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Torbay Council

Local Transport Plan 3
Strategy and Implementation Plan

Habitats Regulations Assessment:

Stage 2 Appropriate Assessment

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TORBAY COUNCIL

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1 Introduction

1.1 The Third Local Transport Plan

Torbay Council's Third Local Transport Plan (LTP3) sets out how the Councils and their partners will respond to the transport challenges over the next 15 years.

Torbay Council is required to produce an LTP under The Transport Act 2000, and this is the third LTP since the legislation was enacted. The purpose of LTPs is to guide the development of transport improvements within each authority area. In July 2009, the Department for Transport (DfT) released guidance on the development of the LTP3. Devon and Torbay decided to combine efforts and produce a single, Joint LTP3 strategy, but separate Implementation Plans. In accordance with best practice principles, Devon and Torbay's LTP3 includes a strategy, policies and a programme of improvements.

Devon and Torbay produced separate LTPs in 2000 and 2006, LTP1 covering the period from 2001 to 2006 and LTP2 from 2006 to 2011. The Second LTPs will be active until March 2011. The Devon and Torbay LTP2s had much common ground in terms of their objectives, including seeking improvements in traffic congestion, accessibility, road safety, air quality, recreation, leisure and tourism, health and well-being and public spaces, all in the context of promoting the economy and minimising environmental impacts.

The LTP2s have made significant progress across most of their objectives. More detail on the current situation can be found in the Evidence Base within the LTP3 Technical Document.

The Devon and Torbay LTP3 will provide an overarching framework that ensures Devon County Council, Torbay Council and key partners effectively deliver the functions of the Local Transport Authority for the people of Devon and Torbay. The LTP3 will consist of a suite of documents contained within three volumes:

- **Volume One: the LTP3 Strategy** – a 15 year transport strategy for Devon and Torbay from 2011 to 2026
- **Volume Two: the LTP3 Implementation Plan** – a transport delivery programme from 2011 to 2026 in three five year periods
- **Volume Three: the LTP3 Technical Document** – contains supporting information for Volumes one and two including a policy summary, the report of the consultation, the evidence base, strategic assessments (including the SEA, HRA, HIA and EQIA).

The Implementation Plan is divided into two parts – one covering Devon and the other Torbay. A number of projects such as Devon Metro and the South Devon Link Road are being delivered jointly.

The progress of the Implementation Plan will be reviewed annually and will be fully updated every five years to take account of this.

1.2 Habitats Regulations Assessment (HRA) Legal Framework

The European Union Directive (92/43/EEC) on the Conservation of Natural Habitats and Wild Flora and Fauna – the 'Habitats Directive' is delivered in the UK through the Conservation of Habitats and Species Regulations 2010, hereafter referred to as the Habitats Regulations.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirements for Appropriate Assessment as follows:

> "Any plan or project not directly connected with or necessary to the management of a Natura 2000 site but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site(s)."
>
> Article 6(3)

Article 6(4) goes on to discuss alternative solutions, the test of "imperative reasons of overriding public interest" (IROPI) and compensatory measures:

> "If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted."
>
> Article 6(4)

1.3 Consultation

The Habitats Regulations require the plan making authority to consult the appropriate nature conservation body; Natural England (NE). The NE Devon Office has been involved in the development of the LTP3 and it has also provided comments on the HRA Screening Report and the HRA Screening Report Annex.

Appendix A sets out the consultation response from Natural England.

1.4 The Purpose and Structure of this Report

This report sets out the results of the Stage 2 Appropriate Assessment. It follows on from the Stage 1 Screening Report which concluded that a Stage 2 Appropriate Assessment was required.

This HRA Report sets out the findings of the Appropriate Assessment to determine whether the Torbay Council LTP3 Strategy and Implementation Plan either alone or in combination with other plans or projects, is likely to have a significant adverse effect on the range of Natura 2000 sites located within the immediate surrounds of the Unitary Authority area.

To understand the context of this HRA, it is important to read the Stage 1 screening report in conjunction with this Appropriate Assessment document. The greater level of detail in the LTP3 Implementation Plan has allowed a number of

Natura 2000 sites considered in the Screening Report to be now screened out within Stage 2.

Following this introductory section, this document is sub-divided into six further sections:

- Section 2 – describes the method used for the AA;
- Section 3 – summarises the Screening Report;
- Section 4 – sets out the Appropriate Assessment;
- Section 5 – identifies avoidance and mitigation measures;
- Section 6 – provides key conclusions and recommendations; and
- Section 7 – provides a list of reference documents used in this report.

2 Method

2.1 Habitats Regulations Assessment Key Stages

The Appropriate Assessment is a core part of the HRA process, required by Part 6 (Reg. 103 and 61) of the Conservation of Habitats and Species Regulations 2010. In line with these Regulations and using current guidance documents (see below for full list) on Habitats Regulations Assessment, the process is made up of three key stages. Table 2.1 summarises the stages involved in carrying out a full HRA. This report relates to Stage 2 Appropriate Assessment.

Table 2.1 Summary of Appropriate Assessment stages

Stage	Task	Outcome
Stage 1: Screening	• Description of the plan • Identification of potential effects on *Natura 2000* sites • Assessing the effects on *Natura 2000* sites	Where effects are unlikely, prepare a 'finding of no significant effect report'. Where effects judged likely, or lack of information to prove otherwise, proceed to Stage 2.
Stage 2: Appropriate Assessment	• Gather information (plans and *Natura 2000* sites) • Impact prediction • Evaluation of impacts in view of conservation objectives • Where impacts considered to affect qualifying features, identify alternative options. • If no alternatives exist, define and evaluate mitigation measures where necessary.	Appropriate Assessment report describing the plan, *Natura 2000* site baseline conditions, the adverse effect of the plan on the *Natura 2000* site, how these effects will be avoided through, firstly, avoidance, and secondly mitigation including the mechanisms and timescales for these mitigation measures. If effects remain after all alternatives and mitigation measures have been considered proceed to Stage 3.
Stage 3: Assessment where no alternatives exist and adverse impacts remain taking into account mitigation	• Identify 'imperative reasons for overriding public interest' (IROPI) • Identify potential compensatory measures.	At this stage it will be necessary to satisfy the requirements of the Habitats Regulations, reg. 103 and 105. These are considered to be extremely onerous and best practice would be to avoid having to take any part or the entire plan through these stages.

The method adopted for this assessment will follow the standard approach as noted in:

- English Nature (1997) Habitats regulations guidance note - Appropriate Assessment (Regulation 48) The Conservation (Natural Habitats &c) Regulations 1994 - HRGN 1
- English Nature (2001) Habitats regulations guidance note - determination of Likely Significant Effect HRGN 3
- English Nature (2001a) Habitats regulations guidance note - Alone or in-combination HRGN 4
- Scott Wilson *et al* (2006) Appropriate Assessment of Plans. Aug 2006

The Appropriate Assessment stage involves the following steps:

- Explore the reasons for the European designation of the relevant sites.
- Explore the environmental conditions required to maintain the integrity of the selected sites and become familiar with the current trends in these environmental processes.
- Gain a full understanding of the plan and its policies and consider each policy within the context of the environmental processes – would the policy lead to an impact on any identified process?
- Decide if the identified impact is likely to lead to a significant adverse effect to the integrity of the site.
- Identify other plans and projects that might affect the integrity of these sites in combination with the Plan.
- Develop measures to avoid the effect entirely, or if not possible, to mitigate the impact sufficiently that it's effect on the European site is considered not to have any significant adverse effect on the site's integrity.

3 Findings of the HRA Screening Report

3.1 Introduction

A Habitat Regulations Assessment Stage 1 screening exercise was undertaken by Jacobs on the Joint Strategy and Implementations plans for the third Local Transport Plan of the Devon County Council and Torbay Council areas (Jacobs, 2010). The HRA screening showed that there is uncertainty in relation to the likely significant effects on Natura 2000 sites of the specific road schemes proposed in the Torbay Council LTP3, particularly in combination with other policies. As such it was recommended that a Stage 2 Appropriate Assessment be undertaken to clarify this position and recommend mitigation as required.

The HRA Stage 1 screening report summarised the issues in relation to the Torbay Council Strategy and Implementation Plans as follows:

> ***"...Asset Management***
> *Asset management is not unique to the LTP3, and it is unlikely that the LTP3 is proposing any asset management measure which is substantially different from what would occur without the LTP3. However, there remains uncertainty in relation to the locations of the planned infrastructure maintenance works in the Torbay Unitary Authority area, and these have the potential to have a likely significant effect locally. The proposals to undertake retaining wall and drainage improvements are of particular concern in relation to changes in hydrology and constructional disturbance on Natura 2000 site qualifying features. This intervention and the projects emerging from it will require the normal consenting procedures and, where appropriate, site-specific HRAs.*
>
> ***LTP3 Torbay interventions in combination with the Torbay Council Core Strategy (also encompasses Teignbridge and South Hams Core Strategies)***
>
> *The potential effects on the greater horseshoe bat population are considered to be a key factor for Torbay interventions in combination with other development. The issue relates to the overall scale of development proposed in the Core Strategy, in particular housing numbers and employment provision, transport, community and other associated infrastructure. Such development could act in combination with the improvements to the A385, A380 and the Totnes/ Western Ring Road…."*

It is these interventions which form the basis of this Stage 2 HRA assessment.

4 Site Characterisation and the Appropriate Assessment Process

4.1 Natura 2000 Site Characterisation, Objectives and Trend Analysis

The Stage 1 screening exercise showed that a number of Natura 2000 sites may be affected by specific LTP3 interventions in the Torbay area. The criteria and assumptions utilised in making this assessment are given in the Stage 1 screening document. The Natura 2000 sites concerned are the South Hams Special Area of Conservation (SAC) and the Lyme Bay to Torbay candidate SAC (cSAC) (cSACs have been submitted to the European Commission for approval for designation). Table A (Appendix B) provides information on the current status and any known trends in the condition of these sites. Table 4.1 also lists the main factors that may affect the integrity of the Natura 2000 sites concerned, i.e. the types of impact for which those sites are considered vulnerable.

Table 4.1: Factors which may affect the integrity of each of the Natura 2000 sites

	Site Vulnerabilities						
N2K site	Habitat loss and fragmen-tation	Noise and vibration	Atmos-pheric/ terrestrial and waterborne pollution	Water quality and quantity	Traditional manage-ment practices	Wider site issues, inc. mobile species needs	Recreation pressure
South Hams SAC	✓	✓	✓		✓	✓	✓
Lyme Bay and Torbay cSAC	✓		✓	✓			✓

4.2 The Stage 2 Appropriate Assessment

4.2.1 Plans and Programmes Review

This section involves assessing the impacts of the plan, in combination with other plans and projects and taking into account existing trends, on the integrity of the relevant European sites.

For this Appropriate Assessment, consideration of other plans and projects has focused on those likely to lead to significant development or infrastructure which may potentially impact on any of the European sites identified in the Stage 1 Screening Report

The LTP3 Strategy and Implementation Plans have the following key interventions that are considered with this Appropriate Assessment:

- Strategic and Implementation Plan interventions;
- A380 South Devon Link Road;
- Western Corridor Improvements;
- A385 Improvements to Totnes;
- Improvements to existing P&R at Brixham and Torquay;
- Park and Change sites – A38 Drumbridges, and , A380 between Torbay and Newton Abbot;
- Maintenance of the sea wall (A379 at Livermead) to prevent disruption to the coastal road;
- Ferry Services.

