to 3.20.

3A.3.3 The first 1.5km section of the road (known as the Bexhill Connection) would follow the route of the abandoned Crowhurst, Sidley & Bexhill Branch Railway passing through the built up area of Bexhill. It has been designed as a standard single carriageway road comprising two 3.65m lanes with 3.5m verges. The road would be accommodated within the route of the abandoned railway without significant earthworks.

3A.3.4 The remaining length of the Scheme would pass through open countryside and has been designed to a wide single carriageway standard, comprising two 5.0m lanes, 1.0m hard strips and 2.5m minimum width verges. Where grass drainage channels are proposed the verges must be widened to 4.5m. Widened verges would also be required in some locations to ensure that adequate visibility is provided at bends. A climbing lane is proposed from Chainage 4535 to 5330, however this would not require any change to the carriageway or verge widths.

3A.3.5 The Bexhill Connection would start from the A259 trunk road at the Belle Hill Junction heading approximately north from the junction. A number of houses, some of which have already been acquired and are semi-derelict, would have to be demolished to accommodate the new alignment. The existing traffic signal controlled junction at Belle Hill would be revised to accommodate the Scheme.

3A.3.6 The London Road, which currently joins the A259 at this junction, would be diverted through the existing Rother District Council's depot site where it would join the Scheme at a new traffic signal controlled junction. The use of London Road, south of this junction would be restricted to residents and buses, with a bus only link to the new road created immediately to the north of the Belle Hill Junction.

3A.3.7 The Bexhill Connection would continue along the line of the abandoned railway line through the built up area of north Bexhill. From London Road to Ninfield Road the route would follow near to existing ground level with low embankments and shallow cutting being created as required. Figure 3.13 shows how this would be achieved. The existing bridges at Woodsgate Park and Ninfield Road would be demolished and new structures built on the same alignment to accommodate the new road.

3A.3.8 North of Ninfield Road the route would run along the base of the existing deep cutting, which is shown in Figure 3.14, to a point just north of Glovers Farm, where it would emerge from the cutting. The route would then run downhill heading approximately due north from Sidley, passing to the west of the main Combe Haven Valley and avoiding the SSSI. A cross section of this is shown in Figure 3.14. The Scheme would cross the upper Combe Haven Valley, at a point where the valley is narrow, on embankment up to 3.5m above existing river bank level before passing into cutting to the west of Acton's Farm.

3A.3.9 Where the road would be on embankment the proposed earthworks would be extended so that 3 to 4 metre high bunds could be created to provide both noise attenuation and visual screening for the road. At the Combe Haven itself, a gap would be left in the earthworks and a clear span bridge provided to cross the stream. To ensure that there is no break in the noise attenuation, an environmental barrier would be constructed adjacent to the road, linking the earth bunding on either side of the stream.

3A.3.10 From Acton's Farm the route would then turn eastwards in cutting up to 8.5m deep, as shown in Figure 3.15, toward the Watermill Stream Valley. The existing byway, which provides access to Acton's Farm, would be diverted to the south of its current alignment with a new bridge constructed to carry it over the new road.

3A.3.11 The route would continue to turn east to cross the Watermill Stream Valley on embankment up to 5m above valley level but generally only 3.5m high. This is shown in cross section in Figure 3.15. Earth bunding and environmental barriers would be provided across the valley with a clear span bridge at the stream, in a similar manner to that described for the Combe Haven. The Scheme would continue eastwards through the southern end of the Hillcroft Farm ridge, passing into cutting up to 7.2m deep. Figure 3.16 shows this section of the Scheme in cross section. The existing bridleway would be severed near Chainage 3430. Anyone using this route would have to follow the Greenway eastwards up the side of the ridge to cross the road on a new bridge before descending back to the continuation of the bridleway. This bridge would also provide an access route for Environment Agency maintenance vehicles allowing them to travel between the Watermill Stream to the north and south of the new road.

3A.3.12 Emerging from the Hillcroft Farm in cutting the road would cross the valley of the Powdermill Stream on embankment 4 to 5m above valley level, as shown in Figures 3.17 and 3.18, crossing in turn the Powdermill Valley Stream and the Powdermill Stream on clear span bridges. Earth bunding and environmental barriers would be provided across the valley in a similar manner to that described for the Combe Haven. The route of the 1066 Country Walk follows the west bank of the Powdermill Stream and it would remain unchanged as it would be spanned by the new bridge allowing people to continue to walk along the river bank.

3A.3.13 The road would pass again in cutting to the south of Adam's Farm. This cutting, at 12.8m in depth as shown in Figure 3.18, would be the deepest cutting along the Scheme. It would be crossed at Chainage 4135 by a new overbridge that would provide access to the land severed by the new road.

This overbridge would also be used by Environment Agency maintenance vehicles to gain access to the Powdermill Stream on either side of the road. Their access route would be along the Greenway to the south of the road, crossing the cutting on the bridge then following a new access track running north from Adam's Farm before descending into the Powdermill Valley and crossing the stream on another new bridge.

3A.3.14 The road would emerge from this cutting onto an embankment, 4m to 6.2m high across the Decoy Stream Valley, as shown in Figure 3.19, passing north of Decoy Pond Wood and the Combe Haven SSSI, before entering another cutting as it climbs up the valley side. Once again a clear span bridge would be provided across the Decoy Stream with earth bunding and environmental barriers being provided across the valley in a similar manner to that described for the Combe Haven.

3A.3.15 Access from the Decoy Stream north and south of the new road would be via a new access track constructed to the north of the new road from Decoy Stream to the Adam's Farm Overbridge, and back to Decoy Stream via the Greenway.

3A.3.16 As it climbs from Decoy Stream the gradient of the road would increase rapidly to a maximum of 7.3% (1 in 14), which is near the maximum permitted by the design standard. In order to remove the delays caused by goods vehicles climbing this slope the road would be marked with an east bound climbing lane between Chainage 4535 and Chainage 5330, as shown in Figure 3.19. The existing Crowhurst Road would be diverted to the east of its current alignment to enable the new bridge to be constructed without a complete closure of the existing road. However, it is proposed to close Crowhurst Road to all traffic except for local access during the construction period. This proposal is discussed in more detail in later in this chapter.

3A.3.17 From Crowhurst Road the route would continue eastward crossing the London to Hastings Railway on a bridge. The design and construction of this structure would be complicated by the presence of a high pressure gas main (Figure 3.9) and the Marline Valley Woods SSSI that lies just to the north of the route. The road embankment shown in cross section in Figure 3.20 and railway bridge would be designed to avoid direct impact on either of these features. East of the railway the route would terminate at a new traffic signal junction on Queensway at the western edge of the Hastings urban area.

Junction Design

3A.3.18 Three new junctions would be required for the Scheme. A key aspect of the design of each junction is to facilitate bus movements by incorporating bus priority measures.

3A.3.19 The Belle Hill Junction shown in Figure 3.21 is an existing traffic signal controlled junction with pedestrian crossings on each approach. The northern arm of this junction would be amended to incorporate the Bexhill Connection, removing the direct connection for general traffic to London Road. The new arrangement would retain pedestrian facilities at the junction, and

provide 'Bus Only' access between London Road and the Bexhill Connection immediately north of the Belle Hill junction. All other local traffic would access London Road via a new junction, located 150m north of Belle Hill.

3A.3.20 The London Road Junction shown in Figure 3.22 would be a signal controlled junction providing access between the Bexhill Connection and London Road. No pedestrian facilities would be provided at this junction as there are no footway links between London Road the Bexhill Connection. There would however be a 2m wide footway to the west of the new road linking Chapel Path to Bancroft Road. A priority junction would provide access to the southern arm of London Road for buses and local access only.

3A.3.21 The Queensway Junction shown in Figure 3.23 would also be a signal controlled junction providing bus priority on all approaches. Although the junction of Queensway with Crowhurst Road would not be signalised, a 'Toucan' crossing would be provided just to the south of this junction. New footways would be constructed from Mayfield Lane to the crossing and from the crossing along Crowhurst Road. The existing Crowhurst Road railway bridge, which is narrow, would have traffic signals installed to allow only one lane of traffic to use the bridge at any time. This would then allow a raised footway to be provided along the south side of the bridge connecting to the existing footpath and proposed Greenway.

Greenway Design

3A.3.22 The Scheme is seen as part of a "green" access corridor between Bexhill and Hastings and would be accompanied by a Greenway to accommodate activities such as cycling, walking and horse riding. Details of the proposed Greenway are shown in Figures 3.3 to 3.9, with Cross Sections shown in Figures 3.13 to 3.20

3A.3.23 The Greenway has been designed to current standards making provision for disabled access. Where possible it has been designed to be outside of the 50dB noise contour to allow users to enjoy the country environment.

3A.3.24 Over much of the length of the Greenway the equestrian provision and the pedestrian and cycle route would be separate. Over these lengths the equestrian route would be a 3m wide track with 1m verges. This comprises gravel and topsoil mixed in equal proportions, then grass seeded to produce a hard wearing surface that resembles a grass track. The pedestrian and cycle route would be a 3.0m wide surface dressed bituminous path with 1m wide verges. There would be no segregation between pedestrians and cyclists.

3A.3.25 Where it is not possible to separate the equestrians from other users, the Greenway would be increased in width and a 3.5m dressed bituminous surface provided. The grass verges would be provided acceptable to the British Horse Society and would be either 2.5m on each side or 4m on one side and 1m on the other.

3A.3.26 The Greenway would be designed with gentle gradients (5%) where possible, but the nature of the landscape it passes through means that this

cannot be achieved in all locations without employing excessive earthworks. Generally gradients would not exceed 6%, except for a section east of Decoy Pond where two short sections with gradients of 10% would be required to climb the hill near Upper Wilting Farm. Resting places would be provided at intervals over the whole route but special provision would be made where gradients exceed 5%.

3A.3.27 The Greenway would commence at the end of Glovers Lane and cross over the proposed Scheme via Glovers Farm Overbridge at Ch. 1630. This section of the Greenway would also serve as the access to Glovers Farm. The Greenway would split to the west of Glovers Farm Overbridge. An equestrian route would be created, separated from the Main Scheme by some distance, along the western edge of the landscape area to Buckholt Lane. It would then run parallel to Buckholt Lane before joining it just to the east of the Buckholt Kennels. From there equestrians would follow the access track to Acton's Farm, crossing the road on the new overbridge.

3A.3.28 The route for pedestrians and cyclists from Glovers Farm to Acton's Farm would follow a different alignment. This would run to the east of the Main Scheme, following the eastern edge of the landscape area to join with the equestrian route immediately west of Acton's Farm.

3A.3.29 The route for all users would be joined through Acton's Farm itself before separating immediately to the east of the farm. Equestrians would use the existing bridleway to a point west of Hillcroft Farm Overbridge, Chainage 3400 approximately, while pedestrians and cyclists would use a new track broadly parallel to the equestrian route. The routes for equestrian and pedestrian/cyclist then diverge. The route for pedestrian and cyclist running to the south side of the spur of land while the equestrian route goes up and over the spur. It follows the bridleway diversion to the Hillcroft Farm overbridge before dropping down to rejoin the pedestrian and cycle route at about Ch. 3700.

3A.3.30 From this point the routes would merge, following along the southern boundary of the landscaped area to Decoy Stream. The route would split again between Chainage 4600m to 4750m, where the equestrians would take a shorter but steeper route roughly parallel to the Main Scheme. The pedestrian and cycle route would divert south for some distance before returning north climbing up the valley side forming a long loop, where it would then combine again with the equestrian route. This diversion would allow the route for pedestrians and cyclists to be constructed to gradients generally of 5%, but even so there are two short sections where gradients would exceed this, reaching a maximum of 10%.

3A.3.31 From the point where the routes merge, the Greenway would follow the edge of the new cutting to join the existing Crowhurst Road adjacent to the gas valve compound. For a short distance it would follow Crowhurst Road as far as Upper Wilting Farm. This section of road would be closed to traffic except for access to the gas valve compound and farm. The route of the Greenway would then be diverted to the west of Hollyhocks and Crowhurst Road to end at the west end of the existing railway bridge and the start of Footpath 22.

Structures

3A.3.32 To implement this Scheme a total of 21 new major structures would need to be constructed along with a number of culverts and retaining walls. The major structures being:

- A pedestrian underpass at Chapel Path;
- Six new overbridges including three to replace existing bridges;
- Seven new underbridges including five river crossings and crossings over Crowhurst Road and the railway;
- Six new river crossings for the Greenway; and,
- One new river crossing for the Environment Agency.

3A.3.33 It would be necessary to replace the existing bridges at Woodsgate Park, Ninfield Road and Glovers Farm as they do not have sufficient width or provide the headroom that would be required for the Bexhill Connection to pass underneath.

3A.3.34 At Woodsgate Park the bridge would have to be constructed on the line of the existing road to minimise land take. This means that Woodsgate Park would have to be closed for the duration of the construction period. This would have to be co-ordinated with the works required at Ninfield Road to ensure that disruption to the existing road network is kept to a minimum. Further details are detailed in Chapter 3B: Construction Strategy.

3A.3.35 The Woodsgate Park Overbridge has been designed to carry a replacement for the existing road 6m wide with 2m footways on either side. This bridge would comprise a concrete deck supported by steel beams. Steel beams have been proposed as they can be prefabricated and lifted into place in one operation reducing the time Woodsgate Park would need to be closed. At existing road level the structure would reflect the character of the current streetscape with brick faced parapets and copingstones.

3A.3.36 Due to the constrained nature of the site at Ninfield Road the new bridge would have to be constructed on the line of the existing road. Due to the importance of this road to the local highway network it would not be possible to completely close Ninfield Road during construction. At least one lane would have to be maintained at all times. More details of the options available can be found in Chapter 3B: Construction Strategy. The need for a flexible construction methodology has dictated the form of structure proposed.

3A.3.37 The Ninfield Road Overbridge has been designed to carry a replacement for the existing road 7.3m wide with 3m minimum width footways on either side. This bridge would comprise a concrete deck supported by pre-stressed concrete beams. These beams have been proposed as they can be lifted into place in a number of short duration operations reducing disruption. At existing road level the structure would reflect the character of the current streetscape in a similar manner to Woodsgate Park Overbridge.

3A.3.38 The four rural overbridges at Glovers Farm, Acton's Farms, Hillcroft Farm, and Adam's Farm have been designed to create a family of similar structures. Each would be a single span slightly arched bridge with the abutments set well back from the highway verge at or near the top of the cutting. Each of these bridges would be formed of a concrete deck supported on steel beams with 1.8m high parapets.

3A.3.39 The existing Glovers Lane Bridge would be demolished and would be replaced with a new structure located approximately 110m further north. This is to avoid directing Greenway users through the farm buildings. The new Glovers Farm Overbridge would carry a 4.5m access track to Glovers Farm with a segregated 3m wide track for other users. The track across this bridge is wide enough to accommodate a future bus route linking the parts of the North Bexhill Development separated by the Scheme.

3A.3.40 The remaining accommodation overbridges would all be constructed off the line any existing access route to maintain continuous access, and each would carry a 3.5m access track with 0.6m verges on either side. The track would be suitable for all users including agricultural vehicles.

3A.3.41 Four of the five river crossings would carry the new road over main rivers maintained by the Environment Agency, these being Combe Haven, Watermill Stream, Powdermill Stream, and Decoy Stream. Each structure is designed to span the relevant watercourse plus a 2m wide margin from each bank to meet the Environment Agency requirements. The fifth crossing would be over Powdermill Valley Stream. This is an ordinary watercourse and not subject to the same restrictions as main rivers. This bridge would be constructed in dry conditions to the east of the existing watercourse. Once completed the existing stream would be diverted from its current course to pass under the new bridge.

3A.3.42 Crowhurst Road Underbridge would be constructed off the line of the existing Crowhurst Road, which would be realigned following the completion of the new bridge. It would be similar in form to the other rural underbridges with a concrete deck supported by precast concrete beams.

3A.3.43 The Railway Underbridge would cross the railway, the high pressure gas main, and Marline Valley Woods SSSI in a single span of approximately 35m. Although not physically effected by the new bridge a small area of the SSSI (35m²) would be overshadowed by the bridge. The structure is 13m high to the west of the railway, due to the vertical alignment of the new road and the need to cross Crowhurst Road and tie in with Queensway.

3A.3.44 At Chapel Path a pedestrian underpass is shown in Figures 3.3 and 3.22 would be provided on the line of the existing path. The subway would be 5m wide, 2.4m high and designed to provide an open feel with clear views through it.

Culverts

3A.3.45 It is proposed to culvert the Egerton Stream between a point just south of the Sidley Depot and the existing culvert at Chapel Path. The stream would be maintained but only as a low flow channel as far as Bancroft Road. Any storm or flood flow would be diverted into the culvert and stored in an underground tank between Chapel Path and Bancroft Road. The culvert comprises a 2.1m diameter pipe from the Sidley Depot to Bancroft Road where the remaining Egerton Stream flows and other surface water run off would be collected. Due to this, from south of this point a 3m by 1.8m box would be provided.

3A.3.46 Another new culvert would be required at the Decoy Valley. The existing drainage ditch flowing along the west side of the valley would need to be culverted under the earthworks, new road, and Greenway for a length of some 150m.

Retaining Walls

3A.3.47 North of Ninfield Road retaining walls would be required on both sides of the new road to avoid extensive earthworks and additional land take. These would both be approximately 200m long and have a maximum height of 1.5 to 2.0m. Further site investigation is required before the final form of construction can be determined but it would be chosen to minimise impact on both the existing trees in the cutting and noise and vibration during construction. It is likely they would be constructed in bored piles or steel sheet piles, if it can be confirmed that it would not need to be driven. The finished retaining walls would be clad in masonry with concrete coping stones.

Greenway Structures

3A.3.48 The six Greenway structures and the Environment Agency access bridge would all be of similar form and constructed with a steel beam and timber deck and parapets. Four of these would be relatively light weight structures as most would take only pedestrian, cycle, equestrian traffic and light maintenance vehicles. In order to prevent inadvertent use by heavier vehicles, bollards or other features would be installed on both approaches to each bridge. The two bridges across the Powdermill Stream, one on the Greenway and the EA access, would have to carry heavier vehicles and would therefore have to be of a heavier construction although still with timber parapets.

3A.3.49 In addition a number of small culverts would be required on the Greenway where it crosses the minor ditches and watercourses created as a part of the environmental mitigation scheme.

Speed Limits

3A.3.50 The extents of the proposed speed limits are shown on Figure 3.25. A 30mph speed limit would be imposed on the new road from Belle Hill to approximately Chainage 380, covering the extent of the two southern

junctions. North of this point a 40mph speed limit would be introduced extending to approximately Chainage 1880. This would make provision in the Scheme for a future junction serving the North East Bexhill Development at Ch. 1750. The immediate approaches to the junction with Queensway would also have 40mph speed limits imposed. Over the remaining rural section of the Scheme national speed limits would apply.

Lighting

3A.3.51 All junctions would be lit but no lighting would be provided between junctions. The lengths of road over which lighting would be provided are shown on Figure 3.25. The proposed lighting uses a maximum of 12m high columns with full cut-off lanterns to minimise light overspill.

Drainage Design

3A.3.52 The drainage in rural areas would provide a mainly soft engineering solution with shallow grass channels to collect the highway run-off draining via petrol interceptors, and sediment forebays to landscaped attenuation ponds. Figure 3.24 illustrates a typical layout for the drainage pollution control and storage measures. Concrete channels are proposed from Chainage 4600m to 4960m where the carriageway is too steep for grassed channels. Carrier pipes with inspection chambers would collect the run-off past the first channel outfall.

3A.3.53 Pollution risk would be reduced by inclusion of the oil interceptors on all drainage systems to collect hydrocarbon pollutants and silts. To mitigate the risk of contamination from accidental spills, additional tanks would be provided for all rural catchments (i.e. all outfalls not draining to Egerton Stream). The spill tanks would be located downstream of the petrol interceptor and could be isolated via valves directing flow to the tanks instead of the attenuation ponds. Shut off valves would be provided upstream of the outfalls to contain the spills until the storage pipes could be emptied. Hardstands would be provided to access the by-pass interceptors and spill tanks.

3A.3.54 Outfall into the attenuation ponds would be via a headwall with sediment forebay, as illustrated in the Figure 3.24. The forebay would allow sediment to settle out before entering the attenuation pond and would be separated from it by gabion baskets. The inlet from the drainage system would be located above the normal pool level and would be provided with erosion protection.

3A.3.55 The attenuation ponds would include a semi permanent pool below the outlet with the base having undulating levels and an irregular shape. Bunding would be provided around the ponds to provide 300mm freeboard above the maximum water level with a control device located in a chamber downstream of the outlet to limit the pond discharges. The outfall from the ponds would disperse overland via a spreading channel. Maintenance access would be provided to all ponds. The outfall flow would be restricted to a rate equivalent to the Greenfield discharge rate.

3A.3.56 Urban sections of the road and junctions would use traditional drainage systems consisting of kerbs and gullies, with carrier pipes with inspection chambers collecting the run-off from the gullies.

3A.3.57 Due to the limited capacity of the existing culvert on the Egerton Stream at Chainage 160, run off from the Bexhill Connection would have to be stored in oversize pipes under the highway verge before outfalling at a controlled rate, equivalent to the green field flow, into the Egerton Stream.

3A.3.58 The Scheme requires the diversion of Egerton Stream flood flow. The existing Egerton Stream channel would take normal flow levels only and a diversion culvert would be provided along the west side of the Scheme to accommodate the flood flow. The culvert would extend from the proposed control structure at the head of the diversion connecting to the existing culvert at Chapel Footpath. An offline storage tank would be provided prior to the outfall to provide flood protection for events up to 1 in 100 (plus 20%) years. The storage tank invert level would be located below the Egerton Stream outfall, and would be pumped down following large rainfall events.

3A.4 Departures from Standards and Relaxations

3A.4.1 Although the Scheme has largely been designed to comply with current national standards, there are a number of areas where it has not been possible to fully comply with these. In these instances East Sussex County Council (ESCC) has approved a number of Departures from Standards, described below.

Mainline: Chainage 625 to 1000

3A.4.2 A right hand radius curve of 800m is proposed over this section, however this radius is not recommended for a design speed of 70Kph, which is applicable to this section of road, as it may encourage inappropriate overtaking manoeuvres. It has been necessary to do this as the Scheme follows the line of the disused railway and this dictates its horizontal alignment. The provision of a radius in the recommended bands would result in land take outside of the existing railway boundary.

3A.4.3 This departure had been approved as the risk of inappropriate overtaking can be reduced to an acceptable level by restricting the forward visibility provided. There would be no verge widening over this length, landscape mitigation measures would be provided in the area to the east of the road to restrict forward visibility to only that available within the highway verge. The maximum forward visibility that can be achieved within the confines of the highway verges is approximately 180m (the full overtaking sight distance (FOSD) for this design speed is 410m), this would not be great enough to give the drivers the impression that overtaking is possible.

Mainline: Chainage 1270 to 1380

3A.4.4 A left hand radius curve of 700m is proposed over this section, however this radius is not recommended for a design speed of 70Kph, which is applicable to this section of road, as it may encourage inappropriate

overtaking manoeuvres. It has been necessary to do this as the Scheme follows the line of the disused railway and this dictates its horizontal alignment. The provision of a radius in the recommended bands would result in land take outside of the existing railway boundary. As this section is also within the existing railway cutting, it would be necessary to undertake substantial re-profiling of the side slope to achieve the desired radius.

3A.4.5 This departure had been approved as the risk of inappropriate overtaking can be reduced to an acceptable level by restricting the forward visibility provided. There would be no verge widening over this length, landscape mitigation measures would be provided in the area to the east of the road to restrict forward visibility to only that available within the highway verge. The road is positioned at the bottom of an existing steep sided, wooded cutting which would serve to reduce the forward visibility to approximately 250m (FOSD is 410m), this would not be great enough to give the drivers the impression that overtaking is possible.

Mainline: Chainage 4730 to 4950

3A.4.6 A left hand radius curve of 165m is proposed over this section, however this radius is not recommended for a design speed of 70Kph, which is applicable to this section of road, as it may encourage inappropriate overtaking manoeuvres. It has been necessary to do this as the Scheme in this area passes between an SSSI to the south and an area of ancient woodland to the north, which dictates the Scheme's horizontal alignment. The provision of a recommended horizontal radius would mean the Scheme extents would encroach onto these areas. As the entire length of this radius is contained within the proposed east-bound climbing lane between Chainage 4535 and 5330, there would be no impact on driver safety.

Greenway: Chainage 4630 to 4675

3A.4.7 A gradient in excess of 5% is proposed for the cycle track between these chainages, with a maximum gradient of 10%. The acceptable maximum gradient for off-carriageway cycle routes is 5%. The combination of the existing topography and the requirement to minimise the extent of earthworks has dictated the gradient of the cycle track at this location, which has been approved on this basis.

Greenway: Chainage 4655 to 4925

3A.4.8 A gradient in excess of 5% is proposed for the cycle track between these chainages with a maximum gradient of 8%. The acceptable maximum gradient for off-carriageway cycle routes is 5%. The combination of the existing topography and the requirement to minimise the extent of earthworks has dictated the gradient of the cycle track at this location, which has been approved on this basis.

3A.4.9 In addition there are a number of areas where minor variations from desirable standards have been introduced. These minor variations, known as Relaxations, are included in and permitted by the standards and as such do not need formal approval. The Relaxation from Standards included in the Scheme are shown on Table 3A.1.

Table 3A.1 Relaxations within Design Standards

| Location | Design Speed (km/h) | Nature of the relaxation | Notes |
|------------------------------------|---------------------|--|---|
| Mainline Ch. 1775 to 1800 | 100 | Horizontal alignment: Horizontal radius = 510m One step reduction below desirable of 720m | Desirable minimum forward visibility (215m) available for 1.5 x SSD on approach to junction at Ch. 1750 |
| Mainline Ch. 2620 to 3146 | 100 | Horizontal alignment: Horizontal radius = 510m One step reduction below desirable of 720m | Verge widening provided over length of radius to maintain forward visibility |
| Mainline Ch. 2686 to 2881 | 100 | Vertical alignment: Crest K value = 55 One step reduction below desirable of 100. SSD provided = 160m | Crest curve to reduce earthworks as alignment enters Watermill Valley. The reduction in forward visibility would have no impact on safety. Co-ordinated with R2 above |
| Mainline Ch. 4036 to 4170 | 100 | Horizontal alignment: Horizontal radius = 600m One step reduction below desirable of 720m | Verge widening provided over length of radius to maintain forward visibility |
| Mainline Ch. 5135 to 5374 | 100 | Horizontal alignment: Horizontal radius = 510m One step reduction below desirable of 720m | Verge widening provided over length of radius to maintain forward visibility |
| Mainline Ch. 4823 to 5082 | 100 | Vertical alignment: Crest K value = 55 One step reduction below desirable of 100. SSD provided = 160m | This curve is greater than 1.5 x SSD (322.5m) away from the Queensway Junction |

Notes:

SSD – Stopping Sight Distance

3A.5 Access Issues

3A.5.1 The introduction of a new road through an area of countryside would inevitably cause the severance of existing access routes. Of particular concern are PROW, agricultural access to severed fields and Environment Agency access to statutory watercourses. These issues are discussed more fully in the Design and Accessibility Statement accompanying the Planning Application.

3A.5.2 In general the existing accesses, tracks, and PROW follow the high ground and as a result would be severed by the cutting required for the new road. In these areas these routes would be diverted to bridges provided to cross the new road.

Non Motorised Users

3A.5.3 Provision has been made within the Scheme for non-motorised users to encourage people to use more environmentally friendly modes of transport, to meet the needs of the rural community for rural access routes, and mitigate the impact upon rights of way in the area.

3A.5.4 The basic design parameters for the Greenway established at the outset were that the Greenway should:

- Be separate from the main carriageway;
- Relate the walking and cycling uses to the road for utility and personal security;
- Avoid misinterpretation of lights and movement between the road and Greenway;
- Accommodate cyclists and pedestrians on the same path;
- Provide a separate path for equestrians wherever possible;
- Provide some resting places for all users;
- Avoid significant lengths of enclosed path 'corridors' (e.g. between fences);
- Seek to provide the Greenway outside of the 50dB noise contour to enable an appreciation of the countryside;
- Be developed within current design standards, making particular provision for people with disabilities; and,
- Meet the requirements of the Development Strategy for the proposed Pebsham Countryside Park.

3A.5.5 Whilst there would be some diversions of PROW, all of them would be retained and greater utility and choice would result from the introduction of the Greenway. At no point would non-motorised users be required to cross the new road at grade, either in the urban or rural sections of the Scheme.

3A.5.6 The Greenway would seek to respond to the needs of the rural community and the proposed Pebsham Countryside Park users. In particular a significant degree of separation between equestrians from the other two main users of cyclists and pedestrians would respond to the economic and social needs of local rural communities and businesses. Likewise this degree of separation would provide a high quality and safe service for the urban and rural community, including those with mobility difficulties and other disabilities.

Agricultural Access

3A.5.7 It is essential that agricultural access would be maintained across the Scheme to ensure the future viability of the farms concerned. The proposals seek to do this by providing alternative access routes via the proposed structures. The lengths of the diversions which result from this strategy would generally be reasonably short with the exception of north south access along the Decoy Stream Valley. Here the diversion route would be via the Adam's Farm Accommodation Bridge and would be approximately 1km in length.

Environment Agency Access

3A.5.8 Although it is an important part of the Scheme design criteria to maintain access for the Environment Agency to the statutory watercourses, it is less of an issue than either PROW or agricultural access, as the frequency of use is much less. Access routes would be required for the Watermill Stream, Powdermill Stream and Decoy Stream, it has been agreed with the Environment Agency that access would not be required along the Combe Haven.

3A.5.9 Access is required primarily for maintenance work; the routes would be used with much less frequency (every few years) than other access routes which are used daily. Due to the relative infrequency of maintenance longer diversion routes than for other accesses are acceptable. Access would be provided using a combination of parts of the Greenway, the proposed overbridges and a few specially provided tracks.

3A.6 Environmental Design

3A.6.1 The Design and Access Statement explains more fully the background and design parameters to the route selection and subsequent design of the preferred route. The overall environmental design has sought to respect the character of the urban area and impact upon its residents but also the environmental resource of the Combe Haven Valley and catchment.

3A.6.2 From an environmental point of view the Scheme falls into two sections:

- The Bexhill Connection - the urban section; and,
- The Rural section.

3A.6.3 The environmental design therefore responds to the very different environmental contexts of each and has drawn upon the landscape character assessment throughout the route identification and development.

The Bexhill Connection

3A.6.4 The urban section would pass over essentially derelict land, albeit that it retains some important environmental characteristics. Although the Bexhill Connection would pass through the urban area, it would possess few of the characteristics of an urban road or street. It has been designed as a road though a “green corridor”, respecting it’s location within the town by incorporating significant buffers between homes and the road, and schools or places where people work and the road.

3A.6.5 With the passage of time the former railway land has grown significant trees and vegetation and has become home to protected species, including Badgers and Great Crested Newts. The design has maximised opportunities to retain existing trees. New earth mounding, tree and shrub planting and noise attenuation barriers would supplement retained trees as a buffer on either side of the road between road and properties.

3A.6.6 Within the urban section the landscape treatment varies by virtue of the northern part being largely in cutting and a more open aspect to the south.

3A.6.7 There would be little environmental change to the junction of Belle Hill. There is concern that this is a large intersection which is out of scale with the general character of the urban area. However, the proposals would do nothing to make this situation worse and there is little opportunity to improve it.

3A.6.8 A pedestrian underpass has been introduced on Chapel Path, to create a more user friendly pedestrian environment. The preferred route included for footbridges to enable pedestrians to cross the road. There would be major concerns about the environmental impact of these structures upon the local urban scene, given the need for long and intrusive ramps and steps approaching a high enclosed tunnel like bridge deck. In addition, there would be the need for roadside barriers which would clutter the street scene.

3A.6.9 An alternative of an at-grade traffic signalised crossing was considered but this would introduce barriers and other street scene clutter and would not be very safe, particularly given that large numbers of school children who would use the crossing.

3A.6.10 The alternative of an underpass was considered in response to this safety concern. Initially there was concern about the increased visual prominence and noise arising from elevating the traffic. However, with the opportunity to plant the embankments and to introduce noise fences, it is considered that the outlook from houses on London Road would be significantly improved over what they currently enjoy and noise would not be significantly intrusive, given that it would all be within an urban area. The overall height of overpass and noise barrier would be of concern. However, because Chapel Path is lower than London Road and a line of sight would be

maintained through the underpass, visual continuity would be maintained from one side of the road to the other. The new vegetation and artwork associated with the underpass, which could extend to the noise fence, would generate an acceptable and pleasing feature in the townscape and would be much less intrusive than the alternatives and be safer. An options appraisal was undertaken for the three primary options and the underpass was favoured overall.

3A.6.11 The areas over the water storage tank and road embankments would be designed, in consultation with local people, as a green space to help mitigate the effects of the road and provide a facility for the local community. This is also seen as a part of the entrance to the school environment, where children would be dropped off by bus or car. From the road, planting on the road embankments would generate an avenue effect and green gateway to Bexhill.

3A.6.12 Between the new London Road junction and Ninfield Road the following four elements are used to maximise the buffer between the road and properties:

- Retention and management of existing trees where possible;
- Use of Mounding;
- New planting of trees and shrubs; and,
- 1.8m tall noise attenuation barriers mainly at property boundaries.

3A.6.13 The Egerton Stream would be retained as an environmental and drainage feature and to help minimise the impact upon existing trees on the east side of the road.

3A.6.14 To the north-east of Woodsgate Park Bridge is a wide strip of land which is partially covered in trees and shrubs. This is important as a buffer to homes, so the Scheme includes it for its ongoing management.

3A.6.15 North of Ninfield Road physical disturbance would be minimised to the upper two thirds of the existing cut slopes, which retain a high population of badgers. The trees would be managed with selective coppicing and new planting, to retain the overall appearance of a wooded cutting. Noise attenuation fences would be installed at property boundaries.

The Rural Section

3A.6.16 The objective in the rural section has been to integrate the road into its landscape setting.

3A.6.17 The need to minimise noise intrusion to the countryside, the necessity to mitigate and compensate for the effects upon wildlife and the need to compensate for the loss of flood water storage capacity, have been the three main drivers for environmental design of the rural section. This does not belittle the measures to minimise visual impact, design within local character and the design to minimise impact upon farming.

3A.6.18 The introduction of traffic noise into the valley is considered to be the single most significant environmental change which the Scheme would generate. Particular measures have therefore been proposed and a World Health Organisation standard adopted as a reasonable level to retain countryside character, albeit that there would be significant change from the existing. Noise attenuation earthworks are proposed where possible, on both sides of the road, which would mean that the road would be in true or false cutting for the majority of its length. The roadside faces of the cuttings would normally be in the order of 1 in 3, and to a height of 3 to 4m above road level. The design objective would be to avoid the SSSI being within the predicted 50dB noise contour, so minimising the impact upon wildlife. It would also be intended that the majority of the Greenway and PROW would be outside the predicted 50dB noise contour. Of course where paths would cross the road this could not be achieved. The adoption of this approach to minimising noise impact has led to significant changes to the preferred route of the Scheme but has generated significant enhancement of the Scheme mitigation.

3A.6.19 To construct the noise attenuation bunds across the valleys requires the winning of good structural quality soils. Materials would be won from two areas, close to the Scheme. Most of the good quality material would be won from the valley side fields near Glovers Farm. The fields in the Powdermill Valley, which are likely to generate poorer quality soils, would be used to restore the Glovers Farm fields but any suitable soils, would be used in the bund construction. This would generate flood water storage areas and wildlife mitigation and compensation areas, whilst strengthening local landscape character.

3A.6.20 The introduction of the noise attenuation bunds would lead to significant reductions to the visual impact of the road upon the countryside. The bunds would be supplemented with areas of new tree and hedge planting to achieve long term landscape and visual mitigation and to help mitigate for wildlife losses.

3A.6.21 There would be some sections of the road where continuous noise bunds are not possible, primarily because of river crossings. In these situations sections of noise attenuation fencing would be introduced but bedded into vegetation, where possible. A section of this fencing would be introduced:

- On the north-east side of the Watermill Stream where land would be limited and the need for low laying land would be strong;
- On the north side of the Powdermill Valley crossings to minimise noise impact upon Adam's Farm;
- On the south side of the Powdermill Valley to minimise noise impact upon the Combe Haven SSSI;
- On the south side of the Decoy Stream Valley crossing also to minimise noise impact upon the Combe Haven SSSI; and,
- On the north side of the Crowhurst Road and Railway crossing to minimise noise impact upon Marline Valley Woods SSSI.

3A.6.22 The footprint of the rural section would result in significant losses of wildlife habitats. The table in the Accessibility and Design Statement sets out the areas of these losses and how it is proposed to mitigate and compensate for them. The Statutory Environmental Bodies and Planning Authority have sought a replacement in the order of twice the area of replacement for that lost. Some translocation of habitats may be possible but generally the replacement habitats would be newly created. Because it would take time for any new habitats to become established and establishment is unpredictable, it is considered that this approach would be reasonable. Much of this replacement habitat would be developed within the land required for engineering works, the noise, drainage and flood storage mitigation. However, some additional land is also proposed and is shown within the Scheme plan. In particular, additional land is required at Acton's Farm, Hye House Farm, Hillcroft Farm, Decoy Farm and Betz land near Decoy Farm. The design has sought to strike a balance between the environmental design demands and the needs of farming in the area. Where these wildlife areas are included within the Scheme, provision would be made for long term management of them and a management plan would be produced with wildlife as its primary purpose.

3A.6.23 In addition to the wildlife mitigation areas, the Scheme provides for the protection of specific species, in particular badgers, great crested newts and bats. The whole route is badger fenced down both sides and tunnel or bridge crossing points would be provided. The existing great crested newts in the former railway cutting would be relocated in new ponds to be constructed near Glovers Farm. Small new ponds along the route are also likely to form new habitats for great crested newts. Sections of newt fencing are proposed in the Decoy Pond Valley section. Limited sections of the route would be provided with 3m high bat fencing where significant bat flight paths have been severed at Watermill Stream and Adam's Farm cutting. These would tend to be temporary measures (up to 15 years) until the new vegetation performs the same function of 'lifting' the flight path or providing alternative flight paths.

3A.6.24 The environmental context of the rural section has influenced other aspects of the engineering design:

- The level of the road would be kept as low as possible to minimise the amount of earthworks and visual impact of the Scheme;
- Where ever possible the surface water drainage system would follow the principles of Sustainable Urban Drainage Systems (SUDS) which would result in less engineered formality in appearance, with green swales rather than kerbs and gullies. Where slopes would be steep and would lead to erosion problems it is considered reasonable to use concrete channels but these would tend to be closer to the urban ends of the Scheme. Attenuation ponds would be oversized in order to minimise their engineered appearance and maximise wildlife value;
- Structures – where structures are necessary it has been considered important that they be simple in form and low key in appearance;
- The overbridges would be a 'family' of simple arched structures with as visually light a deck as possible;

- The Greenway structures would be timber in appearance but may be based on steel beams. The parapets would be timber and of simple rail and palisade pattern, to reflect a conventional footbridge structure found on other Rights of Way in the countryside;
- Road surface – low noise road surface would be used throughout the rural section in order to maximise noise reduction opportunities; and,
- Lighting – the rural section would not be lit with road lighting, apart from any future junction near Glovers Farm and the Queensway Junction. It is recognised that there would be some glare from vehicle lights but this would be minimised by the noise bunding and planting.

3A.6.25 The Scheme Description section of this chapter describes the earthworks and structures which would be involved in the Main Scheme and the Greenway. There are some additional environmental elements which have been designed into the Scheme and described here:

- As the road would emerge from the urban area into countryside, it is recognised that there is a valued viewpoint to the north, off Glovers Lane. The landform and associated planting has been designed to hide and detract from the view of the road, particularly from the fields near Glovers Farm;
- As the route would pass north and east around Acton's Farm, the row of large trees on the farm boundary would be avoided and supplemented with new planting to strengthen the screening of the road from the Combe Haven Valley;
- As the road would cross the southern end of the Powdermill Valley the Scheme Design would separate the road from Crowhurst Village and its environs with earthworks and planting. The wildlife areas in the Powdermill Valley floor would psychologically strengthen that separation and the character of the valley;
- The proposed crossing of the Decoy Stream Valley has been designed to minimise the physical impact upon the valley floor and also the earthworks and planting on the north side would seek to minimise visual impact upon the Briars, as well as minimising effects upon the existing pond;
- As the road would pass Chapel Wood in cutting, there may be an effect upon the water table in the area, so woodland edge management is proposed for the southern edge of the wood, to enable it to adjust to any changes. The woodland would be extended westward with a belt of trees or shaw to help screen the road from the north-west; and,
- Where the Greenway would pass through Upper Wilting Farm the preferred route showed its alignment to the south of the farm buildings. The alignment has been given significant consideration and the proposed alignment has been the result of an Options Appraisal of various options. The proposed alignment would minimise the severance and security effects upon the farm whilst still creating an attractive route for users. It would be separated from the main carriageway by the road cutting and from the farm land by a hedge within a double fence. It would then use the former Crowhurst Road before skirting the northern boundary of the farm to arrive at a signalised junction at the existing bridge over the railway line.

3A.6.26 There are four listed (Grade 2) buildings which would be indirectly affected by the Scheme. Measures have been proposed to minimise the impact upon their settings:

- Bynes Farmhouse – Views of the road would be limited from the farmhouse but they would be possible from parts of the setting, albeit that they would be reduced by new planting. Views would be possible from Haven on the Hill, including from a set of barns which have recently been given planning consent for conversion to holiday accommodation. The Highway Authority would be prepared to carry out additional planting within the setting of Bynes Farmhouse should the owner wish it;
- Adams Farm – This would be the single most affected rural dwelling on the Scheme. The proposed earthworks, new planting and noise attenuation fencing would all be intended to minimise the impact upon the setting. The changes to the floor of the Powdermill Valley would help to strengthen the character of the views from the house. Also, there are some substantial trees to the south of the house, some of which would be lost but measures would be taken to retain as many as possible and add to their number with new planting;
- Upper Wilting Farm – The location, ground level of the road and planting associated with it has been designed to minimise impact upon the farmhouse, such that although the house is only 150m away, very few, if any, views of the road would be possible from it; and,
- Royal Oak Cottage – The residents of this property to the north of Hillcroft Farm would not see the Scheme but would experience an increase in noise levels.

3A.6.27 The Scheme Plans indicate the habitats which would be created as a part of the Scheme. Clearly the ability to create habitats and their viability depends a great deal on the physical characteristics of the land and its orientation to the sun. Wetland is a key habitat and significant areas of wetland would be created by the Scheme. However, the Scheme also includes a commitment to facilitate the construction of water level control structures within the SSSI. These would ensure that it would be possible to manage the wetland SSSI in the optimum way and that farmers could benefit from Higher Level Stewardship payments for carrying out such management. These have therefore been shown within the environmental Scheme Plans. The Scheme would cross the flood plain in two locations:

- At the southern end of the Watermill Valley; and,
- At the southern end of the Powdermill Valley.

3A.6.28 This formation of embankments in the floodplain would result in loss of flood water storage to the Combe Haven catchment. The Scheme therefore provides for the creation of compensatory flood storage areas within the catchment area. The storage would be distributed throughout the floor of the valleys. It would be created by the excavation of soils between the normal groundwater level and the maximum flood level over areas in which flood water would be able to overflow from the rivers and ditches at an early stage of the flood. Most of these areas have also been designed to provide a part of the wildlife compensation measures to enhance biodiversity in the valleys. By this means, the loss of flood storage caused by infill of the flood plain through road construction would be fully compensated for in compensatory areas contiguous with the existing flood plain.

3.6.29 Clearly the construction of a road across a flood plain could act as a dam and impede flood flows across the valley. The Scheme has been designed to avoid such a situation occurring. All of the crossings of designated water courses would be with free span structures and provision is also made for existing flows to be maintained or diverted on other water courses such that no damming effect would occur.

3.6.30 The effect of free span structures is to slightly raise the road levels above that which might be required if culverted crossings were to be used. This tends to be in conflict with the design objective to keep the level of the road as low as possible in the landscape. Options for using culverts have therefore been considered during the design process and have been discussed with the Environment Agency. An Options Appraisal was carried out, considering the advantages and disadvantages of culverts and free span bridges. Clearly there would be advantages to reducing the level of the road using culverts, as it would reduce the extent of earthworks and visual impact. However, it was clear that the level of uncertainty over the ability of culverts to meet wildlife requirements for the passage of wild animals was a significant disadvantage which could not be resolved with the level of knowledge and research available at the moment. It was therefore considered that on balance it was better to use free span bridges for the main crossings of designated water courses.

3.6.31 From the outset of the design of the road, consideration has been given to the appropriate character of features along the road which would help to establish its particular identity. Clearly the character of the urban section has been related to its history as a railway corridor. The existing railway structures were examined to determine whether any of them could be retained to relate back to that knowledge which local people still have of the place. However, it soon became clear that none of the structures could meet the needs of a modern road corridor and they would all have to be removed. In any event, it seemed more appropriate for the character to relate to the future rather than the past, given that this is primarily a regeneration scheme and also to relate to the strong character of the rural area on the northern part of the Scheme.

3.6.32 The generally relatively modest engineering scale of the proposed road and its associated earthworks, generate limitations for the creation of landmark, visually significant or engineeringly creative bridges or structures. The design of structures has therefore sought to create two styles of bridges –

one for the Bexhill Connection and one for the rural section. The urban structures would therefore be fairly robust in form and appearance with the focus of attention being on the contribution they make to the street scene on Ninfield Road and Woodsgate Park. The appearance from the new road would be of a conventional concrete structure but with some brick detailing to relate to the 'upper' street scene and to reduce the visual mass of concrete. The 'family' of overbridges in the rural section on the other hand would concentrated on being simple, light and slightly curved to reflect the local land forms and generate an element of elegance in their forms. Options for other structural forms have been considered but rejecting in favour of this approach.

3.6.33 It is proposed to engage an artist to work with the local community to create features on the urban section which would further strengthen local identity and 'ownership' of the project. The main focus of this work would be on the treatment of the Chapel Path underpass and the space over the water storage tank. It clearly has not been possible, nor would it have been appropriate to develop this element of the Scheme at this stage of scheme development but there is a commitment from the Highway Authority to pursue this approach when the Scheme is approved.

3A.7 Forecast Traffic Flows

3A.7.1 The introduction of the Scheme would increase highway capacity between Bexhill and Hastings. This additional route between the two towns therefore would result in traffic reduction on all the alternative east west routes included in the traffic model. However overall trips across a screen line between Bexhill and Hastings increase.

3A.7.2 Table 3A.2 below shows the comparison of east west traffic across a screen line between Bexhill and Hastings comparing Do Minimum (without the Scheme) with Do Something (with the Scheme). In 2010, east west movements increase by 5% and in 2025 by 10%.

Table 3A.2 Annual Average Daily Traffic (AADT) Screen line flows

| Route | 2010 | | 2025 | |
|-------------------|------------|--------------|------------|--------------|
| | Do-Minimum | Do-Something | Do-Minimum | Do-Something |
| A271 | 15,000 | 13,300 | 15,600 | 14,400 |
| B2095 | 10,400 | 5,500 | 12,900 | 8,300 |
| Henleys Down | 4,400 | 2,500 | 10,400 | 3,300 |
| BHLR | - | 21,900 | - | 26,900 |
| A259 Glyne Gap | 31,900 | 21,800 | 30,900 | 24,200 |
| TOTAL SCREEN LINE | 61,700 | 65,000 | 69,800 | 77,100 |

3A.7.3 Figures 3.26 to 3.28 show AADT flows on key links within the study area. These figures show that in both forecast years, the introduction of the Scheme results in a significant reduction in traffic along the A259 through Glyne Gap. The reduction in traffic along the A259 continues through Hastings along the seafront. Roads such as Harley Shute Road in the south-west corner of Hastings, and the A2036 on the east side of Bexhill also benefit from reduced traffic levels. Traffic levels also reduce significantly through Crowhurst, as traffic switches from this rat-run onto the Scheme. Similarly, traffic levels through Battle reduce with the provision of the Scheme. Several areas within this southern part of the High Weald AONB would experience a reduction in traffic, which would generate conservation advantages.

3A.7.4 Links showing increased traffic levels with the Scheme include the A259 on the west side of Bexhill, which is used by traffic travelling between Bexhill and Hastings via either Glyne Gap or the Scheme. A269 London Road traffic levels also increase with the Scheme as this is an access route to the Scheme. Within Hastings traffic levels along B2092 Queensway and B2093 The Ridge increase with traffic travelling via the Scheme along Queensway and down The Ridge to access the north-east part of Hastings, as opposed to previously travelling along the seafront.

3A.7.5 The provision of the Scheme would result in reduced journey times between Bexhill and Hastings and as a result would provide the opportunity for increased numbers of trips between the two towns. This would result in traffic increases in the Hollington area of Hastings.

3A.7.6 One of the aims of the Scheme is to facilitate the North East Bexhill Development. The traffic forecasts indicate that the levels of traffic on the Scheme can accommodate the development which would come on-stream after the opening year.

3A.8 Complimentary Measures

3A.8.1 As discussed above, traffic flows would increase on a number of key road links in the area. In order to manage this demand a number of other highway improvements are under consideration. These proposals do not form part of the Scheme and have not been developed to the same degree as the Scheme, but give an indication of how the change in traffic patterns would be managed. The complimentary traffic measures would need to be funded through the Local Transport Plan (LTP) funding process and not directly through the Scheme. However, they have necessarily been included within the highway network assumptions as they have been proposed in order to help 'lock-in' the traffic benefits of the Scheme, and ensure that adverse impacts are appropriately mitigated. There are five key areas where measures would be introduced as follows and also shown on Figure 3.29:

- The Ridge;
- A259;
- Harley Shute Road;
- Gillsmans Hill; and,
- Wrestwood Road/London Road/Holliers Hill Junction, Bexhill.

The Ridge

3A.8.2 Traffic flows would increase on The Ridge by 25% with the opening of the Scheme. The proposals under development show ways of improving capacity and reducing delay to traffic. The complimentary measures outlined below are illustrated in Figures 3.30 to 3.32.

3A.8.3 In two locations on-street parking prevents the free flow of traffic in both directions. This would become more of a problem with the predicted increase in larger vehicles including articulated lorries using The Ridge. The first of the proposals would be to remove on-street parking in these locations as follows:

- On the westbound carriageway between the junction of The Ridge and Hillside Road and The Ridge and Maitland Close. The Bus Stop opposite the Chowns Hill junction would also be relocated; and,
- On the westbound carriageway between the junction where Sandrock Park adjoins The Ridge and Stonestile Lane.

3A.8.4 Also proposed are amendments to three junctions on The Ridge, these are:

- Queensway;
- Harrow Lane; and,
- Hillside Road.

3A.8.5 The existing Queensway junction is a mini roundabout. It is proposed that this would be modified to form a traffic signal controlled junction with two lanes on each approach.

3A.8.6 The junction with Harrow Lane is currently a roundabout. It is proposed this would also become a signalised junction. The layout would consist of a two-lane approach from The Ridge westbound, with the left lane a designated left turn and the right lane for traffic continuing forward on The Ridge. Harrow Lane also would have two lanes on the approach, separating right and left turning traffic. The Ridge eastbound would have only one lane on the approach. Pedestrian crossings would be provided on each arm of the junction.

3A.8.7 It is anticipated that changes at the Hillside Road junction would comprise only minor changes to the carriageway width on Hillside Road to increase the flare and therefore slightly increase the capacity of the junction.

A259 Bus Corridor

3A.8.8 A Feasibility Study was undertaken in March 2003 to examine the provision of a Quality Bus Corridor on the A259 between Glyne Gap and Filsham Road. The conclusions of this study have been re-examined in the light of predicted decreases in traffic flows along the A259. The complimentary measures outlined below are illustrated in Figure 3.33.

3A.8.9 A westbound bus lane on the approach to Glyne Gap roundabout is recommended with a signalised bus gate 30m before the junction to allow the bus to rejoin the general traffic. An existing pedestrian crossing would be removed and a new one incorporated into the signals for the bus gate.

3A.8.10 It is also proposed that a bus lane would be implemented on the westbound arm of the A259 between the Pebsham Waste Site junction and the junction with Bulverhythe Road. On-street parking would need to be removed, which would impact on the parking provision for the local residents. One option under consideration would be to provide parking within the curtilage of the properties bordering this stretch of road. Another option would be to provide a parking area next to the recreation ground situated north of these properties.

3A.8.11 Eastbound bus lanes are proposed from Combe Haven to Harley Shute Road and Filsham Road junctions. The construction of the bus lane leading to the Harley Shute Road junction would require the removal of the left turn lane for general traffic, which would decrease the capacity of the A259 through this section of road. Bus priority loops are already in place at this junction. At the Filsham Road junction it would be possible to widen the road on the old school site north of the A259, which would not affect the junction's capacity. Moreover the congestion for general traffic would reduce at this junction with the reduction of flows along the A259.

3A.8.12 The final measure proposed is a bus lane on the approach to the Harley Shute Road traffic lights westbound, enhancing bus priority at this junction.

Harley Shute Road

3A.8.13 Traffic flows on Harley Shute Road are likely to decrease by 37% with the opening of the Scheme, therefore consideration has been given to reducing speeds on this road especially with a number of schools situated adjacent to it. Consideration has also been given to improving the environment for pedestrians. The complimentary measures outlined below are illustrated in Figure 3.34.

3A.8.14 Central hatching is proposed throughout the length of the road along with regularly spaced traffic islands, giving the driver the impression of a reduced carriageway width encouraging a reduction in speed. Crossing points for pedestrians on Harley Shute Road and the adjoining minor roads would have dropped kerbs with tactile paving. A pedestrian refuge island is proposed just east of the junction with Fernside Avenue and west of the junction with Asten Close. A School Safety Zone is proposed around the area of West St Leonard's County Primary School. This includes:

- A gateway at either end including warning signs and school road markings; and,
- A raised pedestrian crossing between the junction with Field Way and Edinburgh Road with warning signals on each approach.

Gillsmans Hill

3A.8.15 Traffic flows are likely to increase by 24% on Gillsmans Hill with the opening of the Scheme. Measures are proposed to manage this additional traffic whilst enhancing the environment for pedestrians. The complimentary measures outlined below are illustrated in Figure 3.35.

3A.8.16 The traffic island situated on Gillsmans Hill south-east of Wishing Tree roundabout would be extended to accommodate pedestrians. New speed limit signs and speed roundels are proposed on Gillsmans Hill to remind motorists of the 30mph speed limit. A further three pedestrian refuge islands with tactile paving and dropped kerbs are proposed on Fern Road and on Gillsmans Hill just west of the junction with Fern Road, and also on The Green where it adjoins Gillsmans Hill at the eastern end. It is also proposed to widen the footway along the length of Gillsmans Hill on the south side and on the north side at the western end.

Wrestwood Road/London Road/Holliers Hill Junction

3A.8.17 This currently comprises two priority junctions with Wrestwood Road and Holliers Hill joining London Road. Land to the north of Wrestwood Road and to the north of Sidley is likely to be developed in the future, which would result in more traffic using these two junctions. The complimentary measures outlined below are illustrated in Figure 3.36.

3A.8.18 Both Wrestwood Road/London Road and Holliers Hill/London Road would be incorporated into one signal controlled junction. Wrestwood Road would have two lanes on the approach separating the left and right turners. London Road would have a single lane on the approach from the north. From

the south London Road would have a separate right turn lane for traffic turning into Wrestwood Road and Keep Clear road markings at the entrance to the adjacent garage. Holliers Hill and London Road from the south would have one lane on the approach. London Road would have two lanes from the north, one for traffic turning left into Holliers Hill and one for traffic continuing south on London Road. This junction would include pedestrian facilities. The proposals include a central island at the junction with Wrestwood Road, which has pedestrian crossing across both the entry and exit arms of Wrestwood Road and across London Road. There are also facilities proposed for pedestrians across Holliers Hill and London Road approaching the junction from the south.