

# 9 TECHNICAL OVERVIEW

## 9.1 Justification Overview

This section of the report sets out a high level overview of each of the technical areas of work which have been addressed as part of the project.

The team (outline adjacent) were engaged at different stages in the evolution of the project however each has had sufficient time involved, and engagement with relevant co-consultants, to ensure that cross discipline matters have been appropriately considered.

The following sections set out an overview of the position. For full details, reference should be made to the relevant technical report/chapter of Environmental Statement.



**Nicholas Pearson Associates**  
LVIA and Ecology



**Key Transport Consultants**  
Transport Planning



**Acoustic Consultants**  
Acoustics Engineer



**ClarkeBond**  
Geoenvironmental and Drainage Engineer



**Hydrock**  
External Lighting Engineer



**Evolve**  
Arboricultural Assessor



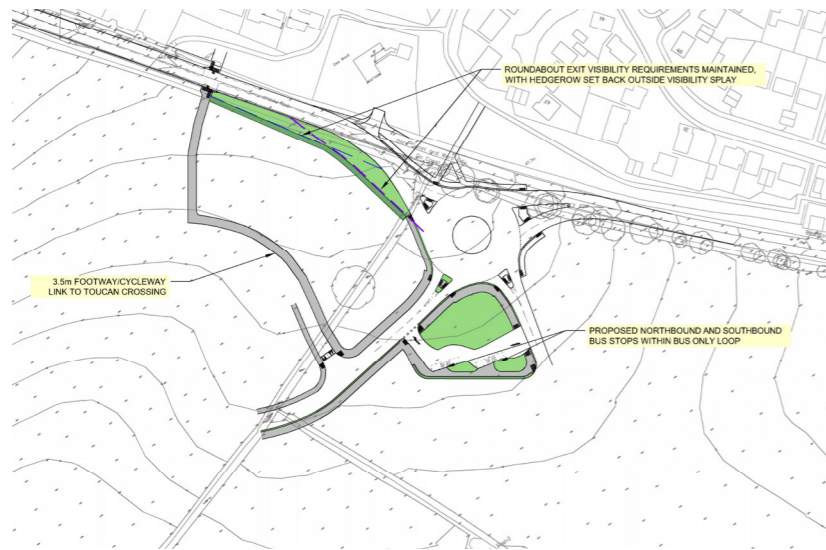
**Air Quality (AQ) Consultants**  
Air Quality Assessor



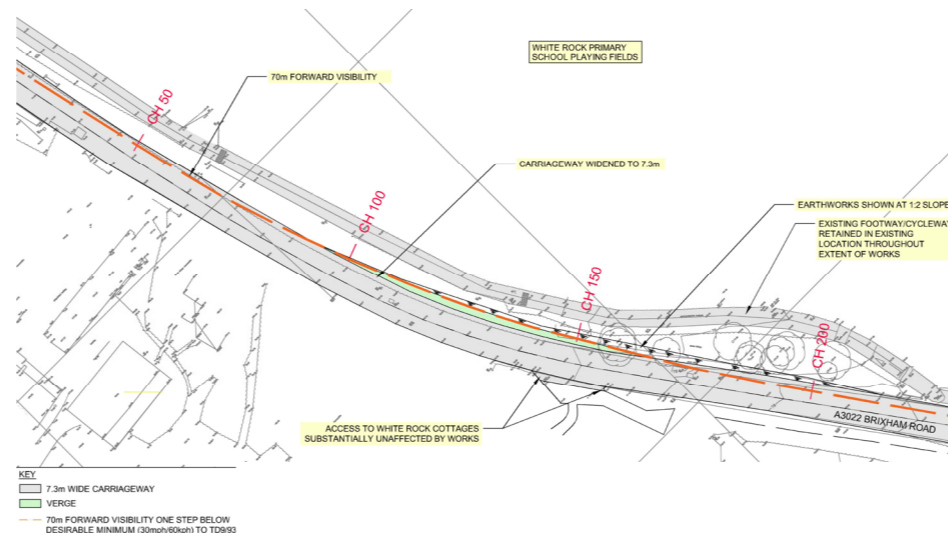
**Hoare LEA**  
Sustainability Assessor



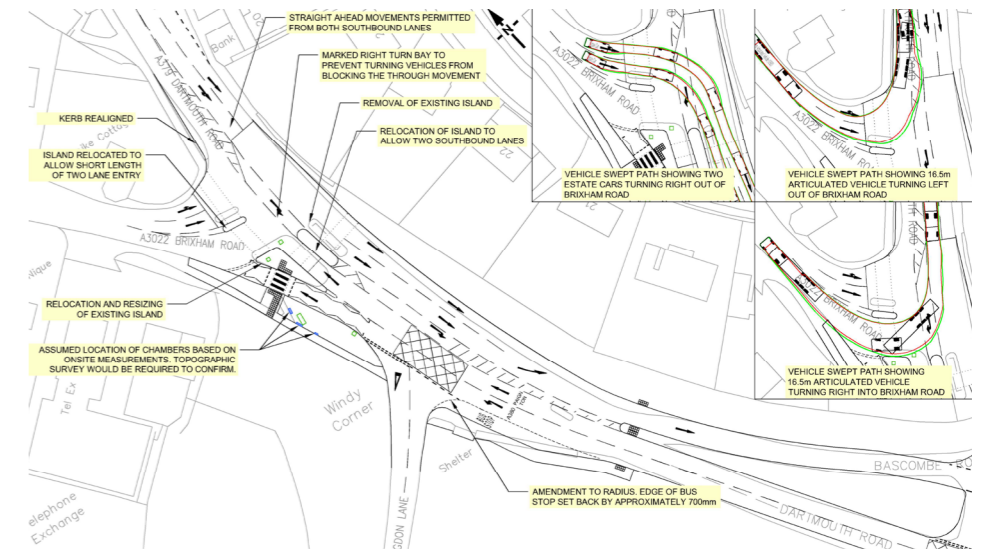
**Archæadia**  
Archaeology Assessor



Proposed Four-Arm Access Roundabout



Proposed Brixham Road Widening



Proposed Windy Corner

## 9.2 Highways

The site will be accessed via a new four-arm roundabout junction, with two arms serving the site. This junction will be able to cater for the level of development proposed in the mixed use scheme. Crossing points with dropped kerbs and tactile paving will be provided on each arm of the proposed site access roundabout junction.

A new Toucan crossing will be introduced to provide a safe route across Brixham Road for both pedestrians and cyclists. The crossing has been located to connect to the footway/cycleway network east of Brixham Road to enable parents residing in that area to safely reach the proposed new Primary School within the site. The crossing will also provide a link for the existing residents living on the eastern side of Brixham Road to reach the new areas of public open space and play areas provided in the site, and for new residents to walk to the existing amenities on Hookhills Road.

A pedestrian crossing will be introduced serving the southern end of the site, located just north of the junction of Brixham Road with Hunters Tor Drive. This crossing point will make use of an existing island in the middle of the road. This will provide a route for new residents to walk to local facilities at Churston and will again provide access to existing residents in the area to the new public spaces created within the site.

A footpath connection will be provided from the northern end of the site to the existing White Rock development, providing an off-road route to South Devon College and other employment opportunities to the north. This link is also considered to be beneficial to existing residents in the area.

The development proposes to provide two new bus stops within the development in the vicinity of the site access roundabout to serve northbound and

southbound services on Brixham Road. Agreement has been reached with Stagecoach to extend the route of the 23 service, which links Paignton town centre to South Devon College, in order to serve the site, while improving the service frequency to the College. The pedestrian facilities mentioned previously will mean that these new bus stops are beneficial to both existing and new residents.

Parking provision for all housing will meet the requirements set out in the Local Plan thus helping to ensure that it is appropriately managed. Brixham Road will be widened along the site frontage to 7.3m. The existing road varies in width but is mostly below 7m.

