A358 ILMINSTER TO M5 TAUNTON

ENVIRONMENTAL ASSESSMENT SCOPING REPORT

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CONTENTS

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A358 ILMINSTER TO M5 TAUNTON
ENVIRONMENTAL ASSESSMENT SCOPING REPORT

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1.0 INTRODUCTION

1.1 The purpose of this report is to identify the work required in order to carry out Environmental Assessment of the scheme. It is intended to outline the potential impacts of the scheme, identify what information is already established, make recommendations for studies and surveys, identify the area to be studied and outline the method of assessment.

1.2 The scope of the work is based on the requirements of the Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment, and webTAG units appropriate to each environmental aspect (www.webtag.org.uk).

1.3 The scheme, which is shown on plans included at Appendix A, has been identified for development by the London to South Wales and the South West Multi Modal Study (SWARMMS), which was published in May 2002.

1.4 In order to accord with the requirements for 'Speeding Up Delivery' of Trunk Road Schemes environmental assessment is to be progressed as far as possible, as quickly as possible. It is likely that the scheme would be procured using an 'Early Contractor Involvement' (ECI) contract. The ECI Contractor would be required to undertake the DMRB Stage 3 Environmental Assessment and prepare the Environmental Statement. Thus the proposals contained in this report are broadly to carryout and report an assessment to DMRB Stage 2 level but to collect data for Stage 3 assessments where possible. Where data collection identifies significant issues judgement will be used to determine a course of action.

1.5 An Appraisal Summary Table (AST) has been produced by Parsons Brinckerhoff on behalf of the Highways Agency for the scheme. The latest issue of this dated November 2004 is appended to this report at Appendix B.

1.6 This report deals with the following topics detailed in DMRB Volume 11 identifying the assessment requirements for each separately: Air Quality, Cultural Heritage, Ecology and Nature Conservation, Landscape Effects, Land Use, Traffic Noise and Vibration, Pedestrians, Cyclists Equestrians and Other Community Effects, Water Quality and Drainage, and Vehicle Travellers.

1.7 The study area is to be determined by the specific information being obtained. However, in general it is to be defined by a corridor of appropriate width either side of the existing carriageway as identified in the individual sections within this scoping report.

1.8 The current scheme is at a preliminary stage and as such many details are yet to be established. The level of detail of this report thus reflects this with potential impacts identified in broad terms or from historical information. Location and constraints mapping is being developed and will be included with the reporting of this assessment.

1.9 A separate Procurement Options Report is being compiled to investigate the options for procuring the A358 Ilminster to Taunton M5 and A303 Ilminster Bypass schemes. This procurement report will review the phasing of the construction works to be carried out on the A358 Improvement and so it is not appropriate to undertake an assessment of the disruption due to construction at this stage until the procurement report is complete. An initial assessment of the disruption due to construction was made in the draft Initial Scheme Assessment Report of October 2004. The report identifies the need for the Contractor to prepare a Construction Environmental Management Plan to minimise any adverse effects of the construction works."

2.0 DETAILS OF SCHEME

2.1 Background to the Scheme

2.1.1 Improvement schemes for the A303/A30 Ilminster to Honiton have previously been designed and promoted. In the 1990s two schemes for the construction of an off-line dual carriageway were developed. These were for A303 Ilminster to Marsh and A303/A30 Marsh to Honiton and were taken to Public Inquiry in 1996. The Public Inquiry Inspector found in favour of the dual carriageways, however, the schemes were put on hold in the late 1990s along with others on the A303.

2.1.2 The London to South Wales and South West Multi Modal Study (SWARMMS), which was published in May 2002, recommended the improvement of the A303 route to the South West. This essentially proposed to upgrade the lengths of existing single carriageway to the east of Ilminster to dual carriageway. The study looked at the issues of this route to the west of Ilminster, that is, dualling of the A303/A30 from Ilminster to Honiton. Because the route is through the Blackdown Hills AONB SWARMMS considered the alternative improvement to the A358 between Ilminster and the M5 at Taunton. Since there is a policy presumption against new or improved infrastructure in AONBs SWARMMS recommended that on balance the A358 alternative should be the preferred scheme.

2.1.3 The South West Regional Assembly carried out a review of the SWARMMS findings. Following a debate in July 2002 the Assembly included in its recommendations to the Secretary of State that both the A303/A30 Ilminster to Honiton and the A358 Ilminster to M5 should be dualled. In a response to this and SWARMMS the Secretary of State for Transport asked in December 2002 that the feasibility of the A358 Ilminster to M5 Taunton improvement be considered.

2.2 Scheme Description

2.2.1 *Scheme Details*

2.2.1.1 The scheme proposes to provide a high grade dual carriageway to link the A303 near Ilminster and the M5 near Junction 25 at Taunton, Somerset. As well as being discussed in SWARMMS the scheme was identified as an Objector's Alternative at the Public Inquiry for the A303/A30 Ilminster to Honiton schemes in 1996.

2.2.1.2 The existing road is single carriageway (other than a length of approximately 1.9km between the village of Henlade and the junction of the A378 at Thornfalcon, where it is two lane dual carriageway). Through Henlade village it is essentially an urban single carriageway road with a 40mph speed limit imposed. Otherwise it is rural and is derestricted. Sections of the carriageway have been improved in the past. The latest available traffic flow information on the A358 is taken from Automatic Traffic Counters (ATCs) readings over 2005. The Annual Average Daily Traffic (AADT) derived from the ATC at Henlade was 28,599 and the AADT from the ATC at Capland was 23,030.

2.2.1.3 There are two route options being considered which improve the A358 to dual carriageway standard over a length of approximately 14.8km for the A358 Preferred Option, and over 16km for the alternative A358/A303 Online Option. These are variations of the original Option A, with the addition of the free flow link from original Option C that links M5 northbound traffic to the eastbound A358. Options A and C, alongside the other options considered, are described in section 2.2.2 below. Both proposed options follow the same alignment, which largely involves the on-line widening of the existing A358, but they differ at the south-eastern end of the scheme where they connect to the A303. These two route options are illustrated in Figure 2.1 in Appendix A.

2.2.1.4 The route begins at the north-western end of the scheme at the M5 junction 25 at Taunton. The SWARMMS strategy proposed linking the dualled A358 to the M5 near Taunton using 'free flow' links. That is, two link roads would be provided to allow unrestricted movement of traffic from the westbound A358 to the southbound M5, and from the northbound M5 to the eastbound A358. These would connect with the M5 to the south of the existing Junction 25, (hence this has been referred to in some instances as Junction 25A). The current proposals incorporate these free flow links in two new slip roads to the south of junction 25 to link the M5 directly to the start of the new A358 offline section. In addition, it is proposed to provide a new arm to the roundabout at junction 25 and realign the A358 arm to maintain the link to the existing A358.

2.2.1.5 The proposed offline section starting at the M5 runs to the south of the village of Henlade and parallel to the existing A358 for approximately 4.3km. The proposed route then rejoins the existing A358 immediately east of the A378 junction at Thornfalcon where the existing road is widened for approximately 6.7km up to the village of Ashill. It is to the east of Ashill that the two options differ.

2.2.1.6 The A358 Preferred Option, also known as the "Rapps Alternative", diverges from the existing A358 at Ashill onto an offline section in an eastwards direction bypassing the village of Rapps, to connect to the A303 Ilminster Bypass at a new grade separated junction.

2.2.1.7 The A358/A303 Online Option follows the existing route from Ashill to connect to the A303 just north of Southfields Roundabout at Ilminster with a proposed grade separated junction known as Horton Cross. The existing A303 is then proposed to be widened online from Horton Cross Junction north-eastwards for a length of 2km.

2.2.1.8 Both Options tie into the A303 at the same location, just south of Burleaze Farm. Both Options will give free flow between the dualled A358 and the A303 Ilminster Bypass, with the A358 Preferred Option providing a shorter and more direct route to the A303 than the A358/A303 Online Option.

2.2.1.9 The existing A358 has several side roads connecting to the carriageway with 'at-grade' junctions. One of these, the A378 at Thornfalcon carries significant traffic flows and currently operates with a set of traffic signals. The other junctions are for minor roads and have relatively low traffic flows. It is currently proposed to provide grade separated side road junctions to the dualled A358 in four locations including the A378 for each Option.

2.2.1.10 Current highway design guidance promotes safety and the free flow of traffic on dual carriageways and so direct private accesses off the main line are discouraged and junctions are only provided where it is justified. In line with this philosophy, where the traffic flows on side roads do not justify the provision of new grade separated junctions but where it is necessary to connect the local road network either side of the A358, bridges are provided. There are two such road bridges proposed on both of the options. An overbridge is proposed at the village of Kenny on both options. On the A358 Preferred Option, the A358 bridges Cad Road approximately 1.6km east of Ashill Junction on the offline section. On the A358/A303 Online Option the proposed St Aldhelms Overbridge is provided approximately 1.4km southeast of Ashill Junction over the online A358 section Two single carriageway local link roads are also proposed adjacent to the online sections of the widened A358 to maintain local traffic links between Thornfalcon and West Hatch Lane, and between Capland and Kenny.

2.2.2 *Options Considered*

2.2.2.1 Four main options had been identified for the improvement of the A358. These are Options A, B, C and D. Option A includes a link to the M5 southbound carriageway with the offline section past Henlade and an online widening along the rest of the A358 from Thornfalcon to

Southfields Roundabout at the A303. Option C consists of the links to both the southbound and northbound M5 carriageways. Options B and D incorporated a new M5 junction to the north of Taunton, known as Junction 24A. Option B being as Option A with the inclusion of Junction 24A, and Option D being as Option C with the inclusion of Junction 24A. It was concluded that these options would not be further developed until Somerset County Council had established the future need for the new motorway junction.

2.2.2.2 A series of sub-options to Option A were developed which involved alternative offline routes at Thornfalcon and variations of the offline Rapps section. These options are discussed in the October 2004 draft of the Initial Scheme Assessment Report. Following a series of Value Management Workshops, attended by representatives from the Client, the design team and the Statutory Environmental Bodies (SEBs), a number of these options were discarded in view of their negative environmental impacts and a proposed route was identified which is described in Section 2.2 above. The southern end of the A358 Preferred Option has developed from Option A5.