Tables B and C (in Appendix C) consider in detail whether there is a pathway between the LTP3 (the impact source) and the European site's interest features (the receiver). A summary of the main findings is given in Table 4.2 below and briefly discussed in sections 4.2.2 and 4.2.3. Note that only those sites which have been identified as being effected by LTP3 interventions are listed in Table 4.2.

Table 4.2 Summary of Appropriate Assessment matrix

Site	Qualifying features	Key environmental conditions to support site integrity	Possible impacts from LTP3	Possible impacts from trends, other plans and projects	Risk of an adverse effect on the site integrity
South Hams SAC	European dry heaths and grassland habitats Greater horseshoe bat	Appropriate management Disturbance to roost sites Issues beyond the site boundary	Strategic and Implementation Plan interventions: A380 South Devon Link Road Western Corridor Improvements A385 Improvements to Totnes Improvements to existing P&R at Brixham and Torquay Park and Change sites – A38 Drumbridges A380 between Torbay and Newton Abbot	Direct, indirect and induced impacts Habitat loss, fragmentation or disturbance to greater horseshoe bat flyways and foraging habitats Bat mortality due to collision with vehicles Climate change Growth in housing induced by road improvements Increased recreational pressures as a result of housing and infrastructure growth	Possible in combination

Site	Qualifying features	Key environmental conditions to support site integrity	Possible impacts from LTP3	Possible impacts from trends, other plans and projects	Risk of an adverse effect on the site integrity
Lyme Bay and Torbay cSAC	Annex I Habitats Reefs Submerged or partially submerged sea caves	Appropriate management Hydrology/salinity /water quality Manage recreational pressure	Strategic and Implementation Plan interventions: Maintenance of the sea wall (A379 at Livermead) to prevent disruption to the coastal road Ferry Services	Indirect impacts Changes in water quality, pollution or damage to/loss of habitats Climate change Disturbance Sea reef abrasion	Possible in combination

4.2.2 Interventions Which Alone May Impact on Natura 2000 Sites

In the Stage 1 screening exercise a single Torbay intervention was identified as an area of concern in relation to possible significant likely effects on Natura 2000 sites: Transport Asset Management (at both the Strategy level and in the Implementation Plan).

It is difficult to assess the impact transport asset management works will have on the interest features, but these activities have the potential to affect a range of Natura 2000 sites. However, because of the ongoing nature of these works across the County and as many are existing programmes derived from earlier versions of the LTP, they are not considered further in this assessment.

Assessment procedures and suitable mitigation measures (if required) on a site by site basis should be considered a priority with any asset management works undertaken in the vicinity and adjacent to a Natura 2000 site.

4.2.3 Interventions Which in Combination May Impact on Natura 2000 Sites

The HRA screening report concluded that a number of LTP3 interventions had the potential for significant likely effects on Natura 2000 sites alone or in combination with other plans or projects. The interventions considered likely to result in an in combination impact are summarised below. Each of these interventions must be taken to the next stage of the Appropriate Assessment process where avoidance or mitigation measures are developed to ensure the integrity of the affected Natura 2000 sites is ensured.

Table 4.2 summarises the sites which have been considered in this Appropriate Assessment, these are:

- South Hams SAC;
- Lyme Bay and Torbay cSAC.

It should be noted that some interventions which are included in the Torbay Implementation Plan but will be implemented elsewhere in the County are not assessed in this report. These are covered in the Devon County Council Implementation Plan HRA document.

The significant levels of growth as suggested in the range of options of the Torbay Core Strategy to 2026 in combination with specific LTP3 interventions will potentially have impacts on the Natura 2000 sites noted above.

Impacts on the integrity of the South Hams SAC are primarily related to the loss and disturbance of foraging and commuting habitat used by the greater horseshoe bat population focused in South Devon. Specific project level mitigation measures are proposed to ensure the integrity of this SAC is maintained.

Accidental pollution spillages associated with sea wall maintenance works could impact on interest features in the Lyme Bay and Torbay cSAC when combined with potential increases in sources of pollutants arising through implementation of the Torbay Harbour Area Action Plan (THAAP) policies (see Torbay Council, 2011).

Whilst it is difficult to assess the impact of increased levels of pollutants arising as a result of the THAAP, the scope of the sea wall maintenance works at Livermead are considered to be minor and localised. It is considered that any related pollution event would be equally minor and localised in magnitude. Additionally, the high dilution that any land-based discharge from the Livermead works is likely to receive would reduce the risk of in combination pollution events.

The risk of accidental pollution spillages would be further reduced by the implementation of pollution control measures during construction works. As such, no in combination impacts with the THAAP are anticipated as the works are considered to be *de minimis*.

Ferry services are likely to increase as a result of the ferry services intervention of the LTP3 Implementation Plan. A regular service already exists in the peak summer season and this intervention may lead to an all year round service between Brixham and Torquay. During the peak season recreational boating activities in the harbour are also at a maximum, so this intervention will bring limited changes during the summer period. It is considered that the effects of increased ferry services at other times of the year are therefore likely to be minimal and the integrity of the Lyme Bay and Torbay cSAC and South Hams SAC (specifically at Berry Head) will remain intact. In addition, it is concluded that this judgement also applies to the adjacent Poole Bay to Lyme Bay possible SAC (pSAC) as the ferry service will cross a part of this adjacent site (pSACs are currently awaiting submission to the European Commission to be registered as a candidate SAC). The mitigation measures proposed by the THAAP HRA are considered to be appropriate in countering the possible effects of this intervention.

Existing recreational pressures on several sites in the coastal zone, such as Berry Head (South Hams SAC), are known cause erosion, trampling and dog fouling often in sensitive habitat areas. For example, the impact on the calcareous grassland and heathland plant communities was noted as an important management issue in the Berry Head Conservation Management Plan 2007-2017 (Torbay Coast & Countryside Trust, 2007).

It will be difficult in the future to ascertain whether increasing recreational pressures are a result of LTP3 interventions alone or in combination with other plans and policies given the existing popularity of these sites and the additional pressures placed on them by seasonal tourist activity. Adopting a precautionary approach is important here and site level mitigation to offset and avoid recreational pressures on sensitive Natura 2000 sites will need to be applied. Generic mitigation measures are given in Appendix D and follow those which are already being implemented at some sites, such as the Berry Head area (South Hams SAC). Ongoing monitoring of visitor numbers at most “pinch point” sites is critical in informing the appropriate way forward in managing recreational issues. The provision of Suitable Accessible Natural Green Spaces (SANGS) for example are intended to provide mitigation from the potential impact of Core Strategy provisions and it may be necessary to consider this approach at a project level with schemes in the South Devon and Torbay areas.

Where required, and in accordance with the precautionary principle, the relevant interventions are now taken to the next stage in relation to identifying appropriate mitigation measures at the plan and project levels.

5 Avoidance and Mitigation

5.1 Introduction

The LTP3 Joint Strategy seeks to develop a sustainable transport network in the Torbay Council area which aims to lessen congestion, improve access and promote sustainable forms of transport. In general terms this sustainable approach is highly compatible with the protection of the integrity of the Natura 2000 sites in the Torbay area and forms an overarching element of the mitigation approach.

Avoidance is the first approach to be taken since such measures provide certainty that the significant effects will not occur. Where avoidance is not possible, then mitigation measures need to be considered. There are two types of mitigation in this context: mitigation measures at the Plan level and those at Project level.

In the Torbay area it is the indirect and induced effects of enhanced access and improved transport infrastructure in association with Core Strategy projected growth targets that are of concern and it is these that require mitigation measures at both the plan and project levels.

5.2 Mitigation Measures at the Plan Level

5.2.1 LTP3 Joint Strategy Document

It is recommended as a minimum requirement that reference should be made to Natura 2000 sites within the body of the Joint Strategy document in order to highlight that the presence of Natura 2000 sites has been taken into consideration when developing the Strategy.

In addition the following are recommended for consideration. Note that two of these recommendations have been given previously in other relevant HRA documents, but their source has been acknowledged and are listed here because of their relevance and value as mitigation measures:

- Reference should be made to the Natural England Guidance on Local Transport Plans and the Natural Environment (TCM6 15159 Natural England (2010a)) and that the LTP3 has been developed in accordance with these guidelines.

- The Torbay Coast and Countryside Trust has produced a Green Infrastructure (GI) Delivery Plan in partnership with Torbay Council and Natural England through a process of stakeholder engagement and consultation. The Delivery Plan aims to produce a clear strategic document to guide the delivery of a healthy green infrastructure network in Torbay over the next ten years. It provides supporting evidence for Torbay Council's Core Strategy and is designed to help deliver the strategic objectives of that strategy, which are to regenerate Torbay and achieve economic prosperity. Ensuring that growth in Torbay is accompanied by a sustainable natural environment is paramount. The LTP3 has a valuable opportunity to make improvements to GI as it is a plan that deals directly with infrastructure planning.

- Ensure that links between those responsible for other plans and strategies (such as Local Development Framework Development Plan Documents) and the LTP3 are made clear, so that all parties appreciate the potential for in-combination effects as well as the benefits of a coordinated approach towards mitigation (Torbay Council, 2011).

- The LTP3 should be strengthened by including a statement requiring consideration of the effects of all transport infrastructure proposals on the Natura 2000 site network in the Torbay area and the recognition of the importance of avoidance and/or the implementation of appropriate mitigation measures.

- Encourage those responsible for both spatial and other sectoral plans to consider the merits of preparing a single co-ordinated HRA screening assessment, particularly where in-combination effects have been identified in this report (Torbay Council, 2011).

The Joint Strategy document describes five key point vision statements that address the importance of the natural environment to the economy and quality of life of the inhabitants of Devon and Torbay, in particular:

Deliver and support new development and economic growth, and

Become the 'place to be naturally active' by developing and investing in the rural and urban cycle and walking network

These statements are welcomed, but it is recommended that they can be strengthened by explicit reference to the internationally important Natura 2000 sites and in particular that the County has 18 of these sites, including the recently designated Lyme Bay to Torbay cSAC.

Some of the transport infrastructure projects in the Torbay area will be located near or adjacent to one of these sensitive sites and as such their objectives, qualifying features and general Habitat Regulations requirements should be taken into account at all levels of planning and policy implementation. The profile of these sites should be raised in the Strategy document.

Figure 1 of the Joint Strategy document makes no reference to Natura 2000 sites, although references to AONBs and National Parks are made. It is recommended that this is reviewed and the figure amended to include these important nature conservation sites.

The Exeter Strategy – the "Vision" and "Today" sections should make reference to the proximity of the internationally important Exe Estuary Special Protection Area and Ramsar site.

The Torbay Strategy – the "Vision" and "Today" sections should make reference to the proximity of the internationally important South Hams SAC, in particular the value of the coastal hinterland to the greater horseshoe bat population, and the Lyme Bay to Torbay cSAC.