The bend on Brixham Road to the north of the site will be widened to 7.3m. A grass verge will be provided on the inside of the bend and the bank will be regraded to improve the visibility around the corner to 70m, which is a substantial improvement on existing. The level of the road at the crest of the hill will also be lowered slightly (up to approximately 200mm) which will also help to improve the visibility over the crest of the hill. The access to the White Rock cottages adjacent to the bend will be regraded locally to tie-in to the new levels.

The speed limit on Brixham Road along the site frontage will be reduced throughout to 30mph. At present the existing 40mph limit continues south

from the Kingsway Avenue signal controlled junction to the north (where Brixham Road is five lanes wide), and reduces to 30mph approximately 130m south of the junction with Hunters Tor Drive.

Minor improvements are proposed at the A3022 Brixham Road junction with Long Road and Goodrington Road to increase capacity. The improvements will increase the length of two lane approach to the traffic signals on Goodrington Road and the length of the left turn lane on the northbound Brixham Road approach.

Improvements are also proposed at the junction of A379 Dartmouth Road with A3022 Brixham Road, known locally as Windy Corner. The improvements comprise the introduction of two lanes on the southbound Dartmouth Road exit, the introduction of space to wait within the junction for vehicles turning right from Dartmouth Road into Brixham Road, and the introduction of a short length of two lanes on the Brixham road approach. The improvements are designed to increase capacity by enabling southbound traffic on Dartmouth Road to use both southbound lanes without being obstructed by right turning vehicles, and to increase capacity on the Brixham Road approach. The layout of the improvement has been designed to tie in to Torbay Council's own scheme to increase capacity to the south of the junction by realigning Bascombe Road.



## 9.3 Ecology

### Ecological Value of the Site

To understand the ecological value of the Site, the following detailed surveys were undertaken:

- Desktop study – including search of protected species records and review of surveys which have been undertaken since 2010;
- Habitat Surveys – to identify the inherent value and potential to support wildlife;
- Bats– Intensive surveys undertaken across April-October using manual and automated techniques to gather detailed understanding of bat activity across the Site;
- Birds – Survey for breeding birds and also dedicated breeding and wintering surveys for Cirl Bunting;
- Badgers – Site walked searching for evidence e.g. setts, latrines;
- Dormice– nest tubes deployed across Site hedgerows and adjacent woodland, and checked between April and November;
- Great Crested Newts (GCN) – Pond water samples subject to laboratory analysis to determine presence/absence of GCN DNA;
- Reptiles – roofing felt refugia deployed across the Site and checked on seven subsequent occasions for the presence of reptiles; and
- Invertebrates – experienced entomologist undertook a survey to determine the potential invertebrate interest of the Site.

This work determined that whilst the intensely managed cattle pasture and arable land was of limited inherent nature conservation value, the hedgerow network was of greater value. Recent tree planting is present on many historically heavily managed hedgebanks as part of off-site mitigation

for the White Rock development to the north.

Whilst the cattle pasture is of limited value for much wildlife, it is recognised as an important habitat type for Greater Horseshoe bats (GHS), which benefit from the availability of dung beetle prey items. The presence of the cattle pasture and hedgerow network is of added value given that the Site is within a sustenance zone associated with a site of European importance for GHS at the Berry Head peninsula, which is afforded strict legal protection under the Habitat and Species Regulations 2010. The detailed bat surveys recorded low numbers of GHS roosting within 200m of the Site, GHS foraging across the Site and a diverse range of other bat species foraging across the Site. These records were predominantly associated with the hedgerow network.

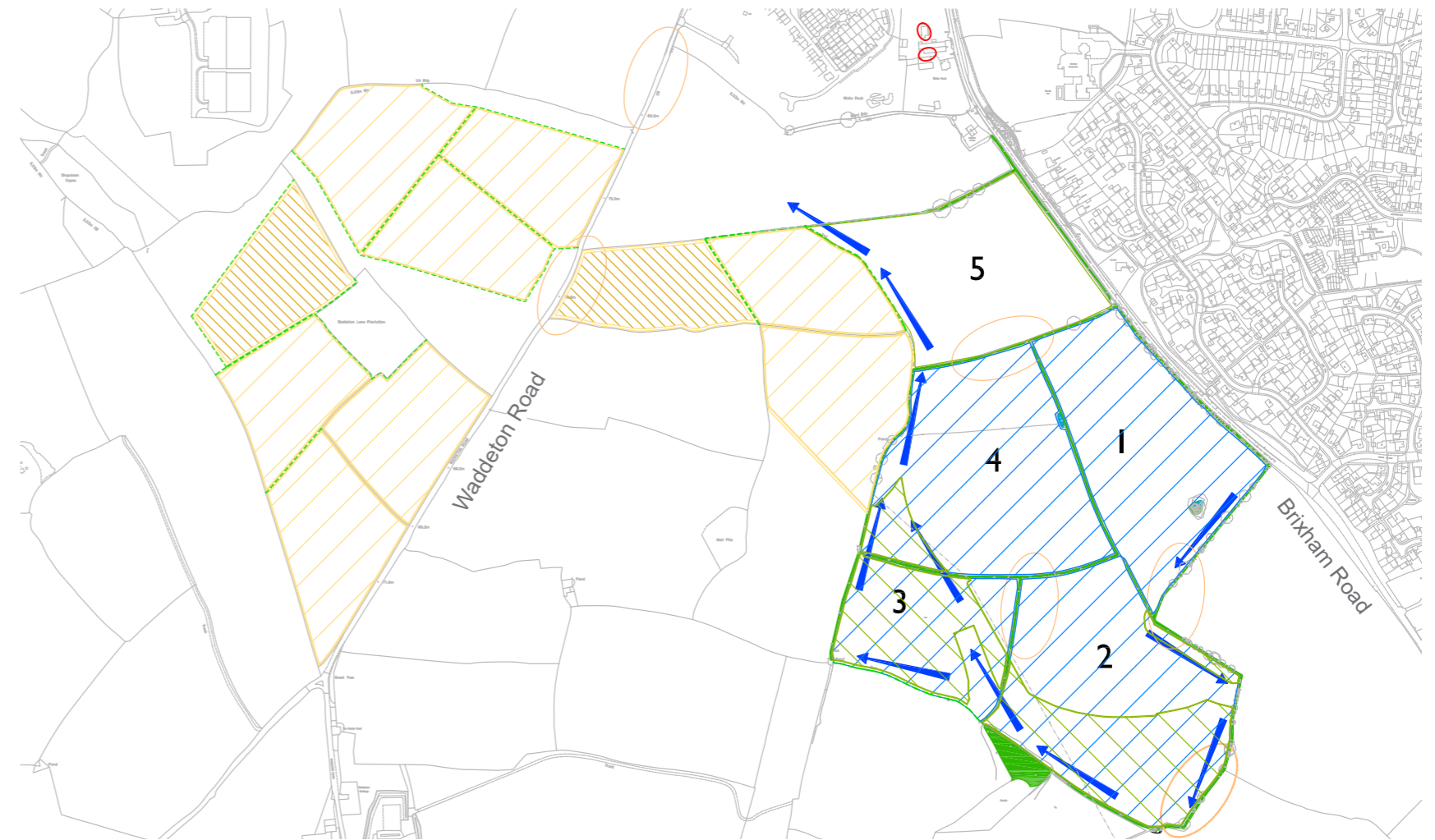
The bird surveys recorded four breeding pairs of Cirl Bunting on Site and a typical diversity of other species associated with farmland. Again these records were predominantly associated with the hedgerow network.

The Site was considered to support habitat of moderate potential conservation value for invertebrates. The hedgerow network largely providing this potential, with the site's grasslands being considered of low conservation value due to their limited botanical and structural interest.

The surveys did not record any evidence of GCN or Dormice, and only a maximum count of two Slow-Worms.

**KEY**

- 5 Field reference
- Existing hedge, tree and woodland resource
- Existing Waterbodies - low ecology value to be retained
- Fields that were subject to cattle grazing in 2016 (Total approx 22ha). Cattle grazed pasture provides habitat for Greater Horseshoe bats (i.e. they feed on the Dung Beetles)
- Existing bat Roost (inc. horseshoe bats)
- Breeding Cirl Bunting records from 2016 survey
- Proposed wood pasture, bounded by field margins, hedges and/or woodland.
- Proposed new hedge banks. Much of which is based on old hedge bank network. More proposed than lost/affected.
- Proposed key bat flight line
- Proposed off-site grazing with field margins. In combination with the proposed wood pasture this would equate to no net loss of cattle grazed pasture. Grazed leniently to provide invertebrate prey for Cirl Bunting as well as Dung Beetles for Greater Horseshoe bats.
- Proposed Spring Barley left as over-wintering stubble for benefit of farmland birds inc. Cirl Bunting.



Ecology Constraints and Opportunities

**Design Response**

The information gathered through these surveys and feedback from the local authority, members of the public, Natural England and the RSPB, was then used to inform the development proposals.

In accordance with legislation, policy and client aspiration, the aim was protect and enhance the ecology interest of the Site.

Within the built development footprint the design has allowed for the majority of the hedgerow network to be retained and kept dark (i.e. to minimise potential effect on nocturnal fauna). In addition, tree, hedge and orchard planting is proposed across the built footprint to allow for wildlife use of the Site. This includes a strong

hedgerow and woodland network around the south and west of the Site to allow for bat movement through the wider landscape.

However it is recognised that even with these measures within the built development footprint, additional mitigation is required to achieve sufficient ecology protection and enhancement (i.e. to mitigate for the increased disturbance, loss of supporting farmland and lighting). As such approximately 7ha of land at the southern extent of the red line would remain in agricultural use and an additional approximate 23ha of agricultural land adjacent to the Site is proposed to be enhanced for wildlife.

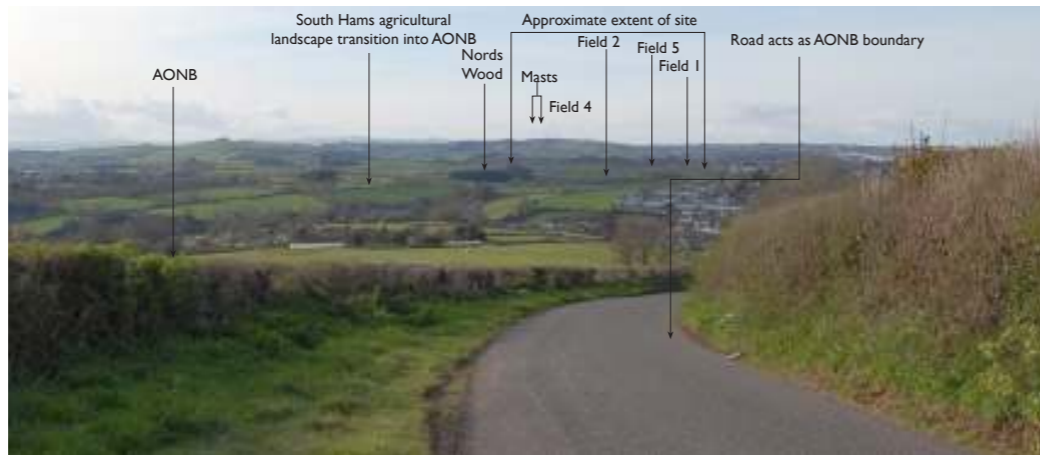
The farming practices would be relaxed within this 30ha to achieve overall ecological enhancements.

This would include:

- Reversion of arable land to pasture to achieve no net loss of cattle grazed pasture (i.e. to maintain the availability of dung beetles prey items for GHS;
- Relaxing the grazing to increase invertebrate populations and increase prey items for GHS and Cirl Buntings (as well as other bat and bird species);
- Provision of field margins to create areas of wildlife refuge and botanical interest;
- Tree planting within the area to the South of Site to create wood-pasture;
- Planting in excess of 2km of hedgerows, based on the historic hedgerow network;
- Creation of approximately 4ha of spring sown barley crops to be left as over-wintering stubble to provide a food source for over-wintering birds;
- Planting of approximately 0.5ha of broad-leaved native woodland blocks;

- Creation of a wildlife pond; and
  - Creation of two bat houses, located within cattle grazed pasture next to commuting features.
- It is recognised that these new habitats would take time to establish. As such the proposals allow for early planting in advance of construction to avoid significant short-term impacts. The habitats on and off-site would be subject to sensitive management practices (set out in Landscape and Habitat Management Plans) to ensure their value is maximised.

Given the design response to the ecology constraints of the Site, it is considered that negative impacts would be avoided and that significant positive impacts would be achieved in the long term.



Illustrative Existing Viewpoint from Kennel Lane near Galmpton Reservoir



Illustrative Existing Viewpoint from South of River Dart



Landscape Character & Visual Constraints

## 9.4 Landscape & Visual Impact Assessment (LVIA)

### Introduction

The Landscape and Visual Impact Assessment (LVIA), investigates the potential impacts (on the site and its locality and on the viewers) of proposed residential development on agricultural land west of and adjacent to the urban edge of Goodrington, Paignton, Devon. The landscape receptors, visual receptors and the viewpoint locations were agreed with the local planning authority landscape officers (for Teignmouth-Torbay and for the South Hams) and the South Devon AONB manager. The full LVIA and associated figures are contained within the Environmental Statement.

Landscape and visual considerations have been integrated into the scheme design with those of other disciplines such as ecology, drainage, lighting, cultural heritage, architecture and urban design.

### Landscape Character and Visibility

The site lies within Devon wide Landscape Character Area/ Type: LCT 3B: Lower rolling farmed and settled valley slopes, as defined by Devon Council. The site landscape and its surroundings, with its rolling agricultural fields, high hedge-banks, hedgerow trees and copses, is typical of this South Devon landscape type. The south western part of the site is more closely associated with the River Dart valley sides. The Waddeton and Galmpton Conservation Areas (CA)s lie within this local landscape some fields away from the site.

The site is visible from some of the elevated AONB landscape, as it rises to the south and to the south west. The South Devon AONB is around 500m from the nearest part of the site, where the River Dart valley side meets the rolling plateau. Visibility varies as the site lies on an undulating plateau which falls

overall to the south/south-west, to the River Dart.

Scattered woodland blocks, hedgerows on hedge-banks, and the urban edges of Goodrington to the East, and Galmpton to the southeast limit possible views to the site, reducing the visual envelope.

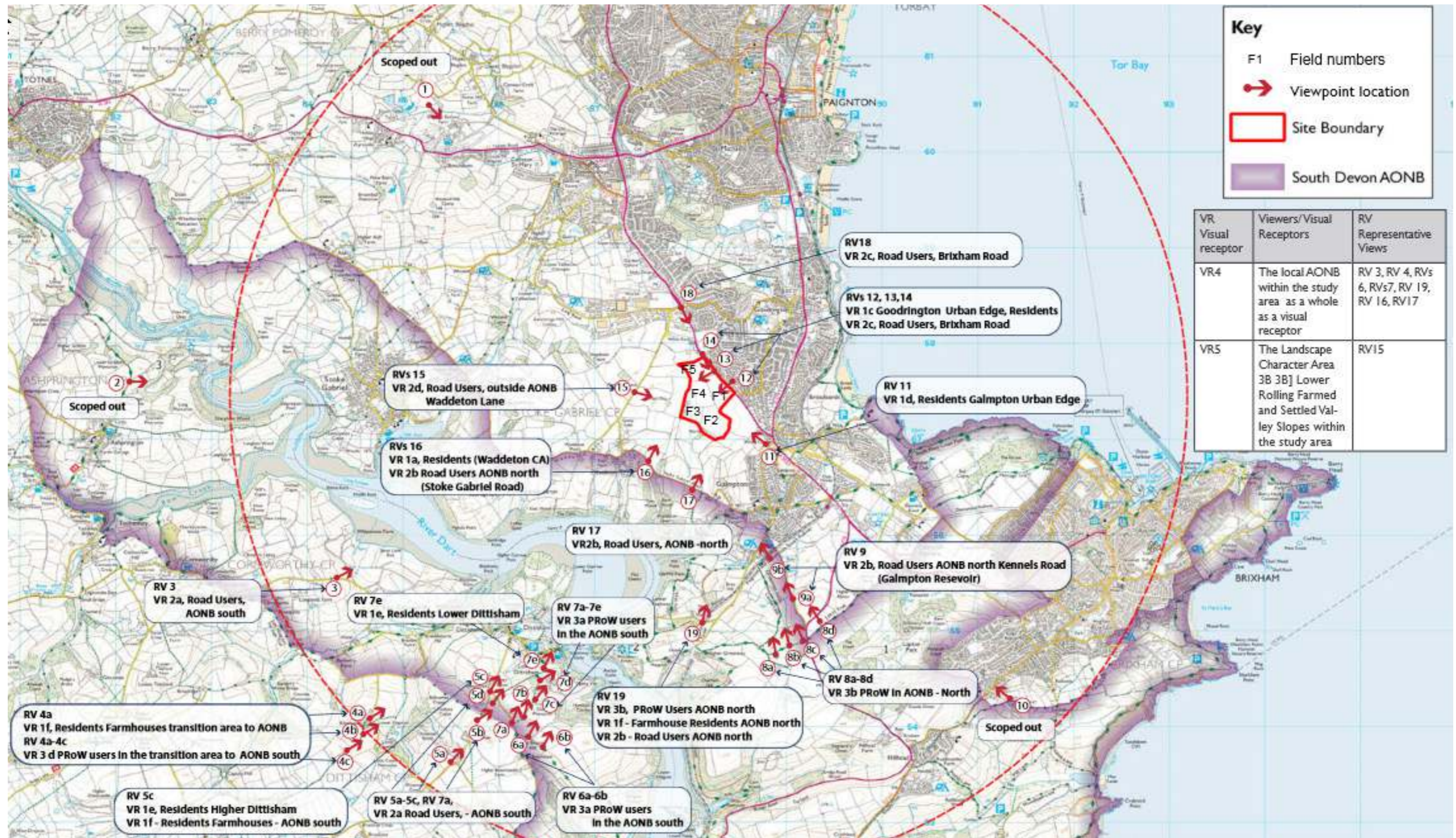
Selected viewpoint photographs from various orientations and locations were chosen to represent and describe the views obtained by the visual receptors:

- Residents
- Road users
- Recreational and non-recreational users of Public Rights of Way (PRoWs)
- The Conservation Areas
- The local AONB as a whole as a visual receptor

Mitigation has been part of the iterative design process and includes selection of fields to develop and structural planting.

### Landscape Effects On the Rolling Farmed and Valley Slopes within the Study Area

The development and structural planting have been carefully located with sensitivity to the wider context to integrate the scheme into the locality. Although the development will mean the land-scape within the site will change, the level of effect is moderated as the site is on the urban edge and only a small area of this local landscape type is involved. It is considered that the essential quality of this wider landscape within the study area will not be significantly changed.



Viewpoint Locations with Visual Receptors

### Conservation Areas

The Waddeton and Galmpton Conservation Areas (CA)s lie within this landscape on the valley side. There are no direct landscape effects on the CAs. Indirect landscape effects, that is changes to the landscape surrounding the conservation areas, are considered. The

development footprint has been moved away from the edge of the site to the south and south west, the valley side. This, combined with supporting structure planting in key locations, results in the landscape around the conservation areas not being significantly changed and the designation of the conservation area will not be affected.

### Landscape Effects on the Local South Devon AONB within the Study Area

The development is not within the AONB but there is intervisibility between some of the site land-scape and some of the AONB. The urban edge is a feature in the wider context of the AONB, as noted in the AONB Management Plan. Key structural planting

will integrate the development into the landscape. It is judged that the essential landscape quality of the local AONB within the study area will not be significantly changed.