2.2.2.3 In addition, options were considered for the connection of the new Junction 24A to the existing Junction 25, and for A358 routes to the north of Henlade. Each of these options involved a route across the River Tone flood plain areas to the northeast of Taunton. These options also posed geometric design problems that would make them inappropriate options for providing the Trunk Road route.

2.2.2.4 Because of these issues it is not proposed to include the land areas of the other options in the environmental assessment. Thus the study area is defined by the corridor of the existing road for the section of proposed on-line widening on the A358 and A303, an area to cover the offline Henlade bypass and M5 junction area, plus a corridor for the offline Rapps section of the A358 Preferred Option. The study area is shown in Figure 2.2 in Appendix A.

2.2.3 Previous Draft Reports:

2.2.3.1 Some information from the Environmental Statement prepared by Chris Blandford Associates for an earlier, similar Ilminster bypass scheme, in 1996, has been incorporated into background reports. These reports contain Baseline information but not impact assessments.

- General - A358 ISAR October 2004
- Ecology A358 Ilminster Bypass Dualling – Biodiversity Background Report, September 2004
- Landscape A358 Ilminster Bypass Dualling – Landscape, Townscape and Visual Background Report, October 2004
- Cultural Heritage A358 Ilminster Bypass Dualling – Historic Environment - Background Report, October 2004
- Agriculture and Land Use A358 Ilminster Bypass Dualling – Agricultural Background Report, October 2004
- Water Quality and Drainage A358 Ilminster Bypass Dualling – Background Water Quality and Drainage Report, October 2004

3. 0 AIR QUALITY AND EMISSIONS

3.1 Introduction

3.1.1 *General*

3.1.1.1 The purpose of the Air Quality Assessment is to identify the potential effects of the proposed A358 to M5 scheme on the air quality in the area.

3.1.1.2 The proposed improvement scheme has the potential for generating both beneficial and adverse impacts on air quality.

3.1.1.3 The assessment shall follow the guidance provided in DMRB Volume 11, Section 3, part 1 and the Transport Analysis Guidance (TAG).

3.1.2 *Potential Impacts*

3.1.2.1 A new road scheme can affect air quality in a number of ways, at both local and regional levels. The scheme may change traffic flows in terms of both volumes and speeds, which will, in turn, result in changes to the level of vehicle exhaust emissions to air. The scheme may also relocate the vehicle emissions in relation to relevant receptors such as residential properties or nature conservation sites.

3.1.2.2 In relation to local air quality, and its potential impacts on human health and ecosystems, the pollutants considered are carbon monoxide (CO), nitrogen dioxide (NO_2), hydrocarbons (benzene and 1,3–butadiene) and particulate matter (PM_{10}). For potential impacts on regional air quality and global warming, carbon dioxide (CO2), nitrogen oxides (NOx), particles, carbon monoxide and hydrocarbons are considered.

3.1.3 *Study Area*

3.1.3.1 In accordance with the assessment procedure set down in DMRB Volume 11, the Study Area for air quality impacts comprises an area 200m either side of the road centreline along the length of the existing and proposed routes.

3.1.4 *Potential Receptors*

3.1.4.1 Key receptors are those residential properties within 200m of the affected route or corridor. The guidance document also notes that particular attention should be paid to locations where susceptible people may be located, judged in terms of the sensitivity to pollution (e.g. schools, hospitals and nursing homes) and the likely exposure to pollution.

3.1.4.2 Other potential receptors include areas of nature conservation interest, as well as Air Quality Management Areas (AQMAs).

3.1.5 *Legislative Framework*

3.1.5.1 Regulation of ambient air quality in the UK follows 'The Air Quality Strategy for England, Scotland, Wales and Northern Ireland', published by the Government in January 2000, and an addendum published in 2003.

3.1.5.2 The strategy sets out standards and objectives for nine air pollutants, of which 7 are designated for local control, including CO, NO_2, PM_{10}, Benzene and 1-3 Butadiene. Air quality standards are purely health-based, and reflect levels thought to ensure avoidance or minimization of risks to health. Objectives are based on what is presently considered to be

realistically achievable, and include deadlines by which the specified objectives must be met. The objectives for each of the pollutants relevant to LAQM together with the target dates for meeting them are summarised in Table 3.1.

Table 3.1: Summary of Current UK Air Quality Objectives

Pollutant	OBJECTIVE	Measured as	To be Achieved by
Benzene	16.25 µg/m^3	Running annual mean	31/12/2003
	5 µg/m^3	Running annual mean	31/12/2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31/12/2003
Carbon Monoxide	10 mg/m3	Max daily running 8hr mean	31/12/2003
Nitrogen Dioxide	200 µg/m^3	1 hr mean, not to be exceeded more than 18 times per year	31/12/2005
	40 µg/m^3	Annual mean	31/12/2005
Particulates (PM_{10})	50 µg/m^3	24 hr mean not to be exceeded more than 35 times per year	31/12/2004
	50 µg/m^3	24 hr mean not to be exceeded more than 7 times per year[1]	31/12/2010
	40 µg/m^3	Annual mean	31/12/2004
	20 µg/m^3	Annual mean[1]	31/12/2010

Notes:
1. These objectives are currently provisional for the time being in England, Wales, Northern Ireland; Greater London has set different provisional objectives for particulates.

3.1.5.3 The standards and objectives related to air quality are contained in the Air Quality (England) Regulations 2000, the Air Quality Limit Values Regulations 2001, the Air Quality (England) (Amendment) Regulations 2002, the Air Quality Limit Values (Amendment) Regulations 2003, and the Air Quality Limit Values (Amendment) (England) Regulations 2004.

3.1.5.4 The Air Quality (England) Regulations set out the locations at which the air quality objectives apply, namely at sites outside building or man-made structures where members of the public are regularly present and are likely to be exposed over the averaging period of the objective.

3.2 Baseline Assessment

3.2.1 Baseline air quality shall be established by means of a desk-study, through the collation and review of data from previous studies, relevant local authorities and the UK National Air Quality Information Archive.

3.2.2 Under Part IV of the Environment Act 1985, local authorities are required to review and assess air quality within their area. The scheme falls within the administrative boundaries of Taunton Deane BC and South Somerset DC. Both local authorities have followed the phased approach required by the Government and completed the second round review of air quality in their areas.

3.2.3 Taunton Deane BC has declared Air Quality Management Areas for nitrogen dioxide within the study area for the scheme. South Somerset DC has no AQMAs relevant to the scheme.

3.2.4 Empirical air quality modelling has been undertaken by AEAT to supplement information available from the UK national air quality monitoring network. Data from this study is available from the National Air Quality Information Archive (NAQIA) website

(www.airquality.co.uk). The archive provides estimated annual average background concentrations at 1km spatial resolution for the entire UK. Data is provided for 2001, 2005 and 2010 for NO_x and NO_2; 2001, 2004 and 2010 for PM_{10}; 2001, 2003 and 2010 for Benzene; 2001 and 2003 for 1-3 Butadiene; and 2001 for CO. Scaling factors are provided to calculate concentrations in other years to 2025.

3.2.5 In accordance with DMRB Volume 11, ambient monitoring need not be routinely incorporated in the air quality assessment of a road scheme. It is not currently proposed to undertake direct measurements of baseline air quality in addition to existing data available nationally. This shall be reviewed if a significant deterioration is predicted.

3.3 Methodology

3.3.1 *General*

3.3.1.1 The assessment of potential air quality effects derived from the proposed scheme shall be carried out following the Stage 2 Assessment method included in the DMRB Volume 11, taking into account Interim Advice Notes 54/04 and 61/05. According to this guidance document, the impact of road schemes upon air pollution is assessment in terms of their effects upon local air quality only. The potential regional impacts of the proposed scheme are calculated at DMRB Stage 3 and shall not be considered in this Stage 2 assessment.

3.3.1.2 The methodology seeks to compare current air quality or emissions levels with those anticipated in the future if the scheme is not built and those anticipated if the scheme is built.

3.3.1.3 An integral part of the DMRB assessment is the Screening Method, provided by the Highways Agency in spreadsheet form. The most recent version of this spreadsheet, v1.02, was released in November 2003, and shall be used to predict pollutant concentrations at the roadside. The methodology provides an initial test, designed to establish whether a road scheme ought to be subject to a more detailed air quality assessment at Stage 3, by a comparison of its predictions with the Objectives set out in Table 1.

3.3.1.4 The DMRB Screening Method requires input data on traffic volumes (annual average daily traffic flows or AADT), speed and the proportion of Heavy Goods Vehicles (HGVs) and background pollutant concentrations (from NAQIA). The Method takes into account improvements in vehicle technology over time, which in turn result in lower vehicle emissions.

3.3.2 *Stage 2 Air Quality Assessment Method*

3.3.2.1 Following the methodology set out in DMRB volume 11, the Stage 2 air quality assessment shall involve the following tasks:

Production of a constraints map showing the residential properties and other relevant receptors that might possibly be affected by a change in air quality.

Production of a table listing the number of residential properties by distance band i.e. 0-50m, 50-100m, 100-150m and 150-200m from the centre of all affected routes.

A DMRB Local Impact Assessment - This assessment allows the prediction of localised changes of CO, Benzene, 1-3 Butadiene, Nitrogen dioxide and particulates (PM10) at specific locations. These locations will be selected to be representative of sites of greatest potential impacts. The years to be assessed are the base year and the opening year with and without the scheme (Do-Scheme and Do-Minimum scenarios). In addition, the year 2010 should be evaluated both with and without the proposals if the scheme is to be operational at these times.

A DMRB Generalised Local Impact Assessment (as amended by IAN 54/04) - This assessment provides an estimation of the overall change in people's exposure to concentrations of NO_2 and PM_{10}, which are of particular concern with respect to compliance with the objectives in the Air Quality Strategy. This assessment shall be undertaken for the scheme opening year.

