

Carluddon A391 road improvement

Volume IV - Non-Technical Summary



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1 Introduction

1.1 Introduction

- 1.1.1 Cornwall Council is seeking planning permission to build the proposed Carluddon A391 Road Improvement, located one mile north of St Austell. It will include a new 1.6km section of road located to the west of the existing A391, non motorised user routes run along the new section of road and two non-motorised user bridge crossings connecting east to west.
- 1.1.2 In this document the proposed Carluddon A391 Road Improvement is referred to as the proposed Development.
- 1.1.3 A planning application has been submitted to Cornwall Council together with an Environmental Statement (ES) in accordance with the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2011. Cornwall Council has commissioned an Environmental Impact Assessment (EIA) to be undertaken; the results of the EIA are reported in the ES.
- 1.1.4 This document is the Non Technical Summary (NTS) of the Carluddon A391 Road Improvement ES. The ES comprises:
- Volume I – Environmental Statement
 - Volume II – Figures
 - Volume III – Appendices
 - Volume IV –Non Technical Summary
- 1.1.5 A Technology Park is proposed adjacent to the proposed Development. The Technology Park has been submitted as a separate planning application. Details of the proposed Technology Park are provided in a separate Non Technical Summary. The ES reports the impacts of both of the proposed Developments separately and in-combination.
- 1.1.6 The submitted planning application can be viewed online at www.cornwall.gov.uk/carluddon.
- 1.1.7 Electronic copies of the ES can be made available at a fee of £10 per CD. Hard copies can also made available for a fee of £150, to order a copy please contact Bryony Stocking at the following address:
- c/o AECOM
Portwall Place
Portwall Lane
Bristol
BS1 6NB
Tel: 0117 901 7000
- 1.1.8 The ES can also be viewed in person at the following location:
- Cornwall Council
St Austell One Stop Shop
39 Penwinnick Road
St Austell
PL25 5DR

2 Description of proposed Development

2.1 Site Context

- 2.1.1 The proposed Development is located on a former china clay workings, approximately one mile to the north of the settlement of St. Austell. The Development site is located between the villages of Scredda, Carludon, Penwithick and the non-operational china clay workings of West Carclaze and Baal.
- 2.1.2 Although the site is no longer mined for china clay, the past mining activities have modified the local landscape and vegetation. The site is made up of a combination of spoil material generated by china clay mining (such as the prominent mound of spoiled land known as the “Sky Tip”) and heath and moorland commonly found throughout the UK.
- 2.1.3 The majority of the land within the application site has historically been used as a private haul road for the china clay industry and forms a dirt track on site.
- 2.1.4 The site is crossed by china clay pipes which take clay slurry from operational areas of the Imery’s china clay mine to a nearby refinery for processing.

2.2 Development Description

- 2.2.1 The proposed Development will consist of the following improvements:
- Construction of a new 40mph single carriage way road approximately 1.6km in length and 6.7m wide.
 - Construction of a new roundabout called the Great Treverbyn roundabout;
 - Alterations to the existing Scredda roundabout;
 - New and upgraded non-motorised routes alongside the proposed road;
 - Provision of two bridges providing non motorised users links to the west and east across the proposed road. The northern bridge will be a wide green bridge with planted and embankments and the southern bridge will be a dark green steel structure;
 - A “green” bridge with access for pedestrians, cyclists and horse riders, linking the existing A391;
 - New bus stops and pedestrian crossings along the proposed road;
 - Provision of bus only access to the existing A391 from the south; and
 - Re-alignment of the china clay pipes.
- 2.2.2 The new road will diverge from the existing A391 near Penwithick (just north of Penhale Road), continue south close to the Sky Tip and join back into the existing Scredda roundabout.

2.3 Construction

- 2.3.1 Construction is expected to take approximately 18 months.
- 2.3.2 The construction area will be fenced and will require the removal of vegetation and material using large machinery and vehicles.
- 2.3.3 Temporary construction compounds will be created to store vehicles, construction materials and a site office. The main compound will most likely be located on the site of the proposed Technology Park, with smaller storage compounds located within the fenced boundary of the road improvement. The construction compounds will be located away from sensitive areas, such as residential houses.
- 2.3.4 A Construction Environmental Management Plan (CEMP) will be developed to control and manage issues that could potentially affect people or the environment during construction.

- 2.3.5 The volume of hard material (rock) to be excavated from the road improvement is approximately 3000m³ and the volume of general excavation is approximately 50,000m³. Where ever possible, excavated material will be reused or recycled in the construction to minimise the amount of material that needs to be disposed offsite or in landfill
- 2.3.6 The remainder of material required for construction will be imported to site. Local commercial quarries will be potential sources for this material; however, only quarries that conform to all necessary statutory consents will be used.
- 2.3.7 Concrete will be required throughout the construction period and will be ordered from local suppliers or batched on site.

2.4 Operation

- 2.4.1 Once construction is completed, the operation and long-term management of the proposed Development will be the responsibility of Cornwall Council.
- 2.4.2 A detailed description of the proposed Development is provided in Chapter 4 of the ES which considers the Proposed Development and Alternatives.

3 Rationale for the proposed Development

- 3.1.1 Proposals to improve the existing A391 have been considered since the late 1980s, following a report which highlighted problems with large traffic volumes in and around St Austell, including the existing A391.
- 3.1.2 The history of proposals to improve the A391 from St Austell to the A30 has resulted in a number of alternatives being considered over time. A combination of changing government policies and community opposition to original alternatives resulted in A391 development proposals being suspended numerous times until 2000. Following renewed interest in the potential for an improved A391 to assist regeneration and employment in the local area, work once again began on determining route alternatives. Community consultation and feasibility investigations were undertaken over a number of years, resulting in a planning application being submitted in 2005 for a preferred route, known as “Route D”. The planning application was eventually withdrawn in 2006 due to a change in the availability of funding.
- 3.1.3 In 2007, a competition for the funding of 10 eco-communities with the objective of creating a healthy sustainable living environment and affordable housing, resulted in Imerys expressing interest in using their land that was no longer needed for china clay operations. This resulted in a review of A391 proposals in light of the newly available routes through Imerys’s non-operational land. Plans for a West Carclaze and Baal eco-community were developed which included a section of the proposed A391 route. In order to build this route, European funding is required and this funding is time limited. To secure European funding a planning permission is required so in the absence of a decision on the eco-community application the project could not progress.
- 3.1.4 In late 2011, Cornwall Council decided that a separate planning application for the Carluddon A391 Road Improvement would be required, in order to meet ERDF timescales. This application is the result of this decision. Further detail on the background to the proposed Development is detailed in Chapter 3 of the ES.
- 3.1.5 The alternative development options considered as part of this ES are outlined below.

Do Nothing Scenario

- 3.1.6 If the Carluddon A391 Road Improvement is not constructed, road traffic volumes would continue to increase. This could result in failure of the double roundabouts at Carluddon and increased congestion at Carluddon, Penwithick, Bugle and Stenalees.

Do Something Scenarios

- 3.1.7 Green route: Extends from the existing A391 north of the roundabout at Scredda and follows the existing A391 route through Carluddon and then extends north to Bugle near Penhale Road, passing west of Penwithick. This route was discounted for reasons including: not adequately dealing with congestion, being too close to properties in Penwithick, Bugle and Rosevear, the required closure of the existing A391 during construction and because it was not considered by residents to provide appropriