Stafford Area Improvements - Norton Bridge Railway

Local Impact Report

Prepared jointly by;

Stafford Borough Council  Staffordshire County Council

June 2013
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1. Purpose of the Report

1.1 This report is prepared jointly by Staffordshire County Council and Stafford Borough Council and provides an evaluation of the local impacts of Norton Bridge Area Improvements Development Consent Order for the construction, operation and maintenance of a new Railway Line (the Norton Bridge Grade Separated Junction). The report has been prepared in accordance with the Planning Inspectorate Advice Note on Local Impact Reports and the published guidance of the Planning Officers Society.

2. Site Description and surroundings

2.1 The site is located approximately 4km north east of Stafford and 2km west of the village of Eccleshall. Stone Town lies approximately 3km to the east and a number of villages occupy the outskirts of the site, including Chebsey 1km to the southwest. Yarnfield and Coldmeece lie approximately 2 km to the north and the village of Norton Bridge is immediately to east of site. Shallowford lies approximately 1km to the south of the Village of Norton Bridge.

2.2 The area is typically agricultural land rising towards the centre and is punctuated variously by isolated dwellings and agricultural buildings, together with small woodland blocks in various locations. Boundaries are typically formed by native species hedgerows.

2.3 The B5026 (Stone Road) runs NE/SW through the site and passes over the existing railway close to junction with Station Road. Station Road runs broadly parallel with the railway in the direction of Shallowford. Scamnell Lane also runs from the B5026 south towards Chebsey. To the north of the site, Meece Road runs off the B5026 towards Yarnfield and Cold Meece.

2.4 Searchlight Lane runs east – west across the centre of the site whilst to the south of the site lies the A5013 and junction with Chebsey Lane.

2.5 In terms of the wider road network, the A519 lies approximately 3km to west and the nearest motorway, the M6, 2km to west, with the nearest junction located at Stafford approximately 5km to the south west.

2.6 The existing railway runs broadly north – south through the site, separating towards the north with one branch running to Stone to the north east and the other north west towards Crewe. The nearest stations are Stone, approximately 4km to north east, and Stafford, 5 – 6 km to the south west.

2.7 Pedestrian links are limited, with few footpaths running alongside the existing roads, however public footpaths 10 and 11 of Chebsey Parish cross the site.
2.8 In terms of water courses, the Meece Brook runs through the site entering at the north west and meandering firstly to the east and then south where it joins the River Sow.

3. Details of the Proposal

3.1 The scheme put forward by Network Rail for a development consent order forms part of a wider project termed the “Stafford Area Improvements” and is described in detail with the Environmental Statement (ES). The aim of the Stafford Area Improvements is to increase capacity and reduce delays on the railway network through Stafford Borough. The elements of the project under consideration in this examination consist of the replacing of the Norton Bridge junction with a flyover, otherwise known as a grade separated junction, that would take Birmingham to Manchester trains up and over the West Coast Main Line (WCML) rather than across it as currently happens with the existing flat or at grade junction.

3.2 To facilitate the grade separated junction, a new 6.8km section of railway is required to the west of the existing WCML. Of this 6.8km, a section 4.8km in length will link the existing line towards Crewe and the remaining 2kms would include the bridge flyover linking to the Stone Branch line. The new section of railways proposed for trains between Stafford and Stone would be a twin track taking trains over the WCML, via the proposed bridge, to tie-in with the existing line at Yarnfield junction. In addition, Network Rail propose a new single line that would fork off the flyover tracks and re-join the WCML further north at Heamies Bridge. This line would take the northbound trains that presently use the WCML slow line through Norton Bridge. There are no proposals by Network Rail to remove any of the existing line that would no longer be utilised regularly following completion of the project. It is instead proposed to retain those sections to provide operational flexibility.

3.3 The proposal requires the construction of ten new bridges and widening of two existing bridges to allow the crossing of watercourses, footpaths, the existing railway and highways. In addition, there will be three permanent track access and maintenance compounds located next to the three rail junctions at Little Bridgeford, Searchlight Lane, and Yarnfield. Each compound would have a lorry turning point and parking for six cars. The compounds would be secured with a 1.8m high palisade fence.

3.4 The proposal also necessitates works to the existing public highway, including new highway, stopping up of existing highway, realignment of B5026 and Meece Road, junction improvements, access works and diversion of two public footpaths. These are described in further detail in the application submission and elsewhere in this report.

3.5 Network Rail have stated that the scheme will take two to three years to construct and, where possible, material required for construction purposes will be brought to site via train. The construction works will be managed through a Construction Environmental Management Plan (CEMP) to be agreed with the County and Borough Councils.
3.6 A scheme of this scale will have significant impacts and these are addressed in the ES. The impacts of the proposal can be separated into two phases, these being construction and operation, the latter referring to the permanent effects once the scheme is completed and is operational railway. During the construction phase consideration needs to be given towards the effects of construction traffic and disruption caused by the highway works.

4. Relevant Planning History and Proposals Under Consideration

4.1 The following planning applications are considered to be relevant material considerations;

4.2 12/17832/FUL The Retreat, Shallowford House, Shallowford, Stone, Staffordshire, ST15 0NZ ‘Creation of six new ponds to provide a Great Crested Newt habitat’ Permitted 13th February 2013. These ponds comprise part of the ecological mitigation strategy in relation to the proposals.

4.3 12/17771/FUL Land Off Stone Road (B5026), Norton Bridge, Stone ‘Diversion of pipeline: associated construction compound; temporary access’. Permitted 17th January 2013. The pipeline diversion was required to accommodate the proposals in order to allow the track (if permitted) to pass under the proposed new rail tracks at 90 degrees, giving the shortest possible length. This application was submitted in advance of the DCO due to the timescales involved in fabricating and moving the pipeline.

4.4 12/17029/FUL Izaak Walton Golf Club Eccleshall Road Norton Bridge Stone. ‘Proposed remodelling of golf course practice ground and 1st green complex with associated planting. Works to be completed using imported Environment Agency approved soils’. Permitted 5th February 2013. This permission is considered to be relevant because of the proximity to the site and possible effects during the construction period for this development and the proposed railway improvements.

4.5 Copies of the officer report, decision notice and relevant plans (not to scale) for all applications are attached in the Appendix.

4.6 There are currently no proposals under consideration in the area which are considered to be relevant.

5. Relevant Planning Policy

5.1 Policy Context:
   • Stafford Borough Local Plan 2001 (SBLP) (October 1998)
   • Plan for Stafford Borough: Publication (pre-submission) (January 2013)
   • Planning Act 2008
   • Localism Act 2011
   • National Planning Policy Framework (March 2012)

5.2 The National Planning Policy Framework states that there is a presumption in favour of sustainable development. The purpose of this project is to improve capacity on the railway in order to support the Government by delivering its
presumption in favour of sustainable development in particular through transport infrastructure.

5.3 The existing Stafford Borough Local Plan 2001 and the new Plan for Stafford Borough both support the strategic improvement of the railway and rail facilities.

5.4 The policy of a presumption in favour of sustainable development is at the heart of the National Planning Policy Framework running through plan making and decision making. It suggests that patterns of growth should make the best use of public transport and focus development which are or can be made sustainable. The objective is to reduce the need to travel and, secondly, to encourage a modal shift towards more sustainable forms of transport. Sustainability also relates to the need to create an environment for economic growth. The railway is generally recognised as being a more sustainable transport system than the private car. To achieve a modal shift primarily from the private car to trains, the railway system needs to be made more attractive to users in terms of both reliability and capacity.

5.5 Due to the nature of the development and connectivity the scheme will deliver, it is considered that the enhancement works will have long term economic benefits for the sub-region. This includes the creation of jobs both during construction and in operational terms, with the ability to take advantage of longer distance employment opportunities delivered by the increased capacity and frequency on the rail network.

5.6 Policy E&D2 of the Stafford Borough Local Plan 2001 (adopted October 1998) sets out that new development proposals should have regard to the existing landscape and its individual elements such as trees & hedgerows, skylines & views, open areas and historic features. Further details are subsequently set out in Policy E&D7 – Development in the Countryside. The Stafford Borough Local Plan 2001 also has a section on Rail Transport supporting this mode of transport to reduce congestion in environmentally acceptable ways but acknowledges that rail usage is not significant in terms of movement within the Borough but of greater importance for those working outside the Borough, particularly to and from the West Midlands conurbation.

5.7 Draft Policy T1 – Transport in the Plan for Stafford Borough: Publication (pre-submission) seeks to achieve a sustainable transport system through a number of measures to be delivered through new development including seeking to reduce the impact of traffic from new development on the road networks by ensuring that the generation of traffic is minimised through sustainable transport measures. Furthermore this Transport chapter also includes a section seeking to deliver a modal shift form the car to more sustainable transportation, such as the train, by helping increased patronage at Stafford railway station.

5.8 Whilst the development is entirely in the administrative area of Stafford Borough, the increased demand for increased rail passenger movements will primarily come from longer distance commuters on the West Coast mainline routes between Birmingham and Manchester.
Assessment of prospective impact of the project

6. Highways and Transportation

6.1 The construction works for this railway project are planned to be carried out over a 3 year period from 2014 to 2017 and this will inevitably result in a temporary increase in traffic movements throughout the construction phase. This will include HGV’s, light goods and other associated traffic related to site staff.

6.2 To mitigate the effect of the traffic, Network Rail is proposing that construction materials will be transported to and from site by rail whenever possible. It is also intended that excavated materials for earthworks will be re-used on site to avoid material being sent to landfill. In addition, further highway mitigation measures are proposed to manage and control construction traffic and the associated vehicle movements as detailed below;

- Use of Designated Haulage routes
- Use of two main compounds north and south connected via internal haul roads.
- A Construction Traffic Management Plan
- A Scheme Travel Plan

6.3 Designated Haulage Routes

6.3.1 A drawing detailing the designated haulage routes are shown in Figure 2.2 (volume 4) and a Transport and Access Technical Report (Volume 3 Report 13) has been submitted to assess the affects of the additional traffic on the proposed haulage roads.

6.3.2 The traffic for the southern compound is via the A5013 which links directly to the A34 and junction 14 of the M6. This road has over 5,000 vehicle trips per day and it has been demonstrated that the affect of the construction traffic can be accommodated with a slight adverse affect on traffic flows.

6.3.3 The traffic route for the northern compound is to be via the B5026 which again links directly onto the A34 at Stone. This road carries in excess of 5,000 vehicles per day and the transport and access report has concluded that there would be a slight adverse affect on traffic flows.

6.3.4 Staffordshire County Council as the highway authority were consulted as part of the Transport Assessment for the construction works and concur with the reports conclusion that the designated haulage routes have sufficient capacity to accommodate the additional traffic during the construction works. An analysis of the accident record on the proposed haulage routes is appended to this report for information.

6.3.5 The passage of heavy vehicles concentrated on the two designated haulage routes has the potential to shorten the lifespan of the road between maintenance cycles due to the increased number of movements over what the road usually carries. This presents an additional maintenance burden to the Highway Authority. It is recommended that a condition survey of the highways on the proposed haulage
routes as detailed on drawing Figure 13.1 Designated Haulage Routes Map is undertaken prior to any construction works commencing. This condition survey is required to monitor any potential damage to the structural integrity of the carriageways from the additional HGV/HCV movements associated with this project which may reduce the lifespan of the roads.

6.3.6 If any damage or maintenance issues do occur to roads, footways and verges by construction traffic then it should be for Network Rail to rectify and undertake any remedial works, which should be covered within the DCO.

6.4 Local traffic issues

6.4.1 The A5013 passes through Creswell and Great Bridgeford. Speeding vehicles are a concern to residents of these villages and Creswell is designated a Community Speed Watch area (CSW). Great Bridgeford share the CSW with Creswell and they have been seeking a reduction in the current speed limit of 40mph through their village. No proposals are currently in place for a reduction in this speed limit.

6.4.2 When the M6 motorway between junctions 14 and 15 becomes severely congested or is closed there are designated emergency diversion routes for traffic which follow the A34 from Stafford via Stone linking to the A500 at Stoke-on-Trent. (a copy of emergency route is appended to the report for information).

6.4.3 In addition to the above when the M6 is closed some local traffic does use the A5013 linking through to Eccleshall and then via the A519 towards Stoke-on-Trent and Newcastle areas (and visa –versa). This can occasionally lead to traffic queuing through Great Bridgeford and Creswell particularly for vehicles driving into the Stafford area.

6.4.4 There have been long standing requests for a footway link on the B5026 from the Walton area of Stone linking to the M6 service area. Currently there are no proposals to provide this footway link.

6.5 Northern Compound

6.5.1 The access to the Northern Compound is proposed to be off the B5026 between the Scamnell Lane and Station Road junctions. This access will also function as a plant crossing and is to be controlled by temporary signals. The B5026 has a speed limit of 60mph and the control of the access with signals will allow for the safe access / egress of construction traffic. There will be minimal affect on the flow of through traffic on the B5026.

6.5.2 Full details of the design of the northern site access, temporary traffic signals and the construction of the plant crossing have not been submitted and will need to be agreed with the highway authority before the commencement of any construction works. Therefore, the local impact in this respect is unclear until such details have been provided.
6.6 Southern Compound

6.6.1 Access to the southern compound is proposed to be from the A5013 via Chebsey Lane. To enable safe access / egress for construction traffic it is proposed to widen Chebsey Lane. In addition the junction with the A5013 will be improved including a minor realignment, temporary street lighting, a dedicated right turn lane and the control of the junction by temporary traffic signals. The 40mph speed limit will also be extended from Great Bridgeford west of Chebsey Lane. Full details of the access and necessary visibility splays have not been provided in the application documents and are needed to determine the full extent of the local impact. For example the visibility splays may affect the amount hedgerow required to be removed.

6.6.2 The maximum number of vehicles turning right into Chebsey Lane is predicted to be less than 400 vehicles a day (in the worse case month) of which 40 would be heavy vehicles. Given that a dedicated right turn is to be provided this will have a slight affect in delay to traffic flows on the A5013.

6.6.3 The baseline traffic flows on Chebsey Lane is low at 135 vehicles per day. The affect on existing drivers using Chebsey Lane will be a slight delay when vehicles are entering the construction compound.

6.6.4 The street lighting and signals on the A5013 will be removed at the end of the project and Chebsey Lane will be reinstated to its current width. However, there will be a highway gain on completion of the scheme which will include a right turn lane on the A5013 and improvements to the geometry of the junction with Chebsey Lane this will provide betterment and improve highway safety at this road junction.

6.7 Internal Haul Roads

6.7.1 The northern and southern compounds are proposed to be connected via internal haul roads which will help to reduce the amount of construction traffic movements on the highway network.

6.7.2 The internal site roads will cross the highway in three locations Searchlight Lane, Meece Road and the B5026. Each of these haul road crossings will be controlled by temporary traffic signals and this arrangement will allow for construction vehicles to cross the highway safely. These access crossings will create a slight delay to traffic.

6.7.3 Full details of the construction of these haul road crossings and the design and the method of control of the temporary signals will need to be agreed with Staffordshire County Council.

6.7.4 The accesses to the site compounds and haul road crossings could potentially create issues of mud, dust and detritus materials affecting the road network during certain phases of construction. Suitable measures to manage and alleviate these problems should be agreed with the highway authority before any construction works commence.
6.8 A Construction Traffic Management Plan

6.8.1 Figure 13.2 details a proposed Traffic Management (TM) plan for the routing of all construction traffic. This TM plan proposes that all construction traffic will use the designated haulage routes for access to the site compounds. All local and minor roads and routes via Eccleshall village are to be prohibited for use by construction traffic.

6.8.2 The principle of the proposed plan is considered to be of the upmost importance in managing the safe routing of construction traffic and to ensure minimum disruption to local residents.

6.8.3 The highway authority shares the Inspectors concerns on how this will be managed and enforced for all vehicles. If control of construction vehicles is not managed appropriately then there is likely to be a significant negative local impact.

6.9 Scheme Travel Plan

6.9.1 The submitted documents reference the use of a Travel Plan to minimise construction staff traffic generation. This plan will need to be developed in consultation with the highway authority and be agreed prior to the commencement of the works.

6.10 Public Transport

6.10.1 The construction works will have a very limited affect on bus journeys. Only one bus service will be affected the service Stafford to Eccleshall / Market Drayton via Norton Bridge. On current timetables only one bus per day in each direction would be affected. It is estimated that this service would be delayed for less than two minutes which will have a minimal delay to this service.

The proposed rail project physically affects the following existing Highways;

6.11 B5026 Stone Road.

6.11.1 The existing carriageway will be permanently diverted between Scamnell Lane in the south and the realigned Meec Road in the north. This will replace the existing B5026 as the through route between Eccleshall and Stone (and visa-versa), with part of this existing route being stopped up and physically removed.

6.11.2 Existing traffic volumes on the section of the B5026 under consideration are generally average when compared to other B roads within the county and recorded injury accidents are generally below what may be considered as average.

6.11.3 In general the proposed carriageway will be wider, have better vertical and horizontal visibility for road users and will also have a new drainage system. It will be designed and constructed to current standards, with the exception of the following departures from standard agreed with the Highway Authority;
• For not achieving the necessary stopping site distance for northbound vehicles on the B5026 and vehicles turning into the new access track that leads to the Network Rail maintenance facility to the north west of bridge 10A due to the bridge parapet.

• For not achieving the required horizontal radii to the B5026 on the approach to the Meece Road roundabout.

6.11.4 The proposed alignment does not provide as direct a route between Eccleshall and Stone (and visa versa) and also introduces an additional roundabout at the junction with the realigned Meece Road; journey times will consequently be slightly increased. It does however take through traffic further away from the settlement of Norton Bridge and any properties immediately adjacent to the existing B5026.

6.11.5 The existing junction of Station Road with the B5026 is immediately adjacent to the west coast main line and visibility from Station Road to the right onto the B5026 is restricted due to the crest over the adjacent rail bridge. In addition forward visibility from Station Road to the left is restricted due to the bend on the B5206. This bend is also tight for vehicles using the B5206 that may not be familiar with the route and the proposed Highway re-alignment will remove this situation.

6.11.6 The existing junction of the B5026 and Station Road will be remodelled to create a through route between Station Road and the B5206 in a northerly direction and visa-versa. Whilst the bend will be right angled it will have appropriate warning signs and is likely to be predominantly used by local traffic with the main B5026 through traffic using the new carriageway to the west. The small remaining section of the existing B5026 to the south will be formed into a give way junction to serve the two remaining properties that front this road.

6.11.7 The existing junction of Scamnell Lane with the B5026 will also be realigned to tie this into the proposed realignment of the B5026.

6.11.8 The realigned B5026 will be on embankment varying in height between approximately 2m and 11m however, a large portion of this will be covered by the proposed landscape mitigation bund. The highest section of the Highway embankment in the vicinity of the existing Meece Brook will not be covered by the landscape mitigation bund and will also be immediately adjacent to the proposed railway line. A new bridge will be required to carry the realigned B5026 over Meece Brook and this structure will become the responsibility of the County Council as Highway Authority to own and maintain. As a consequence of this a commuted sum will be required from Network Rail to facilitate this work. The proximity of embankments together with those of new bridge structures will necessitate the use of significant lengths of road restraint systems (crash barriers) to prevent errant vehicles going down the embankments and possibly landing on the railway or in streams and rivers. A 2m grassed verge will be provided adjacent to the carriageway for non-motorised users and also for vehicles to pull off the carriageway in the case of an emergency. The embankments and road restraint system will potential provide the County Council as Highway Authority with an increased maintenance liability should they be damaged or when the barrier
reaches the end of its life (approx. 20 years) and this will be dealt with as part their statutory Highway function.

6.11.9 A new roundabout is to be provided at the junction of the realigned B5026 and realigned Meece Road. This will help control and assist the vehicle movements at this location and will necessitate road users reducing their speed to negotiate this feature. It does however introduce a potential ‘point of conflict’ for road users with potential high speeds on the approaches, although vehicle speeds on the approach to the existing roundabout from Meece Road are likely to be reduced due to the relatively short distance between the two roundabouts.

6.11.10 The proposed roundabout will have appropriate advance warning and direction signs to inform road users together with advance visibility, warning bollards on the physical splitter islands and signage on the central core of the roundabout. In addition the approaches and circulatory area of the roundabout will be illuminated during times of darkness and this will help increase the awareness and visibility of the feature on the approaches to it and also the visibility of other road users at this location.

6.11.11 The proposed road lighting will have an environmental impact due to the light emitted, the energy costs to the Highway Authority and the routine maintenance and repair liability should any of the equipment be damaged or when it reaches the end of its life (approx. 40 years), this will be dealt with as part their statutory Highway function.

6.11.12 The area of the proposed roundabout will have an Environmental Zone Classification of E2 (rural low district brightness) and the corresponding road lighting levels would be sympathetic to the location of the proposed works. To reduce upward light spill, shallow or possibly flat glass lamp protection would be used on the luminaires and a dimming sequence will be adopted to reduce the impact of the lighting during times when traffic activity is at its lowest. Currently LED lighting is only used by Staffordshire County Council in residential situations where the probability of a high pedestrian movement is being considered as well as vehicle usage.

6.11.13 The existing Meece Road roundabout to the east including the approaches to this and the interlinking section of carriageway to the proposed roundabout will also be illuminated with the same aforementioned positive and negative implications.

6.12 C0087 Meece Road.

6.12.1 The existing Meece Road will be realigned to allow it to pass over the proposed rail line and tie back into the existing roundabout on the B5026. This provides a carriageway designed and constructed to current standards with the exception of a departure from standard agreed with the Highway Authority for not achieving the necessary stopping sight distance for northbound vehicles approaching the proposed Meece Road roundabout due to the parapet on the proposed bridge.

6.12.2 The existing Meece Road affected by the realignment will be stopped up and physically removed.
6.12.3 As per the realigned B5026 the new Meece Road carriageway will be on embankment varying in height up to 3m with the associated road restraint system and potential increased maintenance liabilities for the County Council that will be dealt with as part their statutory Highway function. Part of the embankment to the south of the roundabout will be covered by the landscape mitigation bund.

6.12.4 Due to the associated realignment of the B5026 a new roundabout is introduced onto Meece Road that will have the effect of slowing vehicles however, this also introduces a potential ‘point of conflict’. The pros and cons of this feature have been covered under the B5026.

6.13 D2173 Shallowford Road (Searchlight Lane).

6.13.1 The existing carriageway is narrow (single car width) with passing places and adjacent grass verges / drainage ditches. As a consequence of the proposed rail line a new bridge is required in the vicinity of a tight double bend in the road. The proposal is to realign this road taking out the bends and providing a widened carriageway (5m) on the approaches to and across the new bridge with the remainder of the carriageway being as existing (approx. 3m).

6.13.2 This alignment will provide greater visibility and the opportunity for opposing vehicles to pass each other. The double bends may have generated some speed reduction but they also prevented forward visibility to approaching vehicles and given the narrow width of the lane vehicle speeds may not be have been an issue.

6.13.3 The proposed carriageway will have kerbs that will help prevent damage and overrun to the adjacent grass verges, channel surface water run off to the new drainage system of ditches and also retain the edges of the carriageway.

6.13.4 Two new passing places are to be provided as part of the scheme and Network Rail will also have two vehicular access points (one to the north and on to the south) from the lane that will be gated.

6.14 A5013 Stafford Road / C0242 Chebsey Lane.

6.14.1 The existing A5013 acts as a main route between Eccleshall and Stafford (and visa-versa) and has a national speed limit within the vicinity of the junction, which is immediately to the west of Great Bridgeford. The carriageway at this location is presently not illuminated and the junction is controlled by Give Way road markings and signage with no physical vehicle control or dedicated turning facilities. Chebsey Lane is generally narrow (single car width) with informal passing places, adjacent grass verges / ditches and hedgerows.

6.14.2 Existing traffic volumes on the section of the A5013 under consideration are generally lower than average when compared to other 'A' roads within the county and there are no recorded injury accidents in the vicinity of the junction in the last 5 years.
6.14.3 The proposal is to create a signal controlled junction with a dedicated right turn facility from the A5013 together with road lighting that is extended from the existing system in Great Bridgeford. The speed limit through this junction is to be reduced to 40 mph by extending the existing 40 mph speed limit in Great Bridgeford. Chebsey Lane is to be widened from the proposed access to the site compound facility up to the junction with the A5013. This will allow two vehicles to pass each other without the need to give and take using passing places. The junction of Chebsey Lane with the A5013 is also to be realigned to improve vehicular movements.

6.14.4 The proposed measures will disrupt the flow of traffic along the A5013 due to the introduction of traffic signals; however traffic entering or emerging from Chebsey Lane will be controlled thus helping to make this manoeuvre safer. The traffic signals will help to improve safety at the junction by controlling the significant increase in vehicle numbers (many slow moving) accessing the site compound. The proposed reduction in the speed limit through the junction will also help improve the safety of all road users together with the extension of the existing road lighting system from Great Bridgeford to include this junction and also the proposed traffic signals.

6.14.5 The proposed traffic signals will need to be maintained by the County Council as Highway Authority and consequently a commuted sum (pro rata for the duration of their use) will be required from Network Rail to allow this to be undertaken. As the road lighting is only required for the duration of the occupation of the site compound this may be erected and maintained by Network Rail under a formal agreement with the County Council. Alternatively if the proposed road lighting is maintained by the County Council this would need to meet the requirements of the Lighting for Staffordshire PFI Contract.

6.14.6 Once the use of the site compound has finished and it has been removed the traffic signals and associated road lighting will no longer be needed and these will then be removed. The width of Chebsey Lane from the site compound access will also be reduced in keeping the nature of the route but an improved junction will remain with the realignment of Chebsey Lane and right turn lane on the A5103.

6.14.7 At this junction the remaining width of Chebsey Lane will also be greater than what currently exists to help allow vehicles to enter the lane while another waits to safely exit onto the A5013. An assessment on whether the extended 40 mph speed limit should be removed can be made following consultations with Staffordshire Police, the County Councillor for the area and Parish Council prior to the traffic signals and road lighting being removed.

6.15 General comment.

6.15.1 Whilst the general principal for the proposed Highway works have been agreed however, the detailed design, drawings and specification for the proposed works are still to be approved by the County Council as Highway Authority. In addition the combined stage 1/2 Road Safety Audit and the associated Designers Response has still to be agreed.
6.15.2 The Agreement In Principal (AIP) for the proposed Highway works at the junction of the A5013 and Chebsey Lane is still to be approved together with that for bridge 6A where the realigned B5026 crosses Meece Brook.

6.15.3 The phasing of the proposed Highway works has still be to be agreed with Network Rail together with the supervision and approval of the works by the County Council.

6.15.4 Formal agreements for the proposed works affecting existing Highways and those for the provision of new Highways, to also include for the technical approval of designs, drawings, specifications, other relevant information, supervision and approval of construction and final acceptance of the completed Highway works.

7. Ecology

7.1 The Norton Bridge project will have impacts on designated sites, protected species, The Norton Bridge project will have impacts on designated sites, protected species, UK Biodiversity Action Plan habitats and species and on ecological connectivity. These are features of importance for biodiversity and the coherence of ecological networks which the National Planning Policy Framework advises should be protected and enhanced through the planning process. Network Rail and their consultants Wardell Armstrong have carried out an extensive consultation exercise (ongoing) and it is acknowledged that efforts have been made to mitigate impacts in line with legislation and policy requirements. Habitat and species mitigation design, however, appears to be based on incomplete habitat survey information. Plans provided as part of the application documents, and separately to the Council, are not clear in regard of some aspects of habitat loss and mitigation and include numerous inconsistencies.

7.2 A significant issue for sustainability of the proposed mitigation is the apparent lack of a mechanism/resources to secure management of mitigation habitats and features following the five year aftercare period. These matters compromise the effectiveness of mitigation and lead to the conclusion that mitigation has not been demonstrated to be adequate.

7.3 The wording of the DCO and Requirements does not give confidence that adequate protection and mitigation will be incorporated into the project; extension of the Requirements to cover site clearance works is required as a substantial element of mitigation depends on protection of adjacent habitats and methods of habitat translocation. Further detail is required in Requirement 3 wording regarding the content of the proposed Construction Environmental Management Plan and associated documents to ensure that these fulfil their environmental protection role. This should include reference not only to the ES but to matters identified during consultation. Reference to what would be expected to be included in the CEMP and ecological management plan, such as detail of habitat protection, translocation, creation and management techniques and prescriptions, would give confidence that these would be effective in ecological protection.

7.4 The application is not accompanied by clear, accurate and consistent plans showing ecological impacts and mitigation meaning that confidence that mitigation
will be adequate is further weakened. The Council would like to see a requirement for the drafting of clear plans, to be agreed through consultation that will allow consultants and contractors to effectively plan and implement mitigation works in line with ES commitments and any other matters agreed during the Inquiry.

7.5 Designated Sites: Sites of Biological Importance (SBIs)

7.5.1 These sites, selected and designated by the Staffordshire Wildlife Sites Partnership in accordance with Defra Wildlife Sites guidance, are of County wide importance for biodiversity. Two SBIs are significantly affected by the project – Yelds Rough and Meece Brook. There are uncertainties regarding the effectiveness of mitigation of impacts in regard of both sites.

7.5.2 Yelds Rough SBI is a small (5.3 hectare) ancient woodland site found in an area of the County where such habitats are small and isolated. The line segments the wood and removes approximately 0.6 hectares of habitat. Mitigation of the area lost is proposed in the form of soils translocation and woodland planting, at a 1:1.5 ratio, linked to the larger remaining woodland fragment. Details of this should be one of the elements included in the proposed ecological management plan. Whilst this proposed mitigation is technically feasible given good design and practice and ecological supervision of works there are concerns regarding the long-term effectiveness of mitigation as no management appears to be secured following the five year aftercare period as the woodland is to be returned to a private landowner. No consideration has been given to ensuring the creation of a diverse ground flora, a key attribute of ancient woodlands or of monitoring of the woodland as it develops and remedial action to ensure development of a high quality habitat.

7.5.3 Woodland fragmentation will not be mitigated meaning that the small fragment west of the track in particular is likely to deteriorate in ecological interest due to its isolation and edge effects. Plans submitted to the Council outside of the application documents show that additional impacts are expected on the woodland, adjacent to the rail-track, due to construction activities and wind effects, which were not covered in the Environmental Statement and have not been mitigated. The plans submitted to the Council outside of the application documents do not appear to demonstrate that the full committed woodland mitigation area has been secured. Therefore significant residual impacts on this ancient woodland site are predicted. The Council expects plans to clearly reflect the mitigation found in the ES with additional consideration of line-side impacts.

7.5.4 The 4.9 hectare Meece Brook SBI covers a section of the Meece Brook with adjacent areas of swamp vegetation and wet grassland which represent UK Biodiversity Action Plan habitat. These habitats are rare in Staffordshire. The works include diversion of the brook, habitat translocation, and brook crossings by road and rail and will directly impact on 0.64 ha of UK BAP habitat as well as resulting in severance effects. Habitat translocation, restoration and creation are proposed, and details should be included in the proposed ecological management plan, but again there appears to be no mechanism to secure habitat management following the five year aftercare period. In particular, where habitats are severed
from the grazing units that they were once part of, measures to secure long term management need to be secured.

7.5.5 In terms of translocation and creation of wet grassland and swamp habitats, the hydrological regime (together with habitat management) is key and it is difficult to exactly reproduce this. This means that habitats are likely to change and complete mitigation of habitat loss may not be achieved. Detailed habitat design and mapping is required, linked to diverted watercourse design, topography and predicted hydrology, and taking account of management resources that will be available in order to maximise chances of achieving good quality mitigation and creating habitats of equivalent quality to those lost. Neither the ES nor the CEMP refer to the detailed guidance that will be required and there is therefore no mechanism to secure this, compromising mitigation.

7.5.6 In terms of these SBI impacts detail of protective measures for retained habitats, habitat translocation, replacement and creation measures would be expected to be included in the proposed Construction Environmental Management Plan (CEMP). The draft CEMP found in Appendix 6 to the Environmental Statement is far from comprehensive, lacking for example detail on adjacent habitat protection, and on Meece Brook SBI habitat translocation and replacement.

7.6 Protected species

7.6.1 There will be impacts on the following European protected species: great crested newt, bat and otter. Mitigation of direct effects has been agreed through the Natural England licensing process. In the case of great crested newts and otters this also addresses landscape-scale population impacts. In the case of bats the impacts of severance of habitats and foraging and commuting routes are difficult to predict as are collision mortality risks. Residual impacts cannot be ruled out. There appears to be no assessment in the ES of the impacts of new highway lighting of the ability of bats to use the landscape. S.8.2.48 of Technical Report 9 of the ES states that only limited lighting is proposed, plans sent to SCC Highways colleagues appear to show extensive lighting. This issue requires clarification including a demonstration that lighting design and location has been informed by consideration of bat use of the landscape.

7.6.2 UK protected species potentially affected by the scheme include badgers, barn owls, kingfisher, breeding and wintering birds, fish assemblages including brown trout and bullhead and invertebrates of floodplain habitats. Apart from badger and barn owls, mitigation for these species and species groups will largely be secured through habitat replacement and creation. Badger mitigation will be secured through the Natural England licensing system.

7.6.3 Potential impacts on barn owls relate to the introduction of rail and road structures across foraging routes resulting in habitat loss and potential barriers to accessing foraging habitat and, crucially, collision risks which is a known significant cause of barn owl mortality. The Staffordshire barn owl population was estimated as 30 breeding pairs in 2001. Either this was an under-estimate or this appears to have increased significantly as 49 inhabited nest boxes were recorded in 2012 meaning
the breeding population may be about double this. This proposal has potential
effects on three pairs, all nesting within 250 metres of the route, and therefore is
significant at the County scale. Impacts on foraging ability will result from
fragmentation of the Meece Brook habitat corridor, identified by survey as of key
importance; consideration is required of whether habitat mitigation has adequately
taken account of barn owl requirements.

7.6.4 Collision prevention mitigation is still under discussion and the efficacy of this is not
determined. Appropriate management of mitigation habitats and bunds referred to
in s.8.2.57 of Technical Report 9 of the ES designed to provide barn owl foraging
habitat and deflect flight paths to avoid collision risk does not appear to have been
secured and discussions indicate that there are not mechanisms/resources to
secure this. It appears that rail and road bund habitats that the ES cites as barn
owl mitigation may not be feasible as no landowner agreement nor management
commitment by Network Rail has been secured. Mitigation of collision impacts in
the key foraging corridor of the Meece Brook appears difficult/impossible due to the
restrictions on tree planting close to the railway and roads that means deflection
screening is not an option. It therefore cannot be said that impacts on barn owls
are fully mitigated. Collision risk appears to remain high.

7.7 Ecological networks and landscape/ecology interfaces

7.7.1 The NPPF and Natural Environment White paper stress the importance of
ecological networks that allow species to move through the landscape and provide
ecosystem services. A linear structure such as the railway will have inevitable
effects on ecological connectivity. Mitigation is included in the scheme for a suite
of target species but there is no clear assessment of the effects on overall
ecological connectivity such as habitat fragmentation.

7.7.2 Plans have been provided to the County Council outside of the application
documents intending to clarify how mitigation habitats and planting fit in with the
existing habitat network and landscape character. Assessment of these plans
shows inconsistencies between lost and mitigated hedgerows and assessment
against aerial photographs has shown that not all features, such as hedgerows and
field trees, have been mapped and that therefore insufficient mitigation has been
included in proposals. For example the ES states that 100 trees will be planted as
mitigation for the loss of 11 groups and 38 individual trees. Plans submitted to the
Council, outside of the application documents show that at least 123 mature trees
will be lost. An absence of comprehensive mapping of trees and hedgerows or of
clear identification and protection of trees within compound and storage areas
means this number could rise. To compensate for the loss of mature trees and
account for the extensive time period before new planting reaches maturity the
Council’s standard practice is to require three trees to be planted for each tree lost.
This indicates that approximately 400 trees should be planted rather than the 100
proposed in order to maintain a similar landscape connectivity and overall habitat
quality.

7.7.3 Enhancement in the form of seeding of road and rail embankments with a
wildflower grassland seed mix is suggested in s.8.3.3 of Technical Report 9 of the
ES. S.8.2.57 suggests that bunds will support high quality barn owl foraging habitat. No management of these bunds has been secured, however, meaning that the wildflower grassland habitat will survive for only a few years and the bunds will rapidly succeed into rank grassland and then scrub, of relatively low value as a habitat and for foraging barn owls. Discussions between the Council and Network Rail have aimed to encourage design of roadside bunds that can be sustainably managed as both landscape and ecological features; though no final designs have been agreed. Concerns remain regarding the long-term condition and value of rail-side bunds.

7.7.4 A holistic approach needs to be adopted to ecological and landscape mitigation, see landscape comments with an aim of maintaining both ecological quality and landscape character.

8. Landscape

8.1 The Norton Bridge project will have impacts on landscape character and visual impacts on properties, local road and rights of way users. The National Planning Policy Framework requires that development should respond to local character and history, and reflect the identity of local surroundings and protect and enhance the quality of the environment, recognising the intrinsic character and beauty of the countryside. There is also a requirement to minimise the impact of light pollution.

8.2 A number of saved Policies in the Stafford Borough Local Plan (2001) are relevant to landscape protection and sympathetic design; in particular Policies E & D7 Development in the Countryside requires protection from incongruous development, Policy E&D28 Landscape conservation, Policy E & D30 Mitigation of Impact on the Landscape and Policy E & D44 Development affecting Trees and Hedgerows. In the emerging Plan for Stafford Borough Policy N4 Natural Environment and Green Infrastructure, requires protection and enhancement of the natural environment conservation and specifically enhancement of water corridors for their landscape character, and Policy N8 Landscape Character, requires that development should be informed by, and be sympathetic to landscape character and should protect, conserve and enhance local distinctiveness, demonstrated through site assessments in the context of the Staffordshire Landscape Character Assessment.

8.3 Report 8 of the Environmental Statement, the Landscape and Visual Impact Assessment refers to Staffordshire and Stoke on Trent Structure Plan Policy NC2 which requires that development should be informed by, and be sympathetic to landscape character and quality, should not result in unacceptable visual harm and should contribute to the landscape policy objective of the area.

8.4 Baseline situation

8.4.1 The majority of the application site falls within the landscape character type Settled Farmlands in the Staffordshire Plain. The Staffordshire Landscape Character Assessment ‘Planning for Landscape Change’ (2000) describes the key features of this character type as: a gently undulating landform with pronounced occasional high points; mature broadleaved woodlands, a strong irregular hedgerow pattern
with hedgerow oaks; well treed field ponds and stream corridors; traditional red brick farmsteads and settlements; small ancient winding lanes. The interaction between tree and hedgerow density and the gently undulating landform leads to localised variation, and hedgerow trees and vegetation associated with field ponds and marl pits have an important effect on the landscape where they coalesce visually and filter views across what is otherwise a generally open landscape.

8.4.2 To the south, south of River Sow the route is on the boundary of the character type Ancient Clay Farmlands in the Staffordshire Plain, where marl pits, meres and mosses surrounded by mature trees, and small brooks and their associated riparian vegetation are important in providing areas of denser visual containment.

8.4.3 For information, the Staffordshire Landscape Character Assessment identifies Landscape Restoration as the landscape policy objective for both character types, which indicates a medium quality landscape.

8.5 Landscape and Visual Impacts

8.5.1 The route alignment passes to the west of Norton Bridge Junction in cutting. Bunds are proposed alongside the cutting for barn owl and landscape mitigation to maximise screening of the railway line and gantries. The Landscape and Visual Impact Assessment refers to sensitive treatment of these bunds in order to create naturalistic gradients and variation that will marry into the existing landform and this should help to minimise landscape and visual impact. A landscape consultant will need to be engaged at both the detailed design stage and during construction to ensure that this can be delivered and detailed contour plans will be required demonstrating a sensitive approach to their design. Bunds are also proposed alongside road diversions primarily for barn owl mitigation. The Council is concerned that the corners / termination of these bunds would by necessity be truncated abruptly at road and rail intersections and therefore introduce incongruous landforms, and therefore enhanced mitigation should be a requirement to avoid detrimental landscape impact. Detailed contour plans will be required indicating the relationship of proposals to surrounding landform. This will need to be complemented by mitigation planting to reduce the impacts with time.

8.5.2 The route crosses the Meece floodplain on an extensive embankment, for much of its length more than 8 m high, dissecting the valley floor. Towards the Meece Road mitigation bunds result in land-raising on the valley side. Resulting visual impacts are described in the Landscape and Visual Impact Assessment as ‘moderate adverse’. The Council considers that the proposal would fundamentally change the character of the Meece Valley, introducing a significant incongruous structure and truncating views along the valley, resulting in moderate detrimental landscape impact on residents, road users and rights of way users and a change to the perceived rural character of the area. Alterations to the highway alignments on the Meece Road also introduce lighting into previously unlit areas. This proposal could not be fully mitigated however lowering the height of the road/ rail embankment would reduce visual impacts, as would more extensive planting of riparian vegetation such as wet woodland, which would screen views of the embankment and gantries as it matures.
8.5.3 The impact of lighting on the landscape has not been fully assessed in the documents and there has been no consultation on this topic.

8.5.4 Successful ecological and landscape mitigation needs to adopt an integrated approach, embracing habitat creation, landscape character enhancement and visual mitigation, and mitigation of permanent structures such as fencing. A scheme of Environmental Mitigation has been proposed, including hedgerow planting with hedgerow trees, and woodland planting to mitigate for the loss of Yelds Rough. During consultation the principle was agreed that planting should aim to break up the line of the scheme by combining hedgerow planting with small copses and groups of trees and incorporate planting associated with water features, reflecting existing landscape features and pattern, building habitat connectivity and re-establishing coalesce of vegetation to limit views through the landscape. The Environmental Mitigation Plans submitted do not demonstrate a holistic, integrated approach informed by local character. They do not clearly show the proposals in context with the local landscape and vegetation pattern, do not show vegetation that will be removed or retained, and are not at a scale where it is possible to show sufficient detail to assess the impacts fully and be assured that mitigation will be sufficient. The Council remains concerned that the mitigation proposals would not be adequate, have not been informed by existing landscape character and would result in detrimental landscape impact. A coherent package of accurate habitat loss plans, integrated landscape and habitat mitigation plans, along with a Design Brief that demonstrate satisfactory mitigation need to be referenced in the DCO.

8.5.5 Discussions have been ongoing with Network Rail, and to attempt to clarify the mitigation proposed larger scale plans and a Design Brief have been drafted. The plans prepared raise questions as to the accuracy of the original survey information and mitigation offered. It appears that some existing vegetation, such as field trees, hedgerow and hedgerow trees, is not shown on the plans it is therefore not possible to assess local impact. Vegetation to be removed and vegetation to be retained should be shown on plans as accurately as possible to enable assessment of impacts.

8.5.6 The developing Design Brief refers to a Construction Exclusion Zone for protection of retained vegetation, for example in the areas of temporary land take, but that these areas will be identified after the compounds and storage areas etc. have been finalised. This approach results in uncertainty as to potential landscape impacts and may result in unnecessary avoidable loss of vegetation with high visual significance and landscape value. Operations should be arranged to avoid impacts on site assets such as mature trees and vegetation. An arboricultural survey, complying with British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*, should be carried out to inform this process. A consistent approach to indicating areas of vegetation to be protected needs to be adopted across the plans.

8.5.7 Uncertainties remain regarding the level of mitigation offered. Additional matters to be addressed that would contribute to an acceptable level of landscape mitigation include: replacement of larger belts of vegetation lost to development with similar scale planting; provision of tree groups to re-establish coalesce of vegetation in the
long term and limit views through the landscape (particularly important to filter views of at-grade and elevated sections of the railway); enhanced levels of tree planting to enhance visual mitigation in the short to medium term; more extensive inclusion of riparian vegetation characteristic of the Meece floodplain which would support landscape and visual mitigation in the Meece valley; use of wider road verges for woodland type planting to deliver landscape mitigation (subject to Highways approval); assurance of sustainable management for landscape features and habitat mitigation.

9. Public Rights of Way

9.1 Network Rail has completed its option selection process for the proposed diversions of road, rail and right of way. This scheme will directly affect two public rights of way – Public Footpaths No’s 10 and 11 Chebsey Parish and Option 4 diversion of the B5026 and Option 2 diversion of Public Footpath No 11 Chebsey have been chosen by Network Rail after months of consultation. The alterations would result in a fragmented network without the mitigation measures that are proposed.

9.2 Both routes are in a predominantly rural environment albeit one already affected by road and rail and this will increase as a result of the Norton Bridge alterations. There are no special landscape features e.g. National Park, SAC, etc in the area through which both paths pass. The developments will, at first, have a negative impact on the network as it is likely that the paths will be subject to temporary closure and the construction will impact on the appeal of walking along both routes.

9.3 Public Footpath No 10 provides a link between the village of Yarnfield and the Eccleshall Road. The route is predominantly rural in character and currently passes directly over the railway line via a pedestrian footway. Public Footpath No 10 does not form part of any promoted route but is likely used as part of a circular local route for people in Yarnfield and Norton Bridge. Network Rail are proposing to install a footbridge across the railway due to the increase in the train speed and their National Level Crossings Closure Scheme where they are trying to restrict the amount of pedestrian, cyclist and horse traffic which crosses railways without the use of an underpass or overbridge. The proposed footbridge which will be installed will, potentially, have a slightly negative impact on the visual appeal of a walk in the area. It may also be difficult for some less able users to cross the bridge although an Equality Impact Assessment will need to be undertaken by Network Rail to make a true assessment of this. The bridge will, however, make crossing the railway line safer and this is positive. If Network Rail were not to propose the installation of the footbridge then there is the potential for future health and safety risks for pedestrians crossing the railway due to the increase in speed and presumably the regularity of the trains.

9.4 Public Footpath No 11 runs between Norton Bridge and Cold Meece Road (via links with other routes). The current line of the footpath runs parallel to the southern side of the railway line. This path is part of the Stone Ramblers promoted trail around their district and is known as the ‘Stone Circles’ walk. This is well used and forms part of many other shorter circular trails and guided walks throughout the year. Public Footpath No 11 will divert completely away from its existing route.
to the west of the new railway before emerging on to the realigned B5026. The footpath then traverses the B5026 to the point where the new road bridge crosses the West Coast Main Line (WCML) then heads south to the point where the footpath is crossed by the proposed new rail bridge over the WCML. The footpath will then pass alongside the railway and under the new rail bridge to emerge on the B5026 at its existing location. The advantage of the route chosen for the diversion of Public Footpath No 11 is that the railway will not need a footbridge crossing and will only be crossed via the new road bridge. The disadvantage with this route lies in the potential conflict between walkers and vehicular traffic on the maintenance access road. However, this is expected to be very minimal. The proposed diversion of this route would, for the most part, remain alongside the railway as does the current route so the impact would be negligible. Network Rail have agreed to surface a 2 metre wide section of this footpath with a bound granular material and the footpath level will be raised slightly near Meece Brook so that it runs above the flood plain level and this is positive. Without this course of action walkers would have a poorer footpath than the current alignment.

10. The Historic Environment

The construction of the Norton Bridge Improvement Scheme and the secondary works (i.e. the construction of haul roads and site compounds) will have an impact upon the historic environment of the area. There are no designated heritage assets which will be directly impacted by the proposed scheme although the setting of a number will be affected. There are also a range of undesignated heritage assets which will be directly impacted by the proposed scheme. These can be sub-divided into three main areas (below ground archaeological remains, the historic landscape and the historic built environment). A final section outlining the mitigation methodology is included in the Historic Environment element of this Local Impact Report.

10.1 Below Ground Archaeological Remains

10.1.1 While there is limited evidence for prehistoric activity in the area of Norton Bridge, a review of the broader archaeological context suggests that there is the potential for the presence of previously undiscovered prehistoric remains, particularly in the river valleys along the route. Excavations within a range of other valleys throughout Staffordshire have revealed evidence for late Neolithic and Bronze ceremonial/burial landscapes along the Rivers Trent, Dove and Tame and later Iron Age and Romano-British settlement and farming activity along the River Trent. The recovery of six late prehistoric stone tools during field walking at Cold Norton Farm close to the scheme points to at least one activity site in the area. An as yet undated enclosure north of Rodegeley farm is also recorded on the HER on the line of the route and this may represent the remains of later prehistoric or Roman date. This, taken in conjunction with evidence from other river valleys would suggest the potential for later prehistoric/Roman exploitation along the River Sow and the Meece Brook and within their hinterland during the late prehistoric period. Such remains would be fragile and would be substantively impacted during the construction of the current scheme.
10.1.2 The watching brief maintained during previous site investigation works also revealed the presence of peat deposits in lower lying areas of the route. These deposits may contain important palaeoenvironmental evidence including pollen, seed and insect remains which can inform us regarding the development of Staffordshire’s landscape from prehistoric times through into the post-medieval period. Coupled with evidence for prehistoric activity, these remains would represent a powerful tool in the understanding of past human interaction with the changing landscape in Staffordshire. Such remains, while sporadic in their presence are fragile and would be substantively impacted during the construction of the current scheme and through potential changes in groundwater levels during the operation of the rail realignment.

10.1.3 Evidence from along the route would suggest that it extends through an area dominated by agriculture during the early medieval, medieval and post-medieval periods and many of the cropmarks present across the landscape may represent field boundaries, droveways and farmsteads positioned to exploit the landscape. Indeed, it is likely that agricultural activity has dominated the economy of the Norton Bridge landscape since at least the Roman period. As previously identified, some of the cropmarks to the north of Rodgeley farm and to be impacted may be the remains of Roman field systems and a possible small farmstead of the same date. Roman pottery has been recovered to the south east of Rodgeley Farm and two Roman rubbish pits have been excavated roughly in the same area.

10.1.4 A silk mill is also recorded on the HER at Little Bridgeford at the southern end of the route. Little work has been carried out on this site and although it is considered that the extant mill may be mid to late eighteenth century in date it is possible that an earlier mill may have been located on the same site. Mills often changed function over time and also were often located upon earlier milling sites and this may be the case with the mill at Little Bridgeford. While the rail route will avoid the postulated site of the 18th century (and possibly earlier) mill, it may impact upon any associated activity sites or the mill leat which powered the site (should they be present).

10.1.5 In summation, there will be impacts to buried archaeological remains along the route realignment; both to sites recorded on the Historic Environment Record (HER), and to previously unrecorded remains identified during the construction process. Very little archaeological work has been carried out in this area of Staffordshire and the majority of information for the area of the rail route and our understanding of archaeological potential is based in part on records contain in the HER and upon archaeological investigations in similar landscapes elsewhere in the county. It should also be recognised that there remains the potential for previously unknown and significant archaeological remains to be encountered during the scheme; this may particularly be the case in the river valleys where the build-up of alluvium and colluvium may have buried prehistoric or even early medieval sites.

10.2 Historic Landscape Character

10.2.1 The historic landscape character of the area is dominated by piecemeal enclosure which was probably laid out between the 16th and 18th centuries. Piecemeal enclosure represents the informal enclosure of medieval open field systems
through agreement between individual landowners in an attempt to clarify land holdings. Often, this process of clarification resulted in the fossilisation of evidence for medieval ploughing within boundaries. Typically this evidence takes the form of ‘reverse s’ field boundaries and some of these boundary forms are retained today within the Norton bridge landscape. Comparison of the late 19th century First Edition Ordnance Survey mapping and the current field pattern shows that there has been minimal field boundary loss, with the landscape retaining much of its the seventeenth-nineteenth century character. Sparse woodland was present across the area during the nineteenth century and it is likely that much of the area had been deforested for farming purposes during the medieval period.

10.2.2 Flanking the Meece brook lie a series of bedwork water meadows. These systems were designed to improve the fertility of river valley pasture by protecting grass from late frosts and providing waterborne nutrients which in turn could encourage the growth of two and potentially three grass crops a year. First reported during the early seventeenth century in Herefordshire, it is likely that they were in fact first used by monastic houses (and in particular Cistercian monasteries). The water meadows along the Meece brook are likely to have been laid out during the later eighteenth or early nineteenth century by a single large landowner. A recent water meadow survey identified that the Meece Brook water meadows survive in a moderate condition and that they retained some earthworks and structural elements into the twenty-first century.

10.2.3 The pattern of farmsteads in the Norton Bridge area reflects this process of piecemeal enclosure with two nearby farms dated to the early seventeenth century (Quaker Farm and Hammer House Farm). The remainder were constructed largely during the later nineteenth century and are regular courtyard in plan; a form which agricultural improvers of the day considered to increase efficiency around the farmstead. Many of the principal roads and routes throughout the Norton Bridge area are recorded on the Yates 1775 plan of the County; while they are reasonably straight they do not appear to have been surveyed in and as such may date to the medieval period.

10.2.4 The rail realignment will impact upon the integrity of the predominantly piecemeal enclosure of the area around Norton Bridge with field boundaries being cut or removed and the plan form and size of many fields altered considerably. Similarly, the road system, which is recorded on the earliest map of the area (Yates, 1775) and which may be medieval in origin will be impacted by the proposed scheme.