In addition to the above, it is recommended that the section which sits in the **Enhancing Torbay's built and natural environment** should include explicit reference to Natura 2000 sites and the specific greater horseshoe bat interest. In addition the reference to English Nature should be updated to Natural England.

5.2.2 LTP3 Implementation Plan

It is considered unlikely that adverse effects on the integrity of the range of Natura 2000 sites can be avoided or mitigated through the amendment of policies within the LTP3 Implementation Plan, but there is scope to do this primarily at the project level.

5.3 Mitigation Measures at the Project Level

Implementation of the following project level mitigation measures should ensure that significant adverse effects on the integrity of the Natura 2000 sites are avoided, as well as protecting and enhancing the qualifying feature interests. This would ensure that there would be no residual impact of the proposed development on the integrity of the Natura 2000 sites. Tables D and E in Appendix D give the detailed information on generic mitigation measures. The following summarises the approach.

South Hams SAC

The five LTP3 interventions (A380 South Devon Link Road, Western Corridor Improvements, A385 Improvements to Totnes, improvements to existing Park and Ride at Brixham and Park and Change sites on the A38 at Drumbridges and the A380 between Torbay and Newton Abbot) are considered likely to have a significant effect on the integrity of the South Hams SAC in combination with other development policies. The main concern is related to growth in housing development, as embedded in the Torbay Council Core Strategy, induced by road improvements and infill. The potential for direct, indirect and induced impacts on the greater horseshoe bat population in the area is high. However, it is also considered that project level mitigation can accommodate the requirements of this species at a local level and in many cases sympathetic planning and design could enhance the landscape on and around the scheme in a positive way.

Natural England has introduced planning guidance on protecting and minimising the disturbance to the roosting places and foraging grounds of this species, the latter comprising large areas of the coastal hinterland and south Devon generally (Natural England, 2010b). These guidelines should form the basis of both strategic and project level mitigation.

At the project level, if greater horseshoe bats are affected by the LTP3 interventions appropriate mitigation strategies would be developed in agreement with Natural England. Potential mitigation options are outlined in Table D and criteria for triggering surveys in Table E in Appendix D.

In general, where suitable habitat features are present (such as linear landscape features, woodland, scrub, pasture or wetland habitats), consideration would be given to re-designing the scheme to avoid these. Where design changes are not possible, or if impacts to suitable greater horseshoe bat habitats are unavoidable, detailed surveys to establish the status of greater horseshoe bats within the affected area would be undertaken and subsequent appropriate mitigation put in place (in accordance with the specification provided by Natural England in *South Hams SAC – Greater horseshoe bat consultation zone planning guidance*).

Where habitats suitable for greater horseshoe bats are affected but surveys suggest no bats are present, the scheme should seek to protect and retain these features or compensate for their loss.

Effective recreational management methods are particularly important in protecting the sites of the South Hams SAC in the Torbay area, for example Berry Head. A strategic planning approach developed in partnership with recreation site management groups and the local authority will be critical to

avoiding and minimising impacts on sensitive nature conservation sites in the future.

Table D provides generic mitigation measures that should be considered at the project level and include the phasing and timing of construction works, screening, the provision of Sustainable Urban Drainage Systems and the ongoing implementation of recreational management techniques.

Lyme Bay and Torbay cSAC

Two LTP3 interventions are considered in the HRA and as a precautionary measure it is recommended that specific mitigation be implemented. The two interventions are: sea wall improvement works and increased ferry services.

In terms of the sea wall improvement works appropriate pollution control measures are proposed in Table D Appendix D.

The HRA of the Torbay Harbour Area Action Plan identified a number of policies that could have negative effects on the cSAC. As a result, mitigation measures were identified and these are listed in Table D due to their relevance to this intervention. It has therefore been possible to conclude that the integrity of the cSAC would be maintained when these measures are fully implemented.

5.4 Monitoring

Monitoring is an integral part of any mitigation strategy as it enables the effectiveness and success of any implemented mitigation to be assessed. Feedback obtained from monitoring can influence the design and implementation of future mitigation strategies and is an important process in ensuring the long-term protection of Natura 2000 sites.

The indicators set out in the SEA of the LTP3 for biodiversity monitoring are appropriate here and it is recommended that monitoring for the HRA is aligned with the SEA requirement and linked to the LDF Annual Monitoring Report.

6 Conclusions and Recommendations

The Habitats Regulations Assessment screening process concluded that it was not possible to confirm whether the specific interventions in the LTP3, alone or in combination with other plans or projects, were likely to have a significant effect on specific Natura 2000 sites in the County. A Stage 2 Appropriate Assessment was therefore carried out under the Conservation of Habitats and Species Regulations, 2010.

One intervention (Transport Asset Management) that alone could have a negative effect on a range of Natura 2000 sites has been identified as part of the HRA process. Seven interventions that could have in combination negative effects to South Hams SAC or Lyme Bay to Torbay cSAC have also been identified. As a result of this mitigation measures at both the Plan and Project levels have been recommended. When implemented in full it will be possible to conclude that the integrity of all affected Natura 2000 sites would be maintained and the conservation objectives would be sustained across the County.

7 Documents Consulted

Bat Conservation Trust (2007). *Bat Surveys – Good Practice Guidelines.* Bat Conservation Trust, London

Bat Conservation Trust (2009). *Bats and Lighting in the UK.* Bats and the Built Environment Series. Version 3. Bat Conservation Trust.

Torbay Coast & Countryside Trust (2007). The Berry Head Conservation Management Plan 2007-2017

Brinkmann, R. (2003). Crossing Points for Bats – Limiting damage of habitat fragmentation by transport projects. Gundelfingen, Germany: Wildlife Crossing Points Working Party

Catherine Bickmore Associates (2003). Interim Advice Note 116/08 - review of work carried out on trunk road network in Wales for bats. Transport Directorate Welsh Assembly Government & Countryside Council for Wales

Criteria for the designation of wetlands of international importance (1999) http://www.wetlands.org/RSIS/_COP9Directory/ENG/Criteria.htm

Department for Communities and Local Government (August 2006). Planning for the Protection of European Sites: Appropriate Assessment. Guidance for Regional Spatial Strategies and Local Development Documents, DCLG, London.

Design Manual for Roads and Bridges (1999). *The Good Roads Guide. New Roads: Nature Conservation Management in Relation to Bats*. Volume 10, Section 4, Parts 1 and 3. The Highways Agency

Devon County Council (2010). Okehampton Town Centre Access Road, Traffic Analysis and Issues Report

English Nature (1997). Habitats regulations guidance note - Appropriate Assessment (Regulation 48) The Conservation Natural Habitats &c) Regulations 1994 - HRGN 1

English Nature (2001). Habitats regulations guidance note - determination of Likely Significant Effect HRGN 3

English Nature (2001a). Habitats regulations guidance note - Alone or in-combination HRGN 4

English Nature (2002). Radio tracking study of greater horseshoe bats at Chudleigh Caves and Woods Site of Special Scientific Interest (ENR 496)

English Nature (2004). The Ecological Effects of Diffuse Air Pollution from Road Transport, English Nature Report 580

English Nature (2004a). A statement of English Nature's views about the management of Braunton Burrows Site of Special Scientific Interest (SSSI).

English Nature (2004b). A statement of English Nature's views about the management of Hare's Down, Knowstone and Rackenford Moors Site of Special Scientific Interest (SSSI).

English Nature (2004c). A statement of English Nature's views about the management of East Devon Pebblebed Heaths Site of Special Scientific Interest (SSSI).

English Nature (2005). A statement of English Nature's views about the management of East Dartmoor Site of Special Scientific Interest (SSSI).

English Nature (2005a). A statement of English Nature's views about the management of North Dartmoor Site of Special Scientific Interest (SSSI).

English Nature (2005b). Views About Management – Dawlish Warren SSSI

Exeter City Council Core Strategy HRA

Guy, A., (2009). [online]. Natural England Condition Assessment Report of North Dartmoor SSSI Units

Inshore Special Area of Conservation (SAC): Lyme Bay and Torbay SAC Selection Assessment Version 2.5
http://www.naturalengland.org.uk/Images/LBT-sad_tcm6-21650.pdf

Jacobs (2010). *Local Transport Plan 3. Draft Devon and Torbay Strategy and Implementation Plan. Habitats Regulations Assessment: Screening Report*.

Komenda-Zhender, S., Cevallos, M. And Bruderer, B. (2003). Effects of disturbance by aircraft overflight on water birds – an experimental approach http://www.int-birdstrike.org/Warsaw_Papers/IBSC26%20WPLE2.pdf

Liley, D., Fearnley, H. & Cruickshanks, K. (2010). Exe Visitor Survey, 2010. Teignbridge District Council / Footprint Ecology

Limpens (2005). *Bats and road construction*. Dutch Ministry of Transport, Public Works and Water Management Directorate-General for Public Works and Water Management, Road and Hydraulic Engineering Institute, Delft, Ne

Natural England (March 2007). Draft Guidance – The Assessment of Regional Spatial Strategies and Sub-regional strategies under the provisions of the Habitats Regulations. David Tyldesley Associates for Natural England, Peterborough

Natural England (2009). Inshore Special Area of Conservation: Poole Bay to Lyme Bay. Draft Conservation Objectives and Advice on Operations

Natural England (2009a). Access and Nature Conservation Reconciliation: Supplementary Guidance for England NE report NECR013

Natural England (2010). Lyme Bay and Torbay SAC final IA, 20.7.2010, Evidence Base for designation of Lyme Bay and Torbay Special Area of Conservation

Natural England (2010a). Natural England Guidance on Local Transport Plans and the Natural Environment TCM6 15159

Natural England (2010b). South Hams SAC – Greater horseshoe bat consultation zone planning guidance.

Ransome (1996). *The management of feeding areas for greater horseshoe bats* (English Nature Research Reports, No.174). English Nature, *Peterborough*

Scott Wilson, Levett-Therivel, Treweek EC (2006). Appropriate Assessment of Plans.

Teignbridge DC HRA (2007)

Torbay Coast and Countryside Trust - Green Infrastructure Delivery Plan http://www.countryside-trust.org.uk/mainintro.cfm?id=1049

Torbay Council (2011) Torquay Harbour Area Action Plan HRA

Woodfield, E. and Langston, R. (2004). Literature review on the impact on bird populations of disturbance due to human access on foot. RSPB, Sandy, Beds.

Appendices

Appendix A Consultation Response to Stage 1 Screening
Appendix B Natura 2000 Sites Characterisation
Appendix C Appropriate Assessment Matrix
Appendix D Mitigation Measures

Appendix A Consultation Responses from Natural England

JACOBS

Date: 3 March 2011
Our ref: Case 1916 Consult 18209 Devon LTP HRA
Your ref:

NATURAL ENGLAND

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Renslade House
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T 0300 060 1110
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Mr Andew Ardley
County Hall
Torsham Rd
Exeter
Devon
EX2 4QW

Dear Mr Ardley

Devon & Torbay LTP3 Habitat Regulations Assessment (HRA) under Regulation 61 of the Conservation of Habitats and Species Regulations 2010.

Thank you for consulting Natural England on the LTP3 and particularly on this HRA. Natural England has a few comments to make, which we hope will be useful.

The 2 marine Candidate Special Areas of Conservation (cSACs) are included in the document. It is possible that ferry travel planned across the marine sites could conceivably have an impact on the site features. The ferry transport across Torbay will cross part of the Poole Bay to Limebay cSAC. It is acknowledged that the risk is slight but should be considered. Other planned ferry crossings or changes which could affect SACs should also be considered. In addition any improvements or alterations to roads which potentially produce effluent/runoff which would find its way into the marine cSACs would need to be considered. It is stated in the HRA that no SAC is within 2km of Torquay Harbour, this is incorrect. It is possible that there are other mistakes along these lines in the document; please look at the information on Natural England's website for further information:
http://www.naturalengland.org.uk/ourwork/marine/sacconsultation/default.aspx

In Section 4.2 at the bottom of page 8 it states that '*changes in air quality – studies have concluded that emissions of air pollutants can have significant ecological impacts on sensitive sites within 100m of major roads*'. Natural England take the significant impact distance from a road to be up to 200m (not 100m) from sensitive sites, '*NOx profiles away from roads have found locally increased concentrations up to approx 200m (English Nature Research Report No. 580)*'. We have adhered to this metric for a considerable time.

Some of the proposals for engineering works are looking at works in the South Hams, Teignbridge, Torbay, and Dartmoor. These have a potential to impact on the South Hams SAC by affecting important bat flight lines

across the wider countryside. Can you please ensure that the *Natural England Guidelines* issued spring 2010 have been used to test the proposed works against impacts on the Greater Horseshoe SAC. Devon County Council will possess a copy of the Guidelines but if you find them impossible to acquire then please contact Natural England directly. It is stated in the HRA that Greater Horseshoe bats will not be considered outside a distance of 2 km from their roosts, this does not cover the legislation and guidance applicable to these bats. The District Councils are using the *Natural England Guidelines* and *the Bat Mitigation Guidelines* for their LDF HRAs.

I do not know the Conservation Biology paper *Findlay and Houlahan (1997)* from which the 2 km for hydrology and water quality is taken. However it is obvious that there is a complete difference between downstream and upstream impacts when considering running waters in rivers. Please can it be ascertained what the reference is meaning and the significance in the case of Devon rivers.

There are no marine SAC and no bat SAC impacts which reach secondary screening in table 5.2, please see the above for comments on this. Where roads are being improved, widened, bridged etc. impacts could be expected on the bats SAC flight paths, which will need to be mitigated, please see the *Natural England Guidance 2010*. Also impacts on the marine SACs and cSACs need to be considered.

In the Conclusion section, paragraph 4 states '*Exe Estuary SAC'* – it is a SSSI, Ramsar and SPA as stated in Table 4.3. Dawlish Warren is a SAC.

Although not directly related to HRA the LTP is very light on links and dual benefits with Green Infrastructure (GI). From the beginning Natural England has pushed that there should be strong links between the LTP3 and GI to reap increased benefits for the environment and local people. Torbay, Teignbridge and other local authorities are producing GI strategies and Plymouth has one that extends outside the Plymouth boundary. As a plan that deals directly with infrastructure the LTP3 has a valuable opportunity to make improvements to GI.

If you wish to discuss any comments in this letter, or wish to discuss the LTP3 or HRA, please contact me on my direct line number below.

Yours sincerely

Dr Simon Dunsford

Tel: 0300-060-2020
Email: simon.dunsford@naturalengland.org.uk
Website: http://www.naturalengland.org.uk/

JACOBS

Our Reference: CO24770
Your Reference: LTP3 AA

Date: 21st June 2011

NATURAL ENGLAND

Mr Adrian Hutchings
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NATURAL ENGLAND
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Tel: 0300-060-0456

Dear Adrian,

Re: South Hams SAC – Local Transport Plan 3 Appropriate Assessment (April 2011)
Location: Torbay, Devon

Thank you for consulting Natural England on the above proposal. Your correspondence was received by this office on 2nd June 2011. We understand that you have prepared a Habs Regs Appropriate Assessment on behalf of Torbay Council in relation to the South Hams SAC and Lyme Bay & Torbay cSAC.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

1. **South Hams SAC**

To evaluate the impacts associated with lighting we generally advise that contour mapping with intervals of 0.1lux is necessary to inform this assessment. This should take into account all phases of the proposed development and include an assessment of vehicles. Further, we generally advise that a 0.5lux threshold is the upper limit associated with an acceptable amount of light that the greater horseshoe bats will tolerate. In 'pinch point scenarios', it is likely that any light spillage would be considered detrimental upon greater horseshoe bat habitat. To effectively inform a light assessment, a lux baseline will be required and illustrated with lux contour mapping.

In Appendix D under 'recreational pressures' in the 'impact' column, the calcareous grassland and heathland South Hams SAC interest features should be included for consideration. In the *Berry Head Conservation Management Plan 2007*-2017 (Torbay Coast & Countryside Trust), the impact of trampling and dog fouling has been highlighted as an important management issue. The Appropriate Assessment should assess the direct/indirect impact of additional visitor pressure upon the important calcareous grassland and heathland habitats. Due to the significance of these botanical habitats, it will not be suitable to use non-native species or species with an invasive tendency. Indeed, TCCT have invested considerable resources trying

to reduce the impact of *Cotoneaster* and *Holm oak* upon valuable calcareous grasslands around Torbay.

2. **Green Infrastructure**

Green infrastructure is increasingly recognised as an essential part of sustainable spatial planning. This is due in no small part to the role of green infrastructure as a 'life support system', able to deliver multiple environmental functions, and to play a key part in adapting to and mitigating climate change. We have produced guidance to support work with local authorities and green infrastructure partnerships. It is available to planners, developers and others to download here:-
http://naturalengland.etraderstores.com/NaturalEnglandShop/NE176

As part of Torbay Council's commitment towards Green Infrastructure, we are keen to see the integration of this important element into the Appropriate Assessment. Further details of the Torbay Green Infrastructure Delivery Plan are accessible from the Torbay Coast and Countryside Trust's website. Both Green Infrastructure and biodiversity offsetting provide important mechanisms capable of facilitating the delivery of effective mitigation and/or compensation.

If you have any queries relating to the content of this letter, please do not hesitate to contact me on the address provided at the top of this letter.

Regards,

Julien

Julien Sclater
Lead Adviser
Land Use Team

Julien.R.Sclater@naturalengland.org.uk

Please note that from the 1 April all consultation with Natural England should be sent to our Consultation Hub at consultations@naturalengland.org.uk or sent to the address at the top of this letter

Cc: Kestrel Consultants

JACOBS

Our Reference: CO34724
Your Reference: LTP3 AA

Date: 13th October 2011

NATURAL ENGLAND

Mr Ian Johnson
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Tel: 0300-060-0456

Dear Ian,

Re: South Hams SAC – Local Transport Plan 3 Appropriate Assessment (April 2011)
Location: Torbay, Devon

Thank you for consulting Natural England on the above proposal. Your correspondence was received by this office on 29th September 2011. We understand that you have prepared a Habs Regs Appropriate Assessment on behalf of Torbay Council in relation to the South Hams SAC and Lyme Bay & Torbay cSAC.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

We query the omission of part of the text that was included in the previous draft for our consultation. Specifically, we refer to:-

"To inform assessment of lighting impacts at project level contour mapping with intervals of 0.1lux will be necessary. This should take into account all phases of the proposed development and include an assessment of vehicles." (page 52 of previous draft)

We recommend that this text is included in the final document as it provides a sound basis for informing assessment of impacts and the requirement for mitigation measures. We request that we are informed prior to submission of the document if there are any grounds for not including this section of text.

If you have any queries relating to the content of this letter, please do not hesitate to contact me on the address provided at the top of this letter.

Regards,

Julien

Natural England is working to enhance biodiversity, landscapes and wildlife in rural, urban, coastal and marine areas; promote access, recreation and public well-being, and contribute to the way natural resources are managed so that they can be enjoyed now and by future generations.

Appendix B Natura 2000 Site Characterisation

Table A. Natura 2000 site characterisation

Site name / NGR	Qualifying features*	Comments on nature conservation importance	Key environmental conditions to support site integrity and/or vulnerability	Conservation objectives	Condition status
Lyme Bay and Torbay cSAC	Annex I Habitats Reefs Submerged or partially submerged sea caves	A diverse range of seabed habitats occur in the area with over nine biotopes and a variety of important and nationally significant species having been recorded (Natural England, 2010).	Physical damage by dredging, siltation, abrasion or selective extraction. Toxic contamination by introduction of synthetic or non-synthetic compounds. Non-toxic contamination from changes in nutrient loading, organic loading, changes in thermal regime or changes in turbidity. Changes in salinity (for sea caves only). Specific threats include: - Cables. - Commercial fisheries (scallop dredging, drag dredging, bottom trawling, drift, gill, tangle and trammel netting, potting, long lines, mussel farming, and angling). - Shipping (pollution,	Reefs (new conservation objectives Jan 2011): Subject to natural change, maintain or restore the reefs in / to favourable condition, in particular: - Bedrock reefs - Stony reefs Sea caves (draft conservation objectives): Subject to natural change, maintain the Submerged or partially submerged sea caves in favourable condition. (Favourable condition relates to the maintenance of the structure, function and typical species for that feature.)	Reefs: The overall grade for the conservation of structure and function at this site is Grade II (well conserved). Sea caves: The overall grade for the conservation of structure and function at this site is Grade A (excellent conservation value).

Site name / NGR	Qualifying features*	Comments on nature conservation importance	Key environmental conditions to support site integrity and/or vulnerability	Conservation objectives	Condition status
			anchoring, non-native invasive species). - Recreation. - Activities that result in land-based pollution.		
South Hams SAC	Annex I Habitats European dry heaths Semi-natural dry grasslands and scrubland faces: on calcareous substrates (*Festuco-Brometalia*) Annex II Species Greater horseshoe bat *Rhinolophus ferrumequinum*	Important for its extensive limestone grasslands Holds the largest population of greater horseshoe bat in the UK and is the only one containing more than 1,000 adult bats (31% of the UK species population). It contains the largest known maternity roost in the UK and possibly in Europe. As the site contains both maternity and hibernation sites it demonstrates good conservation of the features required for survival.	Appropriate management of grassland and heath (by cutting or grazing) and control of nutrient / acid deposition. Avoidance of disturbance to roost sites. Protection and retention of integrity of foraging and commuting habitat, especially in habitats outside the SAC boundary.	To maintain the designated interest features in favourable condition. Retain an area large enough to provide a range of food sources capable of supporting the whole greater horseshoe bat population. Retain the integrity of strategic flyways and linear features that are used, or could be used, by bats to move between roost sites and foraging grounds.	All units of the component SSSIs with bat or heath/grassland interest are in favourable condition.

Appendix C Appropriate Assessment Matrix (source pathway receiver)

Table B. Appropriate Assessment matrix - interventions 'Alone' not screened out at Stage 1

Pathway	Nature of possible significant likely effect on Receiver	Evidence that could be collected to help determine the plan s effects
Asset Management interventions (Strategy and Implementation Plan)		
Increased water runoff and pollution due to improved/enhanced drainage from roadways.	Changes in water quality could negatively affect Lyme Bay and Torbay cSAC. Negative effects could arise by: causing changes in physico-chemical conditions of the overlying water, (such as changes in temperature, turbidity, salinity, and increases in nutrient and organic matter), reversible damage to, or loss of, sensitive cave or reef habitats or species integral to the Lyme Bay and Torbay SAC could occur.	- Assessment of current water quality levels. Evaluate possible changes in water quality associated with asset management proposals. Assess significance of any changes to Natura 2000 sites - Programme and location drawings of all construction or maintenance works so a specific assessment can be undertaken to assess likelihood of significant negative effects.
Habitat loss due to road improvements, verge management and stability works.	Habitat loss could negatively affect South Hams SAC. Negative effects could arise by: - Loss of qualifying species or vegetation communities through construction activity. - Degrading quality of commuting habitat features integral to South Hams SAC through the effects of construction disturbance, lighting and/or changes to vegetation structure as a result of verge management or lighting works. - Fragmenting greater horseshoe bat populations integral to South Hams SAC by creating impassable barriers thus reducing the viability of the population in the medium to long-term by increasing susceptibility to local extinctions caused by roost and habitat loss outside the SAC boundary.	- Assessment of affected habitat to identify suitability for GHS bats. - Surveys of linear landscape features affected by the proposals (as per specification provided by Natural England in the document 'South Hams SAC – Greater horseshoe bat consultation zone planning guidance). - Analysis of existing recorded flight path information for GHS bats within the affected area.

Pathway	Nature of possible significant likely effect on Receiver	Evidence that could be collected to help determine the plan s effects
	- Increasing energy burden of greater horseshoe bat populations integral to South Hams SAC by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population in the medium to long-term. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions could lead to a population crash following severe spring climate.	- Traffic modelling study to assess any likely changes in the number of vehicle movements and the impacts that this would have to mobile species. - Programme and location drawings of all construction or maintenance works so a specific assessment can be undertaken to assess likelihood of significant negative effects.
Disturbance to greater horseshoe bats due to increased levels of noise, vibrations and lighting.	Disturbance could negatively effect South Hams SAC and the by: - Degrading quality of greater horseshoe bat commuting habitat features integral to South Hams SAC through the effects of construction disturbance, lighting and/or changes to vegetation structure as a result of verge management or lighting works.	- Assessment of affected habitat to identify suitability for GHS. - Surveys of linear landscape features affected by the proposals (as per specification provided by Natural England in the document 'South Hams SAC – Greater horseshoe bat consultation zone planning guidance). - Analysis of existing recorded flight path information for GHS within the affected area. - Assessment of current noise levels.
Habitat creation due to enhancements associated with verge management works.	Potential for positive impacts to South Hams SAC by provision of a net gain of greater horseshoe bat foraging or commuting habitat by appropriate habitat enhancement works, e.g. improvements in flyway habitat connectivity along road verges.	- Assessment of proposed working areas to identify locations that could be enhanced e.g. defunct hedgerows or wide gaps in scrub/tree lines that could be gapped up for GHS bats.

Table C. Appropriate Assessment matrix - interventions in combination not screened out at Stage 1

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
A380 South Devon Link Road Construction of new 5km dual carriageway road to include new junctions, segregated cycle/pedestrian route and eight bridge structures. Some lighting proposed.				
Newton Abbott Area Action Plan 8,000 new homes, with provision for jobs, shops, community facilities and infrastructure within the built up areas of Newton Abbot and Kingsteignton. **Torbay Council Core Strategy** – Option 1, Constrained development approach 15,000 dwellings and 10,100 jobs (33ha/132,000 sq m net floorspace) within the built up area. **Torbay Council Core Strategy** – Option 2, Urban Focus and Limited Greenfield Development Approach	Severance or removal of linear features used by commuting GHS through road construction works and development associated with Newton Abbot AAP. A study at Chudleigh Caves and Woods SSSI (part of the South Hams SAC) identified watercourses, tall bushy hedgerows, sheltered woodland edge, and tree-lines as key flight corridors linking roosts with foraging areas (English Nature, 2002). Degradation in quality of commuting habitat features through combined effects of street lighting and/or changes to vegetation structure associated with the A380 and Newton Abbot AAP proposals could result in impacts to the SAC.	Habitat loss or fragmentation affecting greater horseshoe bat flyways integral to South Hams SAC.	Project level mitigation is important as a number of potential impacts are possible. Permanent and temporary loss or degradation of GHS flyways could negatively affect South Hams SAC by: - fragmenting the GHS population by creating impassable barriers thus reducing viability of the population in the medium to long-term. - increasing energy expenditure of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population in the medium to long-term. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables)	- Assessment of affected habitat to identify suitability for GHS. - Surveys of linear landscape features affected by the proposals (as per specification provided by Natural England in the document 'South Hams SAC – Greater horseshoe bat consultation zone planning guidance). - Analysis of existing recorded flight path information for GHS within the affected area. - Traffic modelling study to assess any likely changes in the number of vehicle movements and the impacts that this would have to GHS bats. - Assessment of

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
Development in the built up area and Mayor's Vision sites. This approach suggests that about 10,700 dwellings can be achieved in the built up area.			were related to survival rates of young GHS and their mothers, and predicted reverse conditions could lead to a population crash following severe spring climate. - increasing the risk of mortality associated with RTA, thus reducing population integrity in the long-term. If bats are killed on the highway, this can lead to a population decline (Brinkmann *et al.,* 2003; Limpens, 2005). Greater horseshoes forage by flying low over pasture at heights of 0.6-1.5m making them particularly vulnerable to road traffic if foraging takes place over road verges (Ransome 1996). Anecdotal observations (Bickmore et al. 2003) suggest that air turbulence caused by fast and large road traffic can suck nearby bats into the path of oncoming vehicles. An increase in traffic, due to a new road or improvement project, particularly when close to a nursery roost or swarming site, could cause significant mortality of bats, with inexperienced juvenile bats perhaps at most risk. Potential for positive impacts by provision of a net gain of greater	proposed working areas to identify locations that could be enhanced e.g. defunct hedgerows or wide gaps in scrub/tree lines that could be gapped up for GHS bats.

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
			horseshoe bat foraging or commuting habitat by appropriate habitat enhancement works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	
	Increase in number of dwellings and improved road infrastructure such as the A380 Devon Link Road providing better access to important nature conservation sites in the South Devon area.	Increasing numbers of people undertaking recreational activities in the countryside, e.g. at Berry Head (South Hams SAC)	Recreational pressures on several "pinch points" on the coastal strip such as Berry Head will lead to increased erosion, trampling and dog fouling of sensitive habitats. For example, the impact on the calcareous grassland and heathland plant communities was noted as an important management issue in the Berry Head Conservation Management Plan 2007-2017 (Torbay Coast & Countryside Trust). The impact is considered to be of moderate significance given the existing popularity of these sites and the additional pressures placed on them by seasonal tourist activity. Site by site mitigation measures are already being implemented.	Ongoing monitoring of visitor levels on a site by site basis to inform management actions on the ground and strategic decisions regarding infrastructure provision and management.
Western Corridor Improvements Provision of additional road capacity at junctions along the western corridor (A380 and A3022) to include road dualling and road and junction widening.				
Torbay Council Core Strategy – Option 1, Constrained development approach	A study of greater horseshoes at Berry head (part of the South Hams SAC) showed bats followed tall hedgerows, tree-lines, pasture and/or	All growth options. Habitat loss or fragmentation affecting greater	Significant impacts on the integrity of the SAC are unlikely. Works will be localised along existing routes and would be	- Assessment of affected habitat to identify suitability for GHS.

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
15,000 dwellings and 10,100 jobs (33ha/132,000 sq m net floorspace) within the built up area. **Torbay Council Core Strategy** – Option 2, Urban Focus and Limited Greenfield Development Approach Development in the built up area and Mayor's Vision sites. This approach suggests that about 10,700 dwellings can be achieved in the built up area.	woodland, and to gain access to the south and west of Brixham followed a narrow 5-10m corridor of cliff edge, scrub and mature hedgerows (English Nature, 2002). Severance or removal of linear features used by commuting GHS through road construction works and development associated with the Core Strategy could result in impacts to the SAC. Similarly degradation in quality of commuting habitat features through combined effects of street lighting and/or changes to vegetation structure associated with Western Corridor construction works and Core Strategy proposals. The importance of grassland, hedgerow and woodland mosaics as foraging areas for greater horseshoe bats has been reported (Jones *et al.,* 1995 cited by English Nature, 2003). These landscape features are linked to the availability and abundance of key prey species such as large beetles and moths (Ransome, 1996). Landtake required for the western corridor proposals in-combination with development associated with the Core Strategy DPD could have a significant negative effect on the South Hams SAC through the loss of GHS foraging areas and habitat which	horseshoe bat flyways and sustenance zones integral to South Hams SAC.	limited to habitats of low value for foraging and commuting bats. However, project level mitigation is important as a number of potential impacts are possible including: Temporary and permanent loss or degradation of GHS flyways could negatively affect South Hams SAC by: - fragmenting the GHS population by creating impassable barriers thus reducing viability of the population in the medium to long-term. Studies have identified the importance of maintaining the last remaining habitat link between Berry Head and roosts/feeding areas beyond Brixham (English Nature, 2000). - increasing energy expenditure of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population in the medium to long-term. This is supported by Ransome (1996) who showed that short	- Surveys of linear landscape features affected by the proposals (as per specification provided by Natural England in the document 'South Hams SAC – Greater horseshoe bat consultation zone planning guidance). - Analysis of existing recorded flight path information for GHS within the affected area. - Traffic modelling study to assess any likely changes in the number of vehicle movements and the impacts that this would have to GHS bats. - Assessment of proposed working areas to identify locations that could be enhanced e.g. defunct hedgerows or wide gaps in scrub/tree lines that could be gapped up for GHS bats.

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
	is important for their prey items.		commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions could lead to a population crash following severe spring climate. - increasing the risk of mortality associated with RTA, thus reducing population integrity in the long-term. If bats are killed on the highway, this can lead to a population decline (Brinkmann *et al.,* 2003; Limpens, 2005). Greater horseshoes forage by flying low over pasture at heights of 0.6-1.5m making them particularly vulnerable to road traffic if foraging takes place over road verges (Ransome 1996). Anecdotal observations (Bickmore et al. 2003) suggest that air turbulence caused by fast and large road traffic can suck nearby bats into the path of oncoming vehicles. An increase in traffic, due to a new road or improvement project, particularly when close to a nursery roost or swarming site, could cause significant mortality of bats, with inexperienced juvenile bats perhaps at most risk.	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
			Potential for positive impacts by provision of a net gain of greater horseshoe bat foraging or commuting habitat by appropriate habitat enhancement works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	
	Increase in number of dwellings and improved road infrastructure such as the A380 Devon Link Road providing better access to important nature conservation sites in the South Devon area.	Increasing numbers of people undertaking recreational activities in the countryside, e.g. at Berry Head (South Hams SAC)	Recreational pressures on several "pinch points" on the coastal strip such as Berry Head will lead to increased erosion, trampling and dog fouling of sensitive habitats. For example, the impact on the calcareous grassland and heathland plant communities was noted as an important management issue in the Berry Head Conservation Management Plan 2007-2017 (Torbay Coast & Countryside Trust). The impact is considered to be of moderate significance given the existing popularity of these sites and the additional pressures placed on them by seasonal tourist activity. Site by site mitigation measures are already being implemented.	Ongoing monitoring of visitor levels on a site by site basis to inform management actions on the ground and strategic decisions regarding infrastructure provision and management.
Maintenance of the sea wall (A379 at Livermead) to prevent disruption to the coastal road. Rebuild a section of storm destroyed revetment. Repair and maintenance works to main wall. Reinstatement of Meadway slipway. Reconstruction of a length of apron in front of the main sea wall.				

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
Torquay Harbour Area Action Plan (THAAP) The Area Action Plan will provide a framework for the conservation, enhancement and regeneration of a visually and economically important area of Torbay. The Plan seeks to contribute to the Community Plan by establishing the Harbour firmly at the centre of a revitalised Torbay which would become the pride of the local people and, in turn, attract tourists. The AAP includes several site specific allocations within the harbour area.	Accidental pollution spillages associated with sea wall maintenance works could impact on interest features in the site when combined with potential increases in sources of pollutants arising through THAAP policies. Whilst it is difficult to assess the impact (if any) of increased levels of pollutants arising as a result of the THAAP, the scope of the sea wall maintenance works at Livermead are considered to be sufficiently minor and localised to indicate that any related pollution event would be equally minor and localised in magnitude. Additionally, the high dilution that any land-based discharge from the Livermead works is likely to receive would reduce the risk of in-combination pollution events/levels having a significant negative impact to the integrity of the SAC (Natural England, 2010); this risk would be further reduced by the implementation of pollution control measures during construction works. As such, no in-combination impacts with the Torquay Harbour Area Action Plan are anticipated as the works are considered to be *de minimis*.	Land-based pollution affecting water quality in Lyme Bay to Torbay cSAC.	By causing changes in physico-chemical conditions of the overlying water, (such as changes in temperature, turbidity, salinity, and increases in nutrient and organic matter), reversible damage to, or loss of, sensitive cave or reef habitats or species integral to the Lyme Bay and Torbay SAC could occur in the short term.	N/A
A385 improvements to Totnes Dualling of the A385 between Totnes and Paignton				

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
Torbay Council Core Strategy – Option 1, Constrained development approach 15,000 dwellings and 10,100 jobs (33ha/132,000 sq m net floorspace) within the built up area. Torbay Council Core Strategy – Option 2, Urban Focus and Limited Greenfield Development Approach Development in the built up area and Mayor's Vision sites. This approach suggests that about 10,700 dwellings can be achieved in the built up area. LTP3 – Brixham Park and Ride LTP3 – A380 South Devon link Road	Increased severance of strategic GHS flight pathways across the A385 (due to widening of the road) and GHS flight pathways around the south east of Brixham due to construction of housing/employment within strategic flyways. A study of greater horseshoes at Berry head and Chudleigh Caves (part of the South Hams SAC) showed bats followed tall hedgerows, tree-lines, pasture and/or woodland, and to gain access to the south and west of Brixham followed a narrow 5-10m corridor of cliff edge, scrub and mature hedgerows (English Nature, 2000). Severance or removal of linear features used by commuting GHS through road construction works and development associated with the Core Strategy could result in impacts to the SAC. Similarly degradation in quality of commuting habitat features through combined effects of street lighting and/or changes to vegetation structure associated with A385 construction works and Core Strategy proposals. The importance of grassland, hedgerow and woodland mosaics as foraging areas for greater horseshoe	Habitat loss or fragmentation affecting greater horseshoe bat flyways and sustenance zones integral to South Hams SAC. Increased mortality of bats through RTA. Increased mortality of bats due to a reduction in the condition of animals due to fragmentation/ loss of foraging habitat.	Temporary and permanent loss or degradation of GHS flyways and sustenance zones could negatively affect South Hams SAC by: - fragmenting the GHS population travelling to and from Berry Head by creating impassable barriers / reducing the number of flyways in and out of the Berry Head area, thus reducing viability of the population. Studies have identified the importance of maintaining the last remaining habitat link between Berry Head and roosts/feeding areas beyond Brixham (English Nature, 2002). - increasing energy expenditure of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions could lead to a population crash	- Assessment of affected habitat to identify suitability for GHS. - Surveys of linear landscape features affected by the proposals (as per specification provided by Natural England in the document 'South Hams SAC – Greater horseshoe bat consultation zone planning guidance). - Analysis of existing recorded flight path information for GHS within the affected area. - Traffic modelling study to assess any likely changes in the number of vehicle movements and the impacts that this would have to GHS bats. - Assessment of proposed working areas to identify locations that could be enhanced e.g. defunct hedgerows or wide gaps in scrub/tree lines that could be gapped up for GHS bats.

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
	bats has been reported (Jones *et al.,* 1995 cited by English Nature, 2003). These landscape features are linked to the availability and abundance of key prey species such as large beetles and moths (Ransome, 1996). Landtake required for the A385 improvements in-combination with development associated with the Core Strategy DPD could have a significant negative effect on the South Hams SAC through the loss of GHS foraging areas and habitat which is important for their prey items. Increased mortality of bats due to increased width of A385 (which bisects strategic flyways) and potentially due to increased traffic caused by upgrade of the road and increased numbers of residents/workers.		following severe spring climate. - reducing the carrying capacity of the area therefore reducing the viability of the population. - increasing the risk of mortality associated with RTA, thus reducing population integrity in the long-term. If bats are killed on the highway, this can lead to a population decline (Brinkmann *et al.,* 2003; Limpens, 2005). Greater horseshoes forage by flying low over pasture at heights of 0.6-1.5m making them particularly vulnerable to road traffic if foraging takes place over road verges (Ransome 1996). Anecdotal observations (Bickmore et al. 2003) suggest that air turbulence caused by fast and large road traffic can suck nearby bats into the path of oncoming vehicles. An increase in traffic, due to a new road or improvement project, particularly when close to a nursery roost or swarming site, could cause significant mortality of bats, with inexperienced juvenile bats perhaps at most risk. Potential for positive impacts by provision of a net gain of greater	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
			horseshoe bat foraging or commuting habitat by appropriate habitat enhancement works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
Park and Ride at Torquay Two potential sites – one between Barton and the Willows coming off at Broomhill Way. Second at Gallows Gate between Shiphay and the Ring Road. Hard standing car park for up to 1,500 vehicles at one of the two proposed sites. Toilets and waiting facilities to be provided. Includes bus priority measures.				
Torbay Council Core Strategy – Option 1, Constrained development approach **Torbay Council Core Strategy – Option 2,** Urban Focus and Limited Greenfield Development Approach	The Torbay P&R sites are located in excess of 2km from Natura 2000 sites and outside GHS sustenance zones and flight paths. As such, no significant negative impacts are anticipated either alone or in-combination with other plans.			
Improvements to existing P&R at Brixham Currently a temporary seasonal facility is provided. The proposal is for hard standing car park for 350 cars with a further 300 space overflow grass-crete surface. Toilets and waiting facilities to be provided. Information point.				
Torbay Council Core Strategy – Option 1,	A study of greater horseshoes at Berry head (part of the South Hams	Habitat fragmentation of	Temporary and permanent loss or degradation of GHS flyways	- Assessment of affected habitat to identify

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
Constrained development approach 15,000 dwellings and 10,100 jobs (33ha/132,000 sq m net floorspace) within the built up area. Torbay Council Core Strategy – Option 2, Urban Focus and Limited Greenfield Development Approach Development in the built up area and Mayor's Vision sites. This approach suggests that about 10,700 dwellings can be achieved in the built up area. LTP3 – A380 South Devon link Road LTP3 – Improvements to the A385 to Totnes	SAC) showed bats followed tall hedgerows, tree-lines, pasture and/or woodland, and to gain access to the south and west of Brixham followed a narrow 5-10m corridor of cliff edge, scrub and mature hedgerows (English Nature, 2000).Increased severance of strategic GHS flight pathways close to the Park and Ride site caused by impacts to boundary hedgerows (i.e. by lighting/direct loss) and to the south east of Brixham due to construction of holiday parks have impact on the integrity of the SAC. The importance of grassland, hedgerow and woodland mosaics as foraging areas for greater horseshoe bats has been reported (Jones *et al.,* 1995 cited by English Nature, 2003). These landscape features are linked to the availability and abundance of key prey species such as large beetles and moths (Ransome, 1996). Landtake within the GHS sustenance zone required for the P&R in-combination with development associated with the Core Strategy DPD could have a significant negative effect on the South Hams SAC through the loss of GHS foraging areas and habitat which is important for their prey items. Loss of foraging habitat due to	flyways integral to South Hams SAC. Reduction in the area of sustenance zones.	and sustenance zones could negatively affect South Hams SAC by: - fragmenting the GHS population travelling to and from Berry Head by creating impassable barriers / reducing the number of flyways in and out of the Berry Head area, thus reducing viability of the population. Studies have identified the importance of maintaining the last remaining habitat link between Berry Head and roosts/feeding areas beyond Brixham (English Nature, 2002). - increasing energy expenditure of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions could lead to a population crash following severe spring climate.	suitability for GHS. - Surveys of linear landscape features affected by the proposals (as per specification provided by Natural England in the document 'South Hams SAC – Greater horseshoe bat consultation zone planning guidance). - Analysis of existing recorded flight path information for GHS within the affected area. - Assessment of proposed working areas to identify locations that could be enhanced e.g. defunct hedgerows or wide gaps in scrub/tree lines that could be gapped up for GHS bats.

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
	construction of the Park and Ride and housing/employment land.		- reducing the carrying capacity of the area therefore reducing the viability of the population. Potential for positive impacts by provision of a net gain of greater horseshoe bat foraging or commuting habitat by appropriate habitat enhancement works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	
A38 Park and Change Site at Drumbridges and A380 Park and Change site between Torbay and Newton Abbot				
Torbay Council Core Strategy – Option 1, Constrained development approach 15,000 dwellings and 10,100 jobs (33ha/132,000 sq m net floorspace) within the built up area. Torbay Council Core Strategy – Option 2, Urban Focus and Limited Greenfield Development Approach Development in the built up area and Mayor's Vision sites. This approach suggests that about 10,700	Severance or removal of linear features used by commuting GHS through Park and Change construction works and permanent land-take in-combination with new development associated with the Core Strategy could have a significant negative effect to South Hams SAC. A study at Chudleigh Caves and Woods SSSI (part of the South Hams SAC) identified watercourses, tall bushy hedgerows, sheltered woodland edge, and tree-lines as key flight corridors linking roosts with foraging areas (English Nature, 2002). Degradation in quality of commuting habitat features through the effects of construction disturbance, lighting and/or changes	Habitat fragmentation of flyways integral to South Hams SAC. Reduction in the area of sustenance zones.	Temporary and permanent loss or degradation of GHS flyways and sustenance zones could negatively affect South Hams SAC by: - fragmenting the GHS population travelling to and from Berry Head by creating impassable barriers / reducing the number of flyways in and out of the Berry Head area, thus reducing viability of the population. Studies have identified the importance of maintaining the last remaining habitat link between Berry Head and roosts/feeding areas beyond Brixham (English Nature, 2000).	- Assessment of affected habitat to identify suitability for GHS. - Surveys of linear landscape features affected by the proposals (as per specification provided by Natural England in the document 'South Hams SAC – Greater horseshoe bat consultation zone planning guidance). - Analysis of existing recorded flight path information for GHS within the affected area.