3.3.2.2 DMRB Volume 11 does not provide guidance for assessing air quality impacts during construction. Potential construction effects i.e. nuisance dust, shall be predicted by means of a qualitative assessment based on information regarding expected construction activities and the location of air quality receptors. It should be noted that these is no detailed construction information at this stage of the scheme, which means that only a broad assessment shall be carried out.

3.3.2.3 DMRB IAN 61/05 provided a methodology for assessing the impact of road schemes on sites of sensitive ecosystems and nature conservation. If required, a Stage 2 assessment shall be carried out for the base year and the scheme opening year, with and without the scheme.

3.3.3 *Evaluation*

3.3.3.1 Following DMRB Volume 11, the Stage 2 air quality assessment shall include a statement explaining the air quality implications of the proposed road scheme. This shall explain why certain areas or properties were selected for investigation of localised pollution effects, the estimated concentrations and an assessment of the results.

3.3.3.2 The assessment of the results shall be undertaken by comparing the predicted levels with the current air quality objectives, whilst considering the change (improvement or worsening) between Do-Minimum and Do-Scheme scenarios.

3.3.3.3 The assessment of the Generalised Local Assessment is based on the overall 'assessment value' of the scheme. A positive value represents an increase in pollution exposure due to the scheme and hence an adverse effect, whilst a negative value indicates a general decrease in exposure and therefore a beneficial effect. In addition, the number of properties where the scheme would result in a worsening or an improvement in air quality is also considered.

3.3.3.4 It should be noted that specific significance criteria for the assessment of impacts (in terms of percentage change for example) are not given in the DMRB or TAG and shall not be used. A breach of the air quality objectives due to the scheme, or an increase in the area of an AQMA, would indicate an adverse impact and would require further air quality modelling at the next stage of the scheme development. Predicted concentrations within the objectives would indicate that no adverse effects are expected as result of the scheme.

4.0 HISTORIC ENVIRONMENT

4.1 Introduction

4.1.1 This scope has been prepared by PB's Archaeology and Cultural Heritage sub-consultant, AC Archaeology, following contributions to AST worksheets prepared to support the SWARMMS study.

4.1.2 The proposals contained in the document are based on the requirements of a Stage 3 level of survey as defined in DMRB Volume 11: Environmental Assessment and webTAG. The methodologies to be used will be derived from these documents and described in the report.

4.1.3 The scope of Stage 3 archaeological (and built heritage) assessment, in DMRB Volume 11 is defined; 'The objective at this stage is to undertake sufficient assessment to identify the significant archaeological impacts (or significance of impacts on historic buildings) likely to arise from construction of the preferred route, and to identify the location, type and importance of the archaeological constraints associated with that route.'

4.1.4 English Heritage Officers have expressed a desire to be consulted over the detailed scope of any further archaeological and cultural heritage surveys, and have advised that county archaeological officers should also be kept informed of the proposals.

4.2 Study Area

4.2.1 The study area for data collection will be the actual scheme boundaries.

4.3 Potential impacts and receptors

4.3.1 The provisional assessment of the proposed scheme (following Stage 1 and 2 Assessment) indicates the scheme may have a slight to moderate adverse impact on cultural heritage. The principal impacts may comprise adverse effects on previously undetected archaeological remains (particularly close to the M5 junction and north of Southfields), and on several Listed Buildings close to the new road line. Other buildings of historic interest, both Listed and non-Listed, along the existing A358 at Henlade may have improved settings. Historically important hedgerows will be crossed and partially removed by the scheme.

4.4 Surveys undertaken

4.4.1 The level of survey undertaken to date has reached a full Stage 2 (DMRB) level, comprising a desk-based study.

4.5 Additional surveys required

4.5.1 *Validating and updating existing data*

In general the data obtained in 2003 is considered accurate and current, but will be checked. The County Record Office will be checked for new accessions of historic maps or other relevant documents. A check will be made for any new data accessions into the Somerset County Council Historic Environment Record.

Existing available borehole data will be checked for information relating to the extent of alluvium and potential for prehistoric and Roman activity in floodplains.

4.5.2 Should any site geotechnical investigations be undertaken for engineering purposes these will be monitored and the results assessed.

4.5.3 *Stage 3 surveys*

Non-intrusive surveys of land within the scheme boundaries will be undertaken, to record:

- the current land use, in order that future survey options can be assessed;
- any surface evidence for archaeological deposits (including systematic field-walking ,where land use and state of cultivation allows);
- the nature and condition of any archaeological site or structures of historic interest;
- evidence for sub-surface archaeological remains, by geophysical survey, in those areas considered to be of potential.

Further intrusive surveys may be required (post TPI entry) and comprise;

- the excavation of machine-dug trenches or hand-dug trial pits (the former may be required to investigate broad areas or specific geophysical anomalies, the latter may provide comparative information, to field-walking, about artefact densities in pasture land;

4.5.4 *Important hedgerows*

Those hedgerows falling within the scope of the regulations and which are affected by the scheme will be identified for mitigation.

4.5.5 *Listed buildings*

It is not anticipated that detailed surveys of any historically important or Listed buildings will be required. The advice of English Heritage will be sought to clarify the extent to which further information need be presented to resolve issues of visual intrusion.

4.6 Method of assessment

4.6.1 All surveys will be undertaken in accordance with DMRB Vol. 11, webTAG, as well as in accordance with professional standards and guidance provided by the Institute of Field Archaeologists.

4.6.2 Detailed proposals for intrusive field surveys, including levels of recording, handling of cultural material, professional standards and personnel, will be set out in written project designs and the results assessed in accordance with English Heritage (MAP 2) guidelines where appropriate. The English Heritage Inspector for Somerset and the Somerset County Council archaeological officer will be consulted over the detailed survey proposals.

4.6.3 The results of the assessment will be reviewed with English Heritage and any mitigation options discussed with them and other PB team members to ensure viability.

4.6.4 The ES will summarise the results of the assessment and include the detailed mitigation proposals.

5.0 ECOLOGY AND NATURE CONSERVATION

5.1 Introduction

5.1.1 This scope of works has been compiled by PB's Ecological sub-consultant, Ecological Planning & Research (EPR), following Stage 1 studies and a series of Stage 2 ecological surveys undertaken by EPR in 2003. It is based on the requirements of DMRB Volume 11: Environmental Assessment, and latest Transport Analysis Guidance (TAG) supplied by the Department for Transport (TAG Unit 3.3.10, the Biodiversity Sub-Objective). The methodologies that will be used in the Stage 2 assessment will be derived from these documents and described in the report.

5.2 Study Area

5.2.1 The study area for ecological studies and assessment relating to the A358 improvements will be dependent on the habitat/species which is to be assessed. However, as much of the proposed route relates to the widening of an existing highway, the width of study area will be no more than a 250m corridor either side of the existing road (500m wide in total). In areas where the proposed route moves off-line i.e. to the south of Henlade and at Southfields this corridor will be widened approximately as shown on Map 1.

5.3 Potential impacts and receptors

5.3.1 *Ecology*

Following Stage 2 surveys undertaken in 2003 the following potential effects of the proposed route on the ecological features of importance have been identified:

- Loss of hedgerows - the proposed route will involve the loss of predominantly roadside hedges of recent origin and the loss of the ends of hedgerows which have already been severed by the existing road. However, where the route moves off-line at Henlade, the loss and severance of some of the more valuable species rich and ancient hedgerows in the study area

- Loss of grasslands - whilst the majority of the verge grasslands along the existing carriageway are species poor and of negligible nature conservation value, there are some valuable verges at Hatch Beauchamp on cutting slopes on both sides of the road. These verges have been designated as a County Wildlife Site (CWS) and will be partially lost as a result of the widening of the road at this point. Large swathes of the study area are species-poor, improved permanent pasture or arable, although two areas of unimproved grassland have been identified adjacent to the disused railway line to the east of Rapps. These will be affected by the Rapps option.

- Loss/damage to Woodland - Woodlands are scarce in the study area, although those which are present are ancient and have many associated ancient woodland indicator species. Three woodland blocks lie immediately adjacent to the existing road and may be affected by the scheme, Bickenhall Wood, Saltfield Copse and woodland at Home Farm. Bickenhall Wood and Saltfield Copse are both County Wildlife Sites. Bickenhall Wood and woodland at Home Farm are likely to be directly affected by the widening of the existing carriageway, although habitat loss is likely to be minimal.

- Effects on the River Ragg – The River Ragg provides an important link for wildlife from the upper to lower catchment of the Fivehead River, provides food and shelter for a number of bird species and small mammals and are potential roost sites for bats. It is

a County Wildlife Site and will be affected over a length of approximately 20 metres where the existing bridge is to be widened, to the east.

- Effects on Protected Species - Surveys show the survey area provides habitat for species protected under either national or international legislation, such as bats, badgers, dormice, otters, water voles, reptiles and amphibians. The effects on any such protected species will need to be assessed as part of the ecological assessment of the scheme.

5.4 Surveys undertaken

5.4.1 Stage 1 and Stage 2 surveys were undertaken by EPR in 2003. As part of the Stage 1 desktop exercise the Somerset Environmental Records Centre (SERC) was consulted to establish whether any existing data was held for the study area and to confirm the presence of any designated sites. The species data collected during this Stage 1 desktop exercise was used to inform the scope of further ecological survey work carried out by EPR in 2003. The following Stage 2 surveys were undertaken in 2003:

- Phase 1 habitat survey – 250m either side of the proposed route (including the area covered by the Rapps option). May & June 2003

  VEGETATION SURVEYS – surveys were undertaken in June and July 2003 in areas identified as being of interest including Saltfield Copse and canalside meadows and grassland west of the disused railway line east of Rapps. Other areas of interest were not surveyed in 2003 as sufficient information was available from the desktop study (Everys Copse, Bickenhall Wood and Hatch Beauchamp Road Verges).

  HEDGEROW SURVEYS – all hedgerows directly affected by the proposed scheme (including those affected by the Rapps Option) were surveyed in 2003 using the Hedgerow Evaluation and Grading System (HEGS) (Clements & Tofts, 1992).

  River Corridor Survey – a River Corridor Survey of the River Ragg was undertaken 250m upstream and 250m downstream of the existing A358 crossing in May 2003

- Otter and Water Vole surveys – undertaken on the River Ragg in June and July 2003

- Breeding Bird Survey - A walkover and point location breeding bird survey of the survey area 250m either side of the route was undertaken in May and June 2003

  AMPHIBIAN SURVEYS – 12 ponds suitable for amphibians identified in the Phase 1 survey were surveyed for amphibians following English Nature's recommended survey methodology, between late April and early June 2003.

- Reptile surveys – surveys of suitable habitat along the road verges were undertaken in 2003. The offline section at Henlade and Rapps areas were not surveyed.

- Badger survey - A 500m wide corridor was surveyed in 2003 centred on the proposed route alignment (300m wide corridor for proposed on-line improvements).

- Bats – bats surveys were undertaken in Jordans Park CWS and in the offline area south of Henlade in May and June 2003

5.5 Additional surveys required (for early scheme delivery)

5.5.1 *Introduction*

Whilst sufficient information is available to inform the Stage 2 assessment, in order to progress early scheme delivery further update surveys to Stage 3 level could be undertaken in 2006. These surveys would provide a greater level of detail and coverage than some of the surveys undertaken in 2003, which were inevitably constrained by the limited time available. The majority of the additional surveys required relate to protected species.

5.5.2 *Vegetation Survey*

Detailed vegetation surveys will need to be undertaken for Bickenhall Wood, Every's Copse and the Hatch Beauchamp Road Verges.

5.5.3 *Bird Survey*

Breeding bird surveys will need to be carried out in the breeding season and would be best undertaken using an abbreviated version of the standard Common Bird Census survey methodology. The CBC methodology requires 12 visits, mainly early in the morning and would need to be conducted between March and June. This would be targeted at the most appropriate breeding bird habitat along the route.

5.5.4 *Amphibian Survey*

Great Crested Newts have been confirmed in 4 ponds within the study area. The survey information now requires updating and all suitable ponds will need to be surveyed following English Nature's recommended survey methodology and will therefore need to be undertaken in the breeding season between March/April and May/June.

5.5.5 *Reptile Survey*

Three species of common reptile have been recorded in low numbers within the study area, although survey coverage in 2003 was limited by the time available. Stage 3 reptile survey is required to update the existing information and provide a greater coverage of survey to include suitable habitat both on the existing road verges and in offline areas at the northern and southern ends of the scheme.

5.5.6 *Dormouse Survey*

The potential for woodland and hedgerow to provide suitable habitat for dormouse, which are legally protected under the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations 1994, was assessed during 2003 although no specific dormouse surveys were undertaken, because of time limitations. Dormouse are known to be in the area and there is extensive suitable habitat available particularly associated with the species rich hedgerows and blocks of ancient woodland. Further survey is required for Stage 3 which will involve placing nest tubes in suitable habitat and checking for the presence of dormouse during the breeding season (May – September).

5.5.7 *Badger Survey*

Whilst a comprehensive badger survey was undertaken in 2003, this will require updating and the Rapps area will need to be incorporated. The same methodology will be used as in the 2003 survey.

5.5.8 *Otters & Water Vole Surveys*

Otters and Water vole have both been confirmed as present within the study area, although detailed survey has only been undertaken along the River Ragg. This survey needs updating to also include other areas of suitable habitat within the study area.

5.5.8 *Bat Survey*

Whilst bat surveys were undertaken in 2003 survey coverage was limited by the time and further more extensive bat surveys need to be undertaken to inform the Stage 3 Assessment, particularly in relation to foraging and commuting routes which may be affected by a wider carriageway, and may increase the likelihood of road casualties. Any bridges affected by the proposed route will also need to be surveyed for use by bats.

5.6 Method of assessment

5.6.1 The ecological impact assessment will be undertaken in accordance with the methodology set out in the DMRB Volume 11, and the latest Transport Analysis Guidance (TAG) supplied by the Department for Transport (TAG Unit 3.3.10, the Biodiversity Sub-Objective), taking into account government policy guidance set out in PPS 9, and current legislation relating to statutory sites and protected species. The nature conservation designations within the study area will be mapped as part of the assessment process, and any likely effects on these sites described.

5.6.2 Consultation with the statutory nature conservation bodies, English Nature and the Environment Agency will be undertaken regarding the assessment of ecological effects.

5.6.3 The ecological impact assessment will be undertaken in accordance with DMRB Volume 11 and will cover:

- Plans showing the locations of habitats and species of nature conservation significance, together with any designated nature conservation sites.
- An evaluation of the nature conservation importance of the features of interest potentially affected by the new route
- A description of any proposed mitigation measures that would reduce the scale and significance of any identified ecological effects.
- An assessment of the significance of the impacts of the preferred route on these nature conservation interests taking into account the proposed mitigation measures.

6.0 LANDSCAPE CHARACTER, QUALITY AND VISUAL IMPACT

6.1 Introduction

6.1.1 This scope of works has been compiled by PB's Landscape sub-consultant, Environs Partnership, following site visits and the preparation of a Draft Final Stage 2 Background Report, contribution to an Initial Scheme Appraisal Report and Worksheets for AST's, in October 2004. The Background report was prepared for a strategic comparator study between this route and improvement of the A303 Ilminster-Honiton. It contained baseline information but not impact assessments.

6.1.2 This scope for an updated Stage 2 Report is based on the requirements of DMRB Volume 11: Environmental Assessment and webTAG sub-Units 3.3.7 and 3.3.8. The methodologies that will be used will be derived from these sources and described in the report. 'Guidelines for Landscape and Visual Impact Assessment' (Landscape Institute / IEMA, Second Edition, 2002 will also be consulted.

6.1.3 This is a scope for an assessment report to DMRB Volume 11 Stage 2. The brief for this scoping report also includes a requirement to consider any additional surveys to DMRB Stage 3 that could be carried out to provide background information for those charged with the preparation of an Environmental Statement, should the scheme be progressed.

6.2 The Study Area

6.2.1 The study corridor is approximately 2.5km on each side of the existing A358 (total 5km wide centred on the A358) for topography, landscape character areas, landscape quality and the approximate 'visual envelope', i.e. the containing ridgelines to the south and north-east. A corridor of study 1km on each side of the Preferred Route (2km wide in total) has been used for plotting land use and recreation and planning designations. Due to the nature of the topography this will also be the study corridor for visual impact on properties. Survey of existing woody vegetation that may be affected by the scheme has been focused on a narrower band, 0.3km wide, centred on the proposed route.

6.3 Potential impacts and receptors

6.3.1 *Landscape*

The effects of the preferred route on landscape elements would be principally:

- loss of woody vegetation, i.e., highways planting of varying ages, a number of mature trees (mainly ash and oak) some hedges and possibly woodland edges.
- changes to the natural landform on the on-line dualling section, resulting from increasing the footprint of existing highway cuttings and embankments and
- more significant landform change over an approximately 4km off-line section at the north-western end, for the Henlade bypass and Thornfalcon junction, and over approximately 3km at the south-eastern end of the scheme, for a more direct link to the Ilminster bypass, north of the Southfields roundabout.

6.3.2 Because the scheme is partly on-line, the main effect on landscape character is predicted to be a slight incremental change in urbanisation, particularly due to the construction of overbridges and increasing loss of tranquillity. More notable effects on landscape character and visual impacts are predicted for the offline sections, particularly north of Southfields roundabout.

6.3.3 *Visual*

The visual receptor groups will largely be as for the existing road, i.e. scattered rural properties and public Rights of Way, except around the Henlade bypass (where there is a greater concentration of residential properties) and at the hamlet of Rapps, north of the Southfields roundabout.

The proposed oblique bridge over the M5 may have significant adverse visual effects on primarily business properties and recreation facilities on the edge of Taunton and for users of the M5 and other local roads and Rights of Way. The extent to which the visual effects of the main structure could be mitigated in the longer term is limited.

Elsewhere, visual intrusion in some residential views will generally occur in Year 1, notably within the triangle formed by the hamlets of Ruishton, Henlade and Haydon and at Rapps. By Year 15, when new highway planting has established, the effects on these views would be expected to have significantly diminished, unless the scheme also includes additional elements such as gantries or extensive additional lighting.

6.4 Surveys and desktop studies undertaken

6.4.1 Stage 2 landscape and visual surveys were undertaken by Environs Partnership in 2003/2004 for the Draft Final Background report. Some of this information will be unchanged and will be used directly in the Preferred Route Stage 2 Report, whilst the remainder will be rechecked and revised as necessary.

6.4.2 *Geology, Topography And Drainage*

Baseline geology information was provided by PB's specialists and mapping was taken from the 1:50,000 Geological Survey of Great Britain. Topography and drainage information was taken from Ordnance Survey 1:25,000 mapping for the Draft Final Background Report (2004). It is not necessary to revise this for the Preferred Route Stage 2 report, but more detailed topographical survey information is now available to the design team

6.4.3 *Historic Landscape*

A review of Somerset County Council's Historic Landscape Characterisation work was taken into consideration in the assessments of impact on landscape character and quality (see below).

6.4.4 *Landscape Character*

Existing landscape character assessments; the Countryside Agency's Countryside Character Volume 8 'South West', 'The Landscape of South Somerset' (SSDC) and 'The Taunton Deane Tree Report' (TDBC) were reviewed and plotted in the Draft Final Background Report 2004 and will be presented in the Preferred Route Stage 2 Report. This information was used as background for a more detailed site-based character assessment. The CPRE's mapping of tranquil areas was also taken into consideration.

6.4.5 Site visits were used to review the landscape character areas mapped in these documents and collect information to expand the character descriptions. On the basis of this information the local landscape character of the route corridor was plotted in the Draft Final Background Report 2004 and comment made on the capacity of the local landscape to accommodate a development of this nature. This will not have changed and will be reused for the Preferred Route Stage 2 Report.

6.4.6 *Landscape Quality*

The landscape was graded on a five-point quality scale as required by DMRB Volume 11. The concept of landscape quality evaluation is currently under widespread professional debate and may be reconsidered in the forthcoming revision of this guidance. However, the revised Volume 11 is not expected to be published within the timescale of the Preferred Route Stage 2 Report, so the landscape quality evaluation in accordance with DMRB Volume 11 that was plotted in the Draft Final Background Report 2004 will be included.

6.4.7 Evaluation of landscape quality areas was made on site. Local consultation to assess local value as perceived by residents is not considered feasible within the programme.

6.4.8 *Visual Impact*

The effects of the existing road at night and views from the road that are considered of value to road users were surveyed and described in the Draft Final Background Report (the latter in Part 9 of the ISAR). These have not changed.

6.5 Revised surveys and desktop studies required

6.5.1 *Land Use*

This is dealt with under other sections of this report and was plotted for the Landscape and Visual Draft Final Background Report 2004 in collaboration with the agricultural consultant and using Local Plan information , because air-photos were not available in time. Full air photography coverage is now available and the Land Use mapping will be checked against this and re-plotted as necessary.

6.5.2 *Woody Vegetation Along the Preferred Route*

This was not available from the topographical survey in time for the Draft Final Background Report 2004 but will be taken from the topographical survey for the Preferred Route Stage 2 Report.

6.5.3 *Rights of Way and Recreational Provision*

This information was obtained from Somerset County Council, the Local Plan and SUSTRANS. The information will be rechecked, particularly with regard to the current status of SUSTRANS routes.

6.5.4 *Planning Designations and Policies*

Mapping produced for landscape and related planning designations from the Structure and Local Plans will be rechecked in the light of the current status of the Local Plans that were emerging in 2004. Tree Preservation Order information obtained Taunton Deane Borough Council (TDBC) will be rechecked. TPO information was not obtained from South Somerset District Council (SSDC) for the Draft Final Background Report 2004 because of the high charges that would have been incurred. This information will be obtained from SSDC for those areas directly affected by the Preferred Route only (rather than a broader study corridor). Hedgerows, that may be considered 'Important' in terms of the Hedgerow regulations (1997) will be noted in the Biodiversity and Cultural Heritage reports.

6.5.5 *Visual Impact*

The broad visual envelope of the scheme, including route options, was plotted from Ordnance Survey contours and then checked on site. A revised visual envelope for the Preferred Route will be prepared and plotted in the same manner.

6.5.6 A re-survey of potential visual receptors on roads, Rights of Way, public recreation areas, public buildings and residential properties will be carried out in winter, to survey the 'worst case' situation.

6.5.7 The Draft Final Historic Environment assessment included review of Listed Buildings within 1km of the proposed route and provided descriptive information from the Register where there are potential issues regarding effects on their settings. This information will be rechecked and used for the Visual Impact Assessment.

6.5.8 Indicative, general predicted visual impacts based on Key Viewpoints in Year 1 and Year 15 will be assessed on site.

6.5.9 A schedule of properties potentially subject to visual effects was included in the Draft Final Background Report 2004, as a checklist to assist those carrying out the final Stage 3 visual impact assessment. This excludes more distant properties, e.g. on the flanks of the Blackdown Hills, to the south-west, because the scale of visual impacts are not considered to be significant at such a distance. Effects on individual properties were not indicated in the Draft Final Background Report 2004 because the report generally excluded assessments. Indicative visual assessments of the Preferred Route will be included in the Preferred Route Stage 2 Report.

6.5.9 The following information will be mapped in the Preferred Route Stage 2 Report:

- The study area
- Topography and drainage
- Geology
- Visual envelope
- Land use
- Public Rights of Way and recreation facilities
- Landscape designations
- Landscape character and quality
- Woody vegetation - detailed mapping of narrower corridor (0.3km) along the proposed route, showing vegetation that would be retained or lost
- Visual receptors and indicative visual impact assessments
- Photographic viewpoints.

6.5.10 16 of the 17 Key Viewpoint photographs agreed with the Countryside Agency (that also show the landscape character of the route corridor) will be included. The viewpoint to be omitted is No. 15, at Bow Bridge, which is off the Preferred Route. An additional photograph illustrating a typical view at Rapps will be added. An air photo of the scheme corridor will also be included.

6.6 Method of Assessment

6.6.1 The assessment of the landscape and visual impacts of the Preferred Route will take the landscape mitigation measures into account.

6.6.2 The landscape elements and character impact assessment will be written in the light of contemporary guidance (see Introduction). The assessment will include effects on landscape elements, landscape character and quality and will make reference to substitutability and effects on tranquillity, including night glow. The County Council's historic landscape characterisations were taken into account in the landscape character assessments (see above) but the principal assessments of Historic Landscapes and impacts on them will be presented in the Cultural Heritage report.

6.6.3 The landscape character assessment will be carried out in accordance with DMRB Volume 11 and webTAG. Reference will also be made to the advice in 'Guidelines for Landscape and Visual Impact Assessment' where this offers helpful clarification of concepts and terms.

6.6.4 The interpretation of 'landscape quality' was discussed with the Countryside Agency who advised that we should use our professional judgement. It was agreed that quality should be evaluated from a combination of landscape planning designations, condition or degree of 'intactness' and elements of special interest.

6.6.5 The visual impact assessment will be undertaken in accordance with DMRB Volume 11. Indicative visual impact assessment would cover:

- views from roads, bridleways and footpaths
- views from public recreation areas and public properties
- views from residential and commercial properties
- the settings of listed buildings, conservation areas and Scheduled Monuments.

A description of potential night-time impacts will be included.

6.6.6 A descriptive assessment of indicative views from the road, prepared by the Landscape Consultants, will be included as an appendix to the main report.

6.7 Additional work to assist future Stage 3 assessment

6.7.1 Stage 3 assessment will require review of the information provided in the Stage 2 report but no more detailed level of survey.

7.0 LAND USE AND COMMUNITY EFFECTS

7.1 AGRICULTURE SURVEY

7.1.1 Introduction

7.1.1.1 This scope has been prepared by PB's Agricultural advisors Reading Agricultural Consultants.

7.1.1.2 The proposals set out in this chapter are based on the requirements of a Stage 2 level of survey as defined in DMRB Volume 11: Environmental Assessment. The methodologies to be used would be derived from these documents and described in the report.

4.1.3 The scope of a Stage 2 agricultural land assessment, in DMRB Volume 11 is defined; '*The objective at this stage is to undertake sufficient assessment to identify the value of agricultural land and the effects upon it to be taken into account by the Design Organisation in developing and refining route options, and to identify and assess their impacts on individual terms in broad terms*'

7.1.2 Study Area

7.1.2.2 A desk-based assessment of probable land quality will be undertaken over a corridor approximately 500m wide centred on the route alignment.

7.1.2.1 The survey of agricultural holdings will include all farms that will be affected by the physical works or where inter- and intra-farm access would be significantly compromised by the proposed route or route options.

7.1.3 Potential Impacts and Receptors

7.1.3.1 Given that the road will be about 14.5kms in length and assuming a standard road width of 50m (to allow for possible embankment and cutting slopes) some 55 hectares of agricultural land would be affected by the scheme, with possibly a similar area likely to be required for mitigation works.

7.1.3.2 The background work already undertaken would suggest that about 30-40 land holdings would be affected by the scheme.

7.1.3.3 Examination of the two options - A and C suggests that the agricultural implications are likely to be similar in both cases, with broadly-speaking the same quality of land affected by each proposal.

7.1.4 Methodology

7.1.4.1 The framework for undertaking the Stage 2 assessment is set out in Volume 11 of the Design Manual for Roads and Bridges (Environmental Assessment - Consolidated Edition).

7.1.4.2 National policies for development involving agricultural land are contained in Planning Policy Statement (PPS) Note 7, *'Sustainable Development in Rural Areas'*, issued by the DoE in August 2004. In general terms, this gives a measure of protection to high quality agricultural land (Grades 1, 2 and 3a) against development, though the weight of protection has to be weighed against the potential impact on other environment factors.

7.1.4.3 The DoE's Good Practice Guide - '*Preparation of Environmental Statements for Planning Projects that require Environmental Assessment'* (1995) indicates that any Environmental

Statement for development affecting agricultural land should make reference to the implications for government policy and, where the best and most versatile land is affected (Grades 1, 2 and 3a), should set out reasoned arguments for the choice of the proposed development site, the justification for the proposal, and the reason for the rejection of alternative options. The above is noted as background, and it is considered that such work should be undertaken once a confirmed preferred alignment is published. At this stage the key issues to be identified are the practical implications of the scheme so that impacts can be mitigated, wherever possible.

7.1.4.4 As far as assessing the implications on practical agriculture, the Good Practice Guide suggests that an assessment should examine:

i) the type of farming system;

ii) the commercial and technical viability of the farm holding at its existing and reduced size;

iii) the scope for restructuring the business through land acquisition or diversification;

iv) any effects that development may have in severing land from the main body of the farm, adding to operating costs and reducing the economic viability of the unit; and

v) any effects on existing land drainage.

7.1.5 Establishing Baseline Conditions

7.1.5.1 The data to assess the impact on farm holdings will to be gathered during a farm survey as no site-specific information is published. Normally, it will be necessary visit all farms affected by a development, and interview the farmer in person, as alternative methods (such as postal or telephone questionnaires) meet with limited success and fail to provide a full picture or account of the impact on a farm. A farm survey will normally establish existing land uses, farming enterprises, field accesses, land drainage conditions, and the nature and location of any farm capital. This information will be mapped at a scale of 1:10,000 (subject to that already gathered). Farm surveys already undertaken in 2002/03 will be reviewed during the Stage 3 Environmental Assessment.

7.1.6 Assessment of Effects

7.1.6.1 As far as the assessment of the effects of the proposed development is concerned, the Good Practice Guide to Environmental Assessment recommends that assessment should be made of the likely impact of developments during the construction and operational phases.

7.1.6.2 The potential impact issues to be considered for the construction phase may include:

i) temporary land-take, normally associated with construction sites; the methods to be used to restore land to agriculture following the period of land-take and the likely agricultural utility of that land once restored will be relevant;

ii) temporary severance and fragmentation of field units, temporary alterations to field drainage and to ground and surface water sources, which can all have implications for land use and farm management;

iii) nuisance and pollution issues, such as the generation of dust during construction, which can have land use and farm management implications; and

iv) other impacts such as disruption to farm movements and traffic from construction traffic, the potential spread of weeds and disease from spoil storage areas, physical intrusion and litter.

7.1.6.3 Potential operational impacts may include:

i) permanent land-take, which has implications for the viability of agricultural activities on affected holdings;

ii) permanent severance and fragmentation, which may have similar implications;

iii) the loss of farm capital, which may cause an imbalance between land and capital on a farm holding;

iv) permanent alterations to field drainage and ground and surface water sources, which can influence future land use and farm management; and

v) nuisance and pollution effects on adjacent agricultural land.

7.1.6.4 The proposals for the development will then be assessed in the light of the above considerations with a view to establishing, in particular:

i) the extent of permanent loss of agricultural land;

ii) the extent of temporary loss of agricultural land;

iii) the extent of loss of viability of agricultural land uses or businesses as a result of land loss, severance, fragmentation or loss of capital.

7.1.7 Remedial Works and Mitigation

7.1.7.1 Part of the Brief for a study such as this is to identify potential adverse impacts and formulate effective mitigation solutions. Such matters can often be addressed by locational, design and physical measures, each of which will be considered in the context of current best practice, practicality and wider land use planning objectives. The proposals for the restoration of land affected by construction sites and the use of surplus soil generated by the development may also become relevant at some later stage. Proposals for restructuring farm holdings affected by land loss or severance by, for example, land exchanges between affected holdings, may also be relevant.

7.2 LAND USED BY THE COMMUNITY

7.2.1 General

7.2.1.1 The purpose of the assessment of land used by the community is to identify any scheme effects on common land, garden allotments or public open space. Where land will be taken for the proposed scheme it will be necessary to identify exchange land.

7.2.1.2 Assessment of the impacts of the scheme on land used by the community has not thus far been made.

7.2.2 Study Area

7.2.2.1 The study area to be adopted is as shown in the general study area plan at Map 1. This is appropriate for Options A and C since, the area of land affected is similar for the two options.

7.2.3 Potential Impacts and Receptors

7.2.3.1 With respect to Option C there is land to the west of the M5 that may have community use. Other than this no potential impacts have been identified as yet.

7.2.4 Method of Assessment

7.2.4.1 In order to carry out an assessment to DMRB Volume 11 Part 6 the following tasks would be undertaken. It is intended that these provide a minimum of a Stage 2 assessment with a Stage 3 data collection being provided where applicable.

(i) Information would be obtained from South Somerset District Council and Taunton Dean Borough Council planning authorities regarding the location and status of any areas of land used by the community within the study area.

(ii) The location information would be plotted on mapping.

(iii) The likely land-take for the scheme would be established and information obtained about any land usage. Decisions on what land use information would be obtained, and how, would be made once the land has been identified.

(iv) Where appropriate exchange land would be identified and investigated for suitability.

7.3 DEVELOPMENT LAND

7.3.1 General

7.3.1.1 The purpose of the assessment is to identify the impact of the scheme on any land with planning designations, that is, the impact on future land use changes due to new development. This applies to the route itself and adjacent land, for example, housing developments near to the proposed route.

7.3.1.2 Development status and policy for the area of the scheme was reviewed for the preparation of the Appraisal Summary Tables shown at Appendix C. In view of this and the fact that options being proposed are limited a Stage 2 assessment can be undertaken with respect to Development Land.

7.3.2 Study Area

7.3.2.1 The study area to be adopted is as shown in the general study area plan at Map 1. This is appropriate for Options A and C since the area of land affected is similar for the two options.

7.3.3 Potential Impacts and Receptors

7.3.3.1 There are three known areas of potential impact which have been identified through review of local plans and consultation with Somerset County Council for the preparation of the Appraisal Summary Tables included at Appendix C.:

- There is a total of 5ha of land adjacent to Southfields Roundabout allocated for employment purposes. This may not be significantly affected by this scheme.

- The scheme may have implications for a proposed Taunton Park and Ride site to the northwest of Henlade. For Option C the alignment of the access from the new A358 to the existing A358 to the north west of Henlade potentially uses land identified for the

Park and Ride site. Access arrangements to and from the Park and Ride site would need to be considered for both options.

- The employment site adjacent to M5 Junction 25 to the west of the M5 is proposed for extension over an area of 7.1ha. Option C uses this land for the M5 northbound to A358 eastbound link. The site is currently being developed.

7.3.4 Method of Assessment

7.3.4.1 In order to carry out an assessment to DMRB Volume 11 Part 6 the following tasks will be undertaken. It is intended that these provide a Stage 2 assessment. The information will then be updated as appropriate until the appointment of an ECI contractor.

(i) The information collected for the Appraisal Summary Tables will be reviewed and updated if necessary.

(ii) A plot shall be made of the land use designations for the study area.

(iii) The potential land take for the proposed scheme from areas which have local authority designation for future development will be identified. Assessment will be made of how the route will affect the local authority planning designations.

(iv) Potential impacts on land with local authority designation for future development near to the route but not involved with land take would be identified. Assess how the route would affect this land.

(v) The views of South Somerset District Council, Taunton Dean Borough Council and Somerset County Council planning teams shall be sought on a confidential basis.

(vi) As the scheme progresses the assessment will be updated to take account of any changes to the proposed scheme or local authority planning policies.

7.4 PEDESTRIANS, CYCLISTS, EQUESTRIANS AND OTHER COMMUNITY EFFECTS

7.4.1 Introduction

7.4.1.1 The objective of the assessment is to identify the impact of the scheme on pedestrians, cyclists, equestrians and neighbouring communities. It is intended to identify likely community severance issues caused by changes in journey lengths or patterns.

7.4.1.2 An assessment of severance was made for the draft Initial Scheme Assessment Report and in the draft Appraisal Summary Tables, both dated October 2004. No other assessment has been carried out since with respect to pedestrians, cyclists, equestrians or other community effects. Additionally, no formal surveys have been carried out.

7.4.2 Study Area

7.4.2.1 The study area to be adopted is as shown in the general study area plan at **Figure 2.2 in Appendix A**. This includes the land affected by both the A358 Preferred Option and the alternative A358/A303 Online Option.

7.4.3 Potential Impacts and Receptors

7.4.3.1 It is possible that there would be a beneficial effect on the community at Henlade due to the provision of a bypass at this location. With the existing A358 running through the village there

are issues of severance and accessibility for non-motorised road users. The rest of the route is generally rural.

7.4.3.2 From a provisional assessment there are several bus routes identified which utilise or cross the existing A358 at present. The impact of the scheme on the major junctions and journey times of each route will be assessed. The opportunity to assist access to the proposed Taunton Park and Ride site at Cambria Farm will also be investigated, should this scheme be taken forward.

7.4.4 Surveys

7.4.4.1 No formal surveys have been undertaken at present. A series of site visits over a number of years have provided observations on the numbers and journey patterns of pedestrians, cyclists and equestrians along the existing A358.

7.4.4.2 Where changed journey times are experienced due to the scheme, it may be necessary to undertake pedestrian counts to provide details of the numbers affected.

7.4.6 Method of Assessment

7.4.6.1 In order to carry out an assessment to DMRB Volume 11 Section 3 Part 8 the following tasks will be undertaken. It is intended that these provide a minimum of a Stage 2 assessment. It is recognised that the time available for the assessment may not allow for surveys to be carried out.

i. Existing routes used by pedestrians, cyclists and equestrians that would be affected by the scheme will be established, rights of way and important community facilities identified.

ii. An assessment will be made of the likely effect of the scheme on journey times. Also, assessment will be made of increase or decrease in amenity value, any increase in deterrent for using the routes and any change in the exposure to risk.

iii. Requirements for any count surveys will be identified and recommendations for implementation made.

iv. Assessment will be made of the likely changes in community severance and mitigation measures identified.

v. Where cyclists will be significantly affected, consultation will be undertaken with local authority officers responsible for cycling provision.

vi. This information will be plotted on plans to indicate locations. This will show the location of community facilities and their estimated catchment areas, the main routes used by pedestrians, cyclists and equestrians, the existing road network and the proposed scheme and any identified mitigation measures.

vii. The assessment will report the number of people experiencing changes in journey times, the extent of the changes, the impact on safety, amenity and community severance.

viii. Consideration will be given to the need for further data collection such as the number of people using community facilities

8.0 TRAFFIC NOISE AND VIBRATION

8.1 Stage 2 Assessment

8.1.1 This assessment is to the requirements of the Design Manual for Roads and Bridges (DMRB) Stage 2 and incorporates the requirements of the Department for Transport's "Transport Analysis Guidance" (TAG).

8.2 DMRB Requirements

8.2.1 The purpose of DMRB Stage 2 Noise and Vibration Assessment is to identify the noise and vibration effects to be taken into account while developing and refining scheme options. A corridor of 300m to either side of the centre-line divided into three 100m wide bands, is used for this purpose.

8.2.2 The steps to take at this stage are:

- Estimate the number of properties within 300m
- Calculate noise levels at noise-sensitive locations for example, schools, hospitals, heritage buildings etc. and also for typical locations in the proximity of the corridor. This aims to determine the likely changes in noise levels.
- Include noise mitigation where possible and assessment shows mitigation to be necessary.
- For unscreened buildings within 40m of an existing or proposed scheme, vibration levels will be estimated to establish whether these levels are likely to exceed the threshold of perception.

8.3 Calculation of Noise Levels

8.3.1 Noise levels will be calculated in accordance with the Department for Transport's document "Calculation of Road Traffic Noise" (CRTN) as referred to by DMRB. This document sets out a method for predicting noise levels at a distance from a highway, taking into account factors such as traffic flow, speed and composition, road configuration, ground cover, screening and reflection.

8.3.2 The calculations of road traffic noise (RTN) levels, for receivers standing at ground floor level, will be carried out using the Roadnoise 2000 computer program developed by Atkins Environmental. This program incorporates a graphical representation of the methodology set out in CRTN. The use of Roadnoise 2000 involves the creation of "Noise Models" representative of the traffic, highway layout and geometry, ground topography, buildings and barriers.

8.4 Scheme Options

8.4.1 This assessment considers the following options for the A303 Ilminster Bypass Dualling:

- Do-Minimum
- Proposed Scheme
- Proposed Scheme with Mitigation

8.5 Traffic Flows and Speeds

8.5.1 For this assessment annual average daily 18-hour traffic flows for the Base Year of 2002, Opening Year 2011 and the Design Year of 2026 will be obtained from the revised high growth predictions from A303/A358 Taunton, Ilminster and Exeter Study (TIES), January 2005 by applying a factor of 0.97. This factor was based on the observed base year traffic flows.

8.5.2 Traffic speed will be obtained from the guidance given in CRTN

8.6 Noise Modelling

8.6.1 Noise levels will be calculated for the following years:

- Base Year 2004
- Opening Year 2011
- Design Year 2026

8.6.1.1 Base Year

8.6.1.2. The Base Year noise modelling will be built with normal asphalt surfacing throughout for the noise level calculations.

8.6.1.3 Do-Minimum & Do-Something (Proposed Scheme) Options

8.6.1.4 For the Do-minimum and Do-something situations, it is been assumed that, in accordance with current Highways Agency policy, low noise surfacing will replace the existing surfacing as part of any proposed routine maintenance. It is assumed that the entire scheme length will have low noise surfacing by the Opening Year 2011.

8.7 TAG Requirements

8.7.1 The TAG requires an estimate of the population annoyed in defined noise bands, based on 3 dB(A) and 5dB(A) interval contours. These contours will be calculated using the Roadnoise 2000 for the Do-minimum and Do-something options at the Opening Year (2011) and the Design Year (2026).

8.7.2 In accordance with TAG Unit 3.3.2, the population exposed will be estimated by determining properties affected and multiplying by the national average household size of 2.4 persons per household.

9.0 WATER QUALITY, DRAINAGE AND HYDROLOGY

9.1 Introduction

9.1.1. Highway schemes have the potential to affect the water environment. The effects may be divided between those to surface water and groundwater. These need to be considered in terms of effects to water quantity as well as those to water quality, during both the construction and operational phases of the scheme.

9.2 Study Area

9.2.1 The study areas for both surface water and ground water will extend up to 1km on each side of the proposed route or route options (i.e. 2km wide centred on the route).

9.3 Surface Water

9.3.1 *Potential Impacts and Receptors*

9.3.1.1 The proposed Ilminster to Taunton road widening and development scheme crosses two main river catchments, the River Isle and the River Tone. Flooding is a very sensitive issue in the area, particularly in the vicinity of Taunton.

9.3.1.2 The scheme crosses the River Isle floodplain near Southfields Roundabout south west of Ilminster and the Fivehead River floodplain to the west of Hatch Green. It is also proposed that a section of new road is constructed across the floodplain of the River Tone to the east of Taunton. The scheme may cause a reduction in floodplain capacity at these locations, increasing the risk of flooding outside of the natural floodplain.

9.3.1.3 The increased area of hardstanding caused by the scheme will increase the proportion and rate of rainfall-runoff, compared against the undeveloped (greenfield) situation. The highway drainage therefore has the potential to increase the risk of flooding in receiving watercourses.

9.3.1.4 Where new carriageway crosses watercourses, there is the potential to increase the risk of flooding up-gradient of the scheme and redirect surface flows down-gradient, if culverts are not properly sized.

9.3.1.5 There is potential for reduced water quality in watercourses receiving road runoff, containing soluble and insoluble pollutants and increased risks to watercourses from pollutants spilt following traffic accidents.

9.3.1.6 There is potential for contamination of the adjacent surface watercourses during the construction phase of the improvements.

9.3.2 *Method of Assessment*

9.3.2.1 The proposed road scheme will require a full Flood Risk Assessment (FRA), including the analysis of those additional risks posed by the scheme. The specific details of any appropriate FRA should be clarified through consultation with the Environment Agency (EA) in advance. The FRA will need to address the following aspects:

1 Detailed analysis of the existing risk.

2 Detailed analysis of existing proposed works, including mitigation/enhancement proposals; and

3 Bridge crossing to be designed with zero afflux for 100 year (including climate change and calculated using the Flood Estimation Handbook). It will also be necessary to check against the 500-year flow to ensure there is no adverse impact on the existing built development.

9.3.2.2 An assessment needs to be made of the direct and indirect effects of the scheme on the physical and biological habitats of the main water environment in accordance with DRMB volume 11. (See Section 5.0)

9.3.2.3 An assessment will be made of the effects of the proposals on all water sources (including piped supplies) and water-dependent features, including water-dependent sites of nature conservation interest. The latter should include both direct and indirect effects. A comprehensive water interests survey will be required in the vicinity of the scheme.

9.3.2.4 A preliminary Water Quality Assessment (WQA) for highway discharges to the surface water system needs to be undertaken to calculate the potential for localised pollution effects and the need for pollution control facilities. Where the results of the preliminary assessment indicate a significant effect upon water quality, a detailed water quality assessment will need to be undertaken at particular problem locations.

9.3.2.5 The requirements for a detailed WQA, if required, should be agreed with the EA in advance. mathematical modelling. The elements requiring more accurate assessment include, but are not limited to:

1. the likely discharge quality, quantity and frequency;

2. the dispersion of the pollutants in the receiving water; and

3 the sensitivity of the receiving water to the pollutants.

9.3.2.6 The risk of a serious spillage in the absence of mitigation should be assessed for the entire scheme length and the likely risk of an accidental spillage causing a serious pollution incident be estimated.

9.3.2.7 Reference will be made to PPG 22 which provides guidance on the control of pollution that results from road traffic accidents, spillages and the illegal disposal of polluting substances on the highway.

9.3.3 *Existing Data*

9.3.3.1 Archived information from historic improvement schemes may be available and of use to the current scheme proposals.

9.3.3.2 Details of the extent of the River Isle, the River Tone and the Fiveheads River floodplains are shown on the S.105 floodplain map held by the EA.

9.3.3.3 Details of historic flooding events and river flow monitoring available on the River Isle, the River Tone and the Fiveheads River in the vicinity of the scheme are available from the EA.

9.3.3.4 The main permanent water features are shown on published topographic maps. Details of the licensed surface water abstractions are on the Public Register and held by the EA.

9.3.3.5 Local climatic data, including rainfall information, is available from the Meteorological Office. Useful information may also be available from the Environment Agency. Other sources

include publications by the Institute of Hydrology, such as their Hydrometric Register & Statistics.

9.3.3.6 Details of the surface water quality monitoring undertaken in the vicinity of the scheme and the current water quality classifications of the Main Rivers (GQA scheme) are available from the EA. The EA also have details of the River Water Quality Objectives (RQOs) for these watercourses.

9.3.3.7 Details of the consented discharges in the vicinity of the scheme are on the Public Register, held by the EA.

9.3.3.8 Details of designated fisheries can be obtained from the EA and local angling associations.

9.3.4 *Additional Data Requirements*

9.3.4.1 The EA have stated that sediment and water samples will need to be taken from upstream and downstream of the existing highway retention lagoons, as well as from the lagoons themselves. Sampling from highway gulleys has also been suggested. The extent of such sampling needs to be clarified with the EA and will include spot samples taken from the proposed watercourse crossings.

9.3.4.2 Details of the proposed scheme drainage are required to complete the Phase 3 assessment, particularly any upgrades, such as containment or pollution control measures.

9.3.4.3 Should insufficient information be currently available, biological resource mapping may be required to assess the impacts of the scheme on the physical and biological habitats of the River Isle. (See Section 5.0).

9.3.4.4 Confirmation of the water-dependent features shown on published sources should be verified by a field walkover.

9.4 Groundwater

9.4.1 *Potential Impacts and Receptors*

9.4.1.1 The route does not pass over any major aquifers but does cross the Mercia Mudstone between West Hatch and the M5, which is classified as a Minor Aquifer and has the potential to maintain small water supplies. The Mercia Mudstone also contributes baseflow to the River Tone and other watercourses in the area.

9.4.1.2 Carriageway widening will increase the proportion of rainfall intercepted by the road pavement, resulting in a consequential reduction of groundwater catchment. Redistribution of the natural recharge may result in slightly lower groundwater levels and reduced groundwater flow adjacent to the scheme.

9.4.1.3 The potential for groundwater contamination to occur during the construction phase and the potential for groundwater contamination during the operational phase of the highway, from general use and accidental spillages.

9.4.1.4 Drains in cuttings have the potential to intercept groundwater, causing a localised reduction in the elevation of the water table. This leads to a reduction of water levels - and hence yield - in wells and boreholes, as well as at springs.

9.4.1.5 Discharges to soakaway are generally acceptable outside of any identified SPZ, however the possible installation of soakaways may require investigation before being permitted.

9.4.2 Method of Assessment

9.4.2.1 The number and location of potentially affected groundwater sources will be assessed in light of the proposed scheme. The potential for the scheme to cause a reduction in either the yield and/or the quality of any source still found to be potentially impacted by the proposed scheme needs to be assessed.

9.4.2.2 Should highway drainage outfalls to soakaway be envisaged, the likely risk of an accidental spillage causing serious pollution of groundwater should be estimated using the methodology outlined in DMRB 11 and mitigation measures proposed. The assessment should consider the range of potential contaminants, including road salts and fuel oils.

9.4.2.3 An assessment will also be made of the potential for groundwater contamination to occur during the construction phase and of the mitigation required.

9.4.3 Available/Existing Data

9.4.3.1 Archived information from previous proposals to upgrade the may be available and of relevance to the current scheme.

9.4.3.2 Details of the existing highway drainage system, including culverts, drains attenuation lagoons and outfall arrangements may also be available.

9.4.3.3 The 'solid' and 'drift' geology of the area is shown on published maps produced by the British Geological Survey (BGS) and described in the associated memoirs (e.g. 1:50,000 Sheet 311 'Wellington' and Sheet 295).

9.4.3.4 Details of the cover soils in the area are shown on the maps published by the Soil Survey of England and Wales, together with their associated memoir.

9.4.3.5 The susceptibility of the strata in the vicinity of the scheme to groundwater pollution is shown on the Groundwater Vulnerability map for the area produced by the EA (Sheet 50). Reference should also be made to the EA's "Policy and Practice for the Protection of Groundwater".

9.4.3.6 Details of licensed groundwater abstractions in the vicinity of the scheme are available on the Public Register, held by the EA. Information on private domestic water supplies may be available from the local authority.

9.4.3.7 Outline details of the proposed highway drainage scheme as well as the predicted two way AADT flows (high growth to the design year).

9.4.3.8 The details of the mains water supply and foul water distribution networks in the vicinity of the scheme are available from Wessex Water plc.

9.4.3.9 Details of designated sites of nature conservation importance are available from English Nature and the local wildlife trust.

9.4.4 Additional Data Requirements

9.4.4.1 All groundwater-related features, such as wells, springs and boreholes, as well as groundwater-dependent sites of nature conservation interest, should be identified and their sensitivity to water pollution and changes in the hydrogeological regime assessed. It is possible that this may not be possible from the sources identified above, in which case

interviews with owners/occupiers of households may be necessary. Such visits should obtain groundwater elevations and/or flows, where possible.

9.4.4.2 Source Protection Zones for any unlicensed private abstractions in the vicinity of the scheme will require delineation.

9.4.4.3 Highway drainage solutions to soakaway may require ground investigation, which should be clarified from the EA.

10.0 VEHICLE TRAVELLERS

10.1 Introduction

10.1.1 The objective of the Stage 2 Environmental Assessment on vehicle travellers is to help in the development and refinement of route options by identifying the factors and effects concerning vehicle travellers.

10.2 Study Area

10.2.1 The study area to be adopted will include the existing A358, the M5 and the junctions encompassed within the study area boundary shown in **Figure 2.2 in Appendix A**, in addition to the offline sections at each end of the improvement. This will include the areas affected by both the A358 Preferred Option and the alternative A358/A303 Online Option.

10.3 Potential Impacts and Receptors

10.3.1 The draft Initial Scheme Assessment Report (ISAR) of October 2004, which was prepared on behalf of the Highways Agency, included a brief assessment of Journey Ambience for both the baseline and proposed situations. The proposed route considered in that report is broadly equivalent to the proposed A358/A303 Online Option. The ISAR concluded an overall impact score (based on the TAG appraisal criteria) of Neutral at that stage of the assessment. For the purposes of this scoping report, the receptors are considered to be the vehicle travellers.

10.3.2 The ISAR assessment of vehicle travellers “view from the road” suggested that views from the proposed route would be almost identical to the existing A358 for the majority of its length, except for the views between the M5 and Henlade and the impacts of the proposed overbridges on rural views along the route. The offline free flow links to the M5 are on structure and embankment and so will provide a different view from the road than the current link to the M5 junction 25. The offline “Rapps” section of the route may also impact on the views for vehicle travellers, when compared with the current alignment from Ashill to Southfields Roundabout. The overall impact score assessed in the ISAR for “view from the road” was Neutral.

10.3.3 The ISAR assessed “driver stress” as Better than the current alignment. The proposed improvements which contributed to this assessment were the increase in highway standard to dual carriageway, the reduction in junctions along the route and the free-flow approach.

10.3.4 Traveller care is assessed under the sub-factors of cleanliness, facilities, information and environment. The ISAR did not consider “traveller care” in detail for the proposed route, however it does identify information signing of local services and the provision of lay-bys on the existing route. The provision and location of lay-bys and driver facilities may impact on the experience of vehicle travellers and the assessment of such impacts will be included the Stage 2 Environmental Assessment.

10.4 Surveys

10.4.1 No surveys have been carried out, other than drive-throughs of the existing A358 route.

10.4.2 It is not proposed to undertake any surveys for the Stage 2 Assessment, although further drive-throughs will be carried out. The latest accident data will also be obtained from Somerset County Council to inform the review of driver stress.

10.5 Method of Assessment

10.5.1 A Stage 2 Environmental Assessment will be carried out in accordance with DMRB Volume 11 Section 3 Part 9: Vehicle Travellers, and in line with the Transport Assessment Guidance (TAG) Journey Ambience sub-objective. This will consist of an assessment of the "view from the road", "driver stress" and "traveller care" experienced by travellers along this section of the A258 in both the baseline and proposed road situations. Both the A358 Preferred Option and the alternative A358/A303 Online Option will be considered.

10.5.2 The assessments will be based on the review on vehicle travellers that was carried out for the draft ISAR of October 2004, and shall consider the results of the Stage 2 landscape character, quality and visual impact assessment. A review of accident data will also be necessary to assess driver stress. The conclusions of the assessment will include an overall impact score based on the TAG appraisal criteria for the Journey Ambience sub-objective to determine whether there is a change in the experience of vehicle travellers when compared with the baseline situation.

10.6 References

10.6.1 The following documents will be considered as part of this assessment on vehicle travellers:

- DMRB Volume 11 Section 3 Part 9: Vehicle Travellers
- Guidance on the Methodology for Multi-Modal Studies (GOMMMS)
- Transport Assessment Guidance (TAG) Journey Ambience sub-objective
- Draft Initial Scheme Assessment Report (ISAR) of October 2004

11.0 GEOLOGY AND SOILS

11.1 Introduction

11.1.1 The Preliminary Sources Study (PSS) Report of May 2004 and the draft Initial Scheme Assessment Report (ISAR) of October 2004, both prepared by Parsons Brinckerhoff for this scheme, provide an analysis of the existing setting and site conditions based on data available at the time, plus a preliminary engineering assessment.

11.1.2 The BGS 1:50,000 Sheets 295(Taunton) and 311(Wellington) show the study area to be underlain by Mercia Mudstones to the northwest and Lower Lias to the southeast. The boundary between these strata is located along a fault running approximately northwest to southeast and crossing the A358 near West Hatch. Superficial geology comprises recent and Pleistocene deposits of alluvium and valley gravel/rainwash. These strata, subject to detailed site investigation, are considered suitable substrate for road construction. Further geotechnical investigation will be carried out prior to construction with regard to the stability of the proposed deep excavation through the hillside at Thornfalcon as well as other cuttings and embankments throughout the scheme. Currently the scheme does not achieve a cut/fill balance, there is likely to be a deficit of material that will have to be made up with imported fills. The only material that will be required to be disposed of to tips is any unsuitable material encountered.

11.1.3 Details of agricultural soil types have not been obtained to date, however it is likely that any such soils excavated will be required for landscape purposes. It is believed that there is no intention to translocate soils and therefore this issue will not be taken forwards to the EIA.

11.1.4 Research to date indicates that there are no geological SSSI, Regionally Important Geological or Geomorphological Sites (RIGGS) or other geological designated sites along or adjacent to the scheme.

11.2 Study Area

11.2.1 The study area is a 1km wide corridor encompassing the two route options as shown in Figure 2.2 in Appendix A.

11.3 Potential Impacts and Receptors

11.3.1 Overall, it is likely that the proposed scheme will not have a significant negative impact on the geology and soils of the area, and therefore, apart from further geotechnical investigation mentioned above, sourcing engineering fill and the disposal of unsuitable material, this issue will not be taken forwards to the full EIA.

11.4 Surveys

11.4.1 The baseline data compiled in the PSS Report mentioned above provides the required level of detail for the Stage 1 Environmental Assessment. This included a walkover and consultation with landowners with a desk study to review existing data, including previous site investigation reports, historical and other maps. It also included a preliminary ground investigation at Stoke Road, Henlade and Mattock's Tree Hill (near Thornfalcon) where boreholes were excavated to further investigate the Mercia Mudstone and groundwater levels in these two sites.

11.4.2 No surveys or geotechnical investigation are planned for the Stage 2 Environmental Assessment.

11.5 Method of Assessment

11.5.1 The following tasks will be undertaken for the Stage 2 Environmental Assessment:

(i) Check with the relevant statutory body and the local planning authorities that no new sites have been designated in the study corridor or further areas of contaminated land identified, and whether any new survey work has been carried out, since Stage 1, which might have a bearing on the route options.

(ii) The appropriate statutory body will be contacted to confirm that no further work is required as the studies to date indicate that the proposed routes will not have any significant impacts on geological or geomorphological conservation.

(iii) As it is not anticipated that areas of contaminated land may be affected, there is no need for further site investigation work to be carried out at this stage, however the need for such surveys will be considered.

11.6 References

11.6.1 The following documents will be considered as part of this assessment on geology and soils:

- British Geological Survey maps - 1:50,000 Sheets 295(Taunton) and 311(Wellington) and their associated memoirs
- Parsons Brinckerhoff Draft Initial Scheme Assessment Report (ISAR) of October 2004, plus references contained within sections 4.3 and 5.7 of this report
- Parsons Brinckerhoff Preliminary Sources Study Report No. HHI/80652/PSS/01 of May 2004

12.0 SUMMARY

12.1 This scoping report is intended to ensure that the environmental studies undertaken at DMRB Stage 2 provide as much relevant information as possible on:

- The content and extent of the assessments being undertaken.
- The impacts and effects of the project.
- Measures identified to reduce or offset any significant adverse impact of the scheme on the environment.
- Information for further development of environmental assessment for forwarding to the ECI Contractor.

12.2 Additionally, the Scoping Report identifies DMRB Stage 3 Assessment work that could potentially be undertaken prior to the appointment of the ECI contractor, where early implementation could assist the 'Speeding up Delivery' initiative.

12.3 Agreement on the scope of all remaining Stage 3 Assessment work including the continuation of field survey work commenced prior to ECI Contractor appointment would be the responsibility of the appointed ECI Contractor.

APPENDIX A

SCHEME PLANS

The following scheme plans are included:

A358 Ilminster to M5 Taunton

Drawing No.	Title
HHT91251B/Figure 1.0	Location Plan
HHT91251B/Figure 2.1	Route Options
HHT91251B/Figure 2.2	Study Area

APPENDIX B

APPRAISAL SUMMARY TABLE