10.3 Historic Built Environment

10.3.1 Significant seventeenth and later century farmsteads have been identified close to the route and possibly linked with the development of piecemeal enclosure in the surrounding area. Shallowford also retains a number of Grade II Listed seventeenth century timber-framed cottages to the east of the railway line and the Grade II Listed Izaak Walton’s cottage lies in the southern area of the settlement.

10.3.2 The existing railway line has significantly impacted upon the historic built landscape and as such the realignment of the rail route does not represent a substantial worsening of the setting of the range of designated and undesignated
historic buildings. It is also noted that no designated historic buildings will be directly impacted by the proposed realignment scheme.

10.4 Mitigation Strategy

10.4.1 Previous discussions with Network Rail and their appointed Historic Environment consultants have informed the work to date (the preparation of the desk-based study, watching brief during site investigation works and the geophysical survey) and highlighted the need to produce an Archaeological Management Plan (AMP) for the scheme which will include the development of a protocol for ‘unexpected archaeological discoveries encountered during groundworks. An Historic Environment Statement of Common Ground has also been prepared which details the works required to satisfy the DCO (including the preparation of the AMP).

10.4.2 The Staffordshire County Council (SCC) Principal Archaeologist and English Heritage (EH) have been consulted during the preliminary stages of the project and will continue to liaise with the appointed Historic Environment Consultants during the preparation of the AMP. The SCC Principal Archaeologist and EH will also advise the Local Authority on the appropriateness of the AMP as part of the Construction Environment Management Plan (CEMP) process. This will ensure that the necessary Historic Environment mitigation strategies are in place prior to the commencement of construction works, including the targeted recording of known heritage assets and the completion of the ‘unexpected archaeological discoveries’ protocol. The Historic Environment Statement of Common Ground also requires regular monitoring meetings to discuss all aspects of the Historic Environment work associated with the scheme; this will include discussions on the AMP and any amendments to it where situations warrant adaptation. All individual elements of work identified within the AMP will be undertaken by organisations following the Institute for Archaeologists (IfA) Code of Conduct and all relevant IfA standards and guidance, including the appropriate archiving of all material. The AMP will also identifying the reporting strategy and will ensure that appropriate levels of dissemination occur commensurate to the significance of discoveries made during the scheme as advised in National Planning Policy Framework para 141.

10.4.3 In conclusion the historic environment work completed to date, the iterative approach to the development of the AMP, continuing liaison between the Staffordshire Alliance, SCC Principal Archaeologist and English Heritage and the provision of advice to the Local Authority on the efficacy of the AMP represent a satisfactory approach to securing appropriate levels of historic environment mitigation throughout the lifespan of this large scheme.

11. Flood Risk

11.1 The proposed scheme passes through areas that are designated as having a potential flood risk from the River Sow and Meece Brook. These areas are within Flood Zones 2 and 3. As such the introduction of a new railway line could cause offsite effects on areas within the flood plain as it passes over low lying areas on a raised embankment and cuts through sections of high ground.
11.2 Temple Group Consulting have produced a Flood Risk Assessment on behalf of Network Rail to show the potential risks of flooding to the proposed development and the surrounding area and the mitigation which will be undertaken to reduce this risk.

11.3 With regards to the potential for groundwater flooding; in some areas, the proposed railway will be through a cutting of high ground below the level of the water table (The cutting is a maximum of up to 14m below ground level, the water table was encountered at 10m below ground level). In order to mitigate this artificial lowering of the water table, the cutting will be designed to allow groundwater to pass through and be intercepted by appropriate drainage at the crest, toe and down the slope of the embankment, before being collected with surface water and drained to the watercourse.

11.4 We agree that small depressions in the water table should not increase the risk of flooding at the surface or elsewhere and that by introducing appropriate drainage any increase in risk can be mitigated.

11.5 The main sources of flood risk will be from the River Sow and Meece Brook as there are no defences present; consequently out of bank flooding occurs during heavy rainfall. The railway line will be on top of an embankment through low lying areas. These embankments will cause an obstruction to flood flows with the depth and extent of flooding shown to increase upon completion of the scheme. However, the new railway line will be above the 1 in 100 year flood level including a 20% increase in flow to allow for climate change.

11.6 In order to mitigate against the increase in depth and extent of the floodplain, compensation was considered. The hydraulic modelling undertaken showed that while the water level could be reduced, the area would still suffer significant flooding and this mitigation was not significant enough to outweigh the environmental concerns associated with creating the compensation. This has been agreed with the Environment Agency.

11.7 From looking at the hydraulic modelling and the associated Flood Risk Assessment, the proposed railway line does not put any commercial, industrial or residential developments at risk. However, due to the depths and extents of flooding increased across low lying agricultural land, it could take several days for flood waters to recede. Therefore it is essential for Network Rail to come to an agreement with local landowners affected by the proposed scheme prior to commencement.

11.8 In terms of the surface water across the site, all culverts and outfalls will be retained to ensure there is no increase in surface water runoff. The proposal will increase the impermeable area. All primary track drainage will be designed not to flood up to the 1 in 50 year event and attenuation basins will be constructed to accommodate flows up to the 1 in 100 year storm event including a 30% allowance for the increase in rainfall intensity for climate change.
11.9 The attenuation basins will release water at the greenfield runoff rate through the use of a hydraulic control while maintaining a minimum water depth of 500mm in the basin to increase biodiversity. This is acceptable and provides a benefit to the area.

11.10 In summary, while the depth and extent of flooding will increase after the development; no commercial, industrial or residential properties will be affected, although Network Rail will have to come to an agreement with agricultural landowners. Also, through the introduction of attenuation ponds, the surface water can be controlled to greenfield rates, therefore reducing the risk of flooding and also increasing the biodiversity in the area.

12. Minerals and Waste

12.1 The Waste Policy officer supports the intention of Network Rail to be in keeping with the waste hierarchy of ‘prevention, preparing for re-use, recycling, other recovery and disposal’ (5.3 Norton Bridge Final DCO – ES Volume 3 Report 17 Waste)

12.2 In particular, the Council support Network Rail’s intention to re-use excavated material on site. The project will generate an estimated 579,878m³ of excavated material from the cuttings which is planned to be completely re-used on site. However, should there be any surplus excavated material we suggest that opportunities for local disposal should be investigated including the possibility to use the material in the restoration of former quarries.

12.3 As the site partially lies within a sand and gravel consultation area the opportunity to use this material for engineering works should be investigated.

12.4 The Planning Statement identifies that Network Rail are planning on re-profiling areas of adjacent land with surplus excavated material. We would therefore suggest that any underlying sand and gravel in this area could also be utilised before the re-profiling with excavated material occurs. We would request to be consulted on this matter when more information becomes available.

12.5 The Environment Statement states that Network Rail has dedicated waste recycling centres designed to manage operational waste and as such would have no impact on local waste facilities.

13. Conclusions

13.1 Paragraph 6 of the National Planning Policy Framework (NPPF) states that the purpose of the planning system is to achieve sustainable development. Paragraph 7 states that there are 3 dimensions to sustainable development: economic, social, and environmental.

13.2 The proposals would clearly have both short term and longer term impacts on the local area in environmental terms from their potential to effect ecological interests and by changing the character and appearance of the area. There would also be social impacts from proposed demolition of property and diversion of existing roads.
and footpaths. These impacts would be particularly acute during the construction phase.

13.3 However, the role that railway infrastructure plays in achieving sustainable development and the potential for broader regional and national economic and social benefits is acknowledged.
Appendices

Appendix A – Planning History

Appendix B – Accident Records on proposed Haulage Routes

Appendix C – M6 Emergency Diversions Route Map