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
dwellings can be achieved in the built up area. LTP3 – A380 South Devon link Road LTP3 – Improvements to the A385 to Totnes	to vegetation structure as a result of the Park and Change proposals in-combination with development associated with the Core Strategy could have a significant negative effect to South Hams SAC. Increased mortality of bats through vehicle collision as a result of localised increases in traffic volumes associated with traffic movements to and from the Park and Change site in-combination with a rising population (and hence more traffic) accommodated by Core Strategy developments could have a significant negative effect to South Hams SAC. The importance of grassland, hedgerow and woodland mosaics as foraging areas for greater horseshoe bats has been reported (Jones *et al.,* 1995 cited by English Nature, 2002). These landscape features are linked to the availability and abundance of key prey species such as large beetles and moths (Ransome, 1996). The Park and Change proposals in-combination with development associated with the Core Strategy could have a significant negative effect on the South Hams SAC through the loss of GHS foraging areas and habitat which is important for their prey items.		- increasing energy expenditure of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions could lead to a population crash following severe spring climate. - reducing the carrying capacity of the area therefore reducing the viability of the population. Potential for positive impacts by provision of a net gain of greater horseshoe bat foraging or commuting habitat by appropriate habitat enhancement works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	- Assessment of proposed working areas to identify locations that could be enhanced e.g. defunct hedgerows or wide gaps in scrub/tree lines that could be gapped up for GHS bats.

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
	Habitat creation due to enhancements associated with construction and development works.			
Teignbridge Emerging Local Development Framework – Core Strategy Development Plan Document A new LDF is being prepared for Teignbridge. The Council has published and consulted on a series of Development Plan Documents that will replace 'saved' policies in the current adopted Teignbridge Local Plan 1989 – 2001 and will form the statutory development plan for Teignbridge outside the Dartmoor National Park; the Core Strategy Development Plan Document is one such document. The Core Strategy will be the main Development Plan Document included in the Teignbridge LDF and will provide an overarching planning framework for	Severance or removal of linear features used by commuting GHS through Park and Change construction works and permanent land-take in-combination with new development associated with the Core Strategy DPD (notably housing and employment provision in Newton Abbot [which has been identified by Natural England a GHS 'pinch point'], Chudleigh and Kingskerswell) could have a significant negative effect to South Hams SAC. A study at Chudleigh Caves and Woods SSSI (part of the South Hams SAC) identified watercourses, tall bushy hedgerows, sheltered woodland edge, and tree-lines as key flight corridors linking roosts with foraging areas (English Nature, 2002). Degradation in quality of commuting habitat features through the effects of construction disturbance, lighting and/or changes to vegetation structure as a result of the Park and Change proposals in-combination with development associated with the Core Strategy DPD (notably in Newton Abbot,	Habitat loss, fragmentation or disturbance to greater horseshoe bat flyways and foraging habitats integral to South Hams SAC.	Permanent or temporary loss or degradation of GHS flyways and foraging habitat could negatively affect South Hams SAC by: - fragmenting the GHS population by creating impassable barriers thus reducing the viability of the population in the medium to long-term by increasing susceptibility to local extinctions caused by roost and habitat loss outside the SAC boundary. - increasing energy burden of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population in the medium to long-term. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
Teignbridge for the next 20 years. The Core Strategy will address the need for growth through new homes, jobs, shops and other facilities.	Chudleigh and Kingskerswell) could have a significant negative effect to South Hams SAC. Increased mortality of bats through vehicle collision as a result of localised increases in traffic volumes associated with traffic movements to and from the Park and Change site in-combination with a rising population (and hence more traffic) accommodated by Core Strategy developments could have a significant negative effect to South Hams SAC. The importance of grassland, hedgerow and woodland mosaics as foraging areas for greater horseshoe bats has been reported (Jones *et al.,* 1995 cited by English Nature, 2003). These landscape features are linked to the availability and abundance of key prey species such as large beetles and moths (Ransome, 1996). The A380 proposals in-combination with development associated with the Core Strategy DPD could have a significant negative effect on the South Hams SAC through the loss of GHS foraging areas and habitat which is important for their prey items. Habitat creation due to enhancements associated with construction and development works.		could lead to a population crash following severe spring climate. - increasing the risk of mortality associated with RTA, thus reducing population integrity in the long-term. If bats are killed on the highway, this can lead to a population decline (Brinkmann *et al.,* 2003; Limpens, 2005). Greater horseshoes forage by flying low over pasture at heights of 0.6-1.5m making them particularly vulnerable to road traffic if foraging takes place over road verges (Ransome 1996). Anecdotal observations (Bickmore et al. 2003) suggest that air turbulence caused by fast and large road traffic can suck nearby bats into the path of oncoming vehicles. An increase in traffic, due to a new road or improvement project, particularly when close to a nursery roost or swarming site, could cause significant mortality of bats, with inexperienced juvenile bats perhaps at most risk. Potential for positive impacts by provision of a net gain of greater horseshoe bat foraging or commuting habitat by appropriate habitat enhancement	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
			works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	
Torbay Council and Devon County Council LTP3 - A380 South Devon Link Road Construction of new 5km dual carriageway road to include new junctions, segregated cycle/pedestrian route and eight bridge structures. Some lighting proposed.	Severance or removal of linear features used by commuting GHS through Park and Change construction works and permanent land-take in-combination with the proposed South Devon Link Road could have a significant negative effect to South Hams SAC. A study at Chudleigh Caves and Woods SSSI (part of the South Hams SAC) identified watercourses, tall bushy hedgerows, sheltered woodland edge, and tree-lines as key flight corridors linking roosts with foraging areas (English Nature, 2002). Degradation in quality of commuting habitat features through the effects of construction disturbance, lighting and/or changes to vegetation structure as a result of the A38 Park and Change proposals in-combination with development associated with the proposed South Devon Link Road could have a significant negative effect to South Hams SAC. Increased mortality of bats through vehicle collision as a result of	Habitat loss, fragmentation or disturbance to greater horseshoe bat flyways and foraging habitats integral to South Hams SAC.	Permanent or temporary loss or degradation of GHS flyways and foraging habitat could negatively affect South Hams SAC by: - fragmenting the GHS population by creating impassable barriers thus reducing the viability of the population in the medium to long-term by increasing susceptibility to local extinctions caused by roost and habitat loss outside the SAC boundary. - increasing energy burden of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population in the medium to long-term. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
	localised increases in traffic volumes associated with the Park and Change site and traffic movements along the proposed South Devon Link Road could have a significant negative effect to South Hams SAC. The importance of grassland, hedgerow and woodland mosaics as foraging areas for greater horseshoe bats has been reported (Jones *et al.,* 1995 cited by English Nature, 2003). These landscape features are linked to the availability and abundance of key prey species such as large beetles and moths (Ransome, 1996). The A38 Park and Change land-take and in-combination with development associated with the proposed South Devon Link Road could have a significant negative effect on the South Hams SAC through the loss of GHS foraging areas and habitat which is important for their prey items. Habitat creation due to enhancements associated with construction and development works.		could lead to a population crash following severe spring climate. - increasing the risk of mortality associated with RTA, thus reducing population integrity in the long-term. If bats are killed on the highway, this can lead to a population decline (Brinkmann *et al.,* 2003; Limpens, 2005). Greater horseshoes forage by flying low over pasture at heights of 0.6-1.5m making them particularly vulnerable to road traffic if foraging takes place over road verges (Ransome 1996). Anecdotal observations (Bickmore et al. 2003) suggest that air turbulence caused by fast and large road traffic can suck nearby bats into the path of oncoming vehicles. An increase in traffic, due to a new road or improvement project, particularly when close to a nursery roost or swarming site, could cause significant mortality of bats, with inexperienced juvenile bats perhaps at most risk. Potential for positive impacts by provision of a net gain of greater horseshoe bat foraging or commuting habitat by appropriate habitat enhancement	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
			works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	
Newton Abbott Area Action Plan 8,000 new homes, with provision for jobs, shops, community facilities and infrastructure within the built up areas of Newton Abbot and Kingsteignton.	Severance or removal of linear features used by commuting GHS through Park and Change construction works and permanent land-take in-combination with development associated with Newton Abbot AAP. A study at Chudleigh Caves and Woods SSSI (part of the South Hams SAC) identified watercourses, tall bushy hedgerows, sheltered woodland edge, and tree-lines as key flight corridors linking roosts with foraging areas (English Nature, 2002). Degradation in quality of commuting habitat features through the effects of construction disturbance, lighting and/or changes to vegetation structure as a result of the A38 Park and Change proposals in-combination with development associated with the Newton Abbot AAP proposals. Increased mortality of bats through vehicle collision as a result of localised increases in traffic volumes associated with the Park and Change site in-combination with increased	Habitat loss, fragmentation or disturbance to greater horseshoe bat flyways and foraging habitats integral to South Hams SAC.	Permanent or temporary loss or degradation of GHS flyways and foraging habitat could negatively affect South Hams SAC by: - fragmenting the GHS population by creating impassable barriers thus reducing the viability of the population in the medium to long-term by increasing susceptibility to local extinctions caused by roost and habitat loss outside the SAC boundary. - increasing energy burden of GHS by increasing distance of commute to foraging grounds and/or roost sites, thus reducing health and/or breeding success of individuals and consequently the integrity of the population in the medium to long-term. This is supported by Ransome (1996) who showed that short commuting distances (in combination with other variables) were related to survival rates of young GHS and their mothers, and predicted reverse conditions	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
	traffic volumes associated with a rising population (and hence more traffic) accommodated by the Newton Abbot AAP. The importance of grassland, hedgerow and woodland mosaics as foraging areas for greater horseshoe bats has been reported (Jones *et al.,* 1995 cited by English Nature, 2003). These landscape features are linked to the availability and abundance of key prey species such as large beetles and moths (Ransome, 1996). The A38 Park and Change land-take and in-combination with development associated with the Newton Abbot AAP could have a significant negative effect on the South Hams SAC through the loss of GHS foraging areas and habitat which is important for their prey items. Habitat creation due to enhancements associated with construction and development works.		could lead to a population crash following severe spring climate. - increasing the risk of mortality associated with RTA, thus reducing population integrity in the long-term. If bats are killed on the highway, this can lead to a population decline (Brinkmann *et al.,* 2003; Limpens, 2005). Greater horseshoes forage by flying low over pasture at heights of 0.6-1.5m making them particularly vulnerable to road traffic if foraging takes place over road verges (Ransome 1996). Anecdotal observations (Bickmore et al. 2003) suggest that air turbulence caused by fast and large road traffic can suck nearby bats into the path of oncoming vehicles. An increase in traffic, due to a new road or improvement project, particularly when close to a nursery roost or swarming site, could cause significant mortality of bats, with inexperienced juvenile bats perhaps at most risk. Potential for positive impacts by provision of a net gain of greater horseshoe bat foraging or commuting habitat by appropriate habitat enhancement	

	Pathway	In combination impact	Possible impact on receiver	Evidence that could be collected at mitigation stage for proposed project
			works, e.g. creation of woodland or scrub habitats within currently unsuitable areas such as arable land.	
Ferry services – Torquay to Brixham				
Torquay Harbour Area Action Plan (THAAP) The Area Action Plan will provide a framework for the conservation, enhancement and regeneration of a visually and economically important area of Torbay. The Plan seeks to contribute to the Community Plan by establishing the Harbour firmly at the centre of a revitalised Torbay which would become the pride of the local people and, in turn, attract tourists. The AAP includes several site specific allocations within the harbour area.	Existing harbour facilities need to be upgraded to improve boarding facilities, which are currently substandard. Improved integration with other transport modes needs to be included to make travelling by water a practical alternative to driving. Although some services already exist, these only operate during the peak summer season There is great potential for encouraging year round ferry services, linking not just internal Towns in Torbay, but connecting to the rest of Devon to destinations such as Dartmouth, Teignmouth & Exmouth.	Ferry services already exist in the peak summer season which is the period when recreational boating activities in the harbour are also at a maximum. It is therefore considered that the effects of increased ferry services at other times of the year are likely to be minimal and the integrity of the cSAC and Berry Head SAC will remain intact. However, it is important that project level mitigation measures are implemented – see below.	Physical damage in form of abrasion to reefs Lyme Bay to Torbay cSAC Disturbance to Berry Head SAC qualifying features	The HRA of the THAAP recommended strengthening policy TH3 (transport and access): Requiring detailed assessments of the effects of fast ferry service and increased boating on the interest feature.

Appendix D Mitigation Measures

Table D. Generic project level mitigation options available for LTP3 interventions affecting qualifying features of Natura 2000 sites.

Impact	Natura 2000 site affected	Generic mitigation options
Severance or removal of linear features used by commuting greater horseshoe bats through road construction works (including road widening schemes).	South Hams SAC	Safe crossing-points to allow bats to fly over or under new or improved roads in order to avoid road traffic mortality or to allow bats to continue to use traditional flight paths would be provided, where necessary. Bats will use existing crossing-points (such as culverts, side road and cattle underpasses, access tracks and pedestrian crossings) to cross roads. Where no suitable structures exist, new crossing-points would need to be provided or existing structures adapted. Bats will be more likely to use such crossing-points if linear planting 'corridors' are used to 'lead' bats towards crossing-point entrances such that there is no break in cover (DMRB, 1999). Purpose-built bat tunnels may also be considered in circumstances where it can be demonstrated that bats need to cross the road (for example between their roost site and a valuable foraging area) and cannot do so by any existing structure. The form of this tunnel/culvert can vary but should be greater than one metre in diameter. If possible, allowing water to flow through the culvert will increase its value for bats. Linear landscape planting to lead bats to the crossing point would also be provided, where necessary (DMRB, 1999).
Degradation in quality of commuting habitat features through combined effects of street lighting and/or changes to vegetation structure associated with road construction works.	South Hams SAC	Reduction or avoidance in street lighting at specific points would be considered if traditional commuting routes of greater horseshoe bats (which may perceive lit roads as a barrier) are severed. It may be necessary to modify or omit lighting from sections of road or sites close to breeding roosts, if at all possible (DMRB, 1999). To inform assessment of lighting impacts at project level contour mapping with intervals of 0.1lux will be necessary. This should take into account all phases of the proposed development and include an assessment of vehicles. Natural England advise that a 0.5lux threshold is the upper limit associated with an acceptable amount of light that greater horseshoe bats will tolerate. In 'pinch point scenarios', it is likely that any light spillage would be considered detrimental upon greater horseshoe bat habitat. To effectively inform a light assessment, a lux baseline will be required and illustrated with lux contour mapping. Where lighting is unavoidable, the use of low pressure sodium lamps is preferred due to its UV filtration characteristics as opposed to mercury or metal halide lamps. Lighting would be directed to where it is

		needed with light spillage onto potential bat habitat avoided by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only. The use of planting to create dark corridors alongside illuminated areas would also be considered. (BCT, 2009). Where appropriate, new wetland or woodland features or new links between isolated patches of potentially valuable bat habitats would be created (DMRB, 1999). The 'gapping-up' of hedges or improvement to defunct linear features within the local landscape would also be undertaken, where such opportunities occur.
Impact	**Natura 2000 site affected**	**Generic mitigation options**
Loss or degradation in quality of, suitable foraging habitat for greater horseshoe bats within or outside key sustenance zones.	South Hams SAC	Habitat creation and enhancement schemes for bats should endeavour to preserve or enhance the availability of features which generate large volumes of insect food such as woodland and water margins. Where habitats of value to bats have been lost as a result of highways operations, these would be replaced on a like-for-like basis (DMRB, 1999).
Land-based pollution affecting water quality	Lyme Bay to Torbay cSAC	All works would comply with Environment Agency guidance relating to pollution prevention, notably: - PPG1: General guide to the prevention of pollution. - PPG5: Works or maintenance in or near water. - PPG6: Working at construction and demolition sites. - PPG7: Refuelling facilities. - PPG21: Incident response planning. Measures such as netting, fencing and systems to treat or contain runoff or spillages (to avoid pollution of sensitive habitats or poisoning of species) should be provided in line with the relevant legislation and guidance (DMRB, 1999). Production of a Pollution Prevention Plan as recommended in the Torbay Harbour AAP HRA that includes method statements is necessary for management of all potentially polluting activities on the site. The provision of Sustainable Urban Drainage Systems (SUDS).
Disturbance and physical abrasion of sea reefs	Lyme Bay to Torbay cSAC	It is recommended that the mitigation measures outlined in the Torbay Harbour AAP HRA are followed, particularly those that state: No measures for vessels passing through the cSAC are likely to be required for the current level of shipping movements and vessel sizes. Restrictions may need to be introduced to Torquay Harbour

		Area Action Plan Regulation 27 if anchoring is demonstrated to be impacting on the interest features. If anchoring sites are changed this may bring the vessels closer to or further away from the coast depending on where the present anchoring areas are situated. Surface run-off water pollution (oil spills, chemicals etc.) during construction and operation phases is likely to have cumulative negative impact on both water quality and species in the Harbour. **Production of a Pollution Prevention Plan** that includes method statements is necessary for management of all potentially polluting activities on the site. Even though the likely negative impact on sea caves is considered to be low, existing and proposed mitigation should be integral to the management of the sea caves by Harbour Authority to ensure that the integrity of the cSAC is not compromised. Environmental education and interpretation facilities should be provided for all boaters using the harbour on the importance of the cSAC and ways of protecting it. Further information is required regarding the location and scale of contamination through toilets flushing of untreated sewage at the cSAC area, as this will enable a more accurate assessment of possible effects of such activities on this site.
Recreational pressures – calcareous grassland and heathland	South Hams SAC/Lyme Bay to Torbay cSAC	Recreational management techniques should be considered on a site by site basis to minimise trampling, erosion and disturbance. For example the *Berry Head Conservation Management Plan 2007*-2017 (Torbay Coast & Countryside Trust), notes a range of methods including managing the approach roads, car parks, and roads within the site. In addition Objective 6.1.2 states "Work with the local authority to develop appropriate land use policies in the emerging Local Development Framework". A Partnership approach in resolving recreational pressure issues at a strategic level is a sustainable way forward. Provision of SANGS and Green Open Spaces to encourage recreational activities in areas away from Natura 2000 sites organised on a project by project basis.

Table E. Survey specification for LTP3 Interventions affecting qualifying features of South Hams Special Area of Conservation

Trigger for bat surveys	Schemes satisfying trigger criteria	Survey specification
1. Schemes within a strategic flyway or	- A380 South Devon Link Road	(i) Surveys should pay particular attention to linear landscape features such as watercourses, transport corridors (e.g. roads, sunken lanes, railways), walls, and to features that form a linear feature such as

sustenance zone that require the removal of trees and/or hedgerows[1]. 2. Schemes within a strategic flyway or sustenance zone that would add luminance to the existing lighting regime[2]. 3. Scheme located within a 'pinch point' i.e. River Dart at Totnes, Buckfastleigh roost, Berry Head roost, and Newton Abbot.	- Western Corridor Improvements - A385 improvements to Totnes - Improvements to existing P&R at Brixham - Park and Change sites – A38 Drumbridges A380 between Torbay and Newton Abbot	hedgerows, coppice, woodland fringe, tree lines and areas of scrub and pasture that may provide flight lines. (ii) Manual surveys should be carried out on ten separate evenings; at least one survey should be undertaken in each month from April to October, as the bats' movements vary through the year. Moreover, manual surveys only give a snap shot of activity (10 nights out of 214; ≈5%) therefore automated bat detector systems should also be deployed see section (vi). (iii) Surveys should be carried out on warm (>10 ℃ but >15℃ in late summer), still evenings that provide optimal conditions for foraging (insect activity is significantly reduced at low temperatures. Details of temperature and weather conditions during surveys should be included in the final report. (iv) Surveys should cover the period of peak activity for bats from sunset for at least the next 3 hrs. (v) Surveys should preferably be with broadband detectors as these provide a record of echolocation signals, although appropriately tuned heterodyne detectors (81-83kHz) will be sufficient. Digital echolocation records of the survey should be made available with the final report; along with details of the type and serial number of the detector. (vi) Automatic bat detector systems should be deployed at an appropriate location (i.e. on a likely flyway; the precise location can also be adjusted from the manual survey findings). The period of deployment should be at least 50 days from April to October and would include at least one whole week in each of the months of April, May, August, September and October (50 nights out of 214; ≈25%). (vii) Surveys should be carried out by suitably qualified and experienced persons. Numbers of personnel involved should be agreed beforehand with Natural England, be indicated in any report and be sufficient to thoroughly and comprehensively survey the size of site in question. (viii) Surveys should also include desktop exercises in collating any records and past data relating to the site via Devon Biodiversity Records Centre, local Bat Group etc. (ix) All bat activity should be clearly marked on maps and included within the report. (x) Basic details of records for the site should be passed to the appropriate local Biological Records Centre after determination of the application.

Notes

[1] In some circumstances, tree and hedgerow removal associated with a development may be compensated without the need for a full survey; to justify this approach a suitably qualified ecologist would be required to visit and submit an appropriate report.

[2] In some circumstances, the lighting impacts associated with a development may be mitigated without the need for a full survey; to justify this approach a suitably qualified ecologist would be required to visit and submit an appropriate report. Adding luminance includes street and highway lighting, and internal/external lighting sources. Adding luminance is defined by changing the lighting regime from a previously unlit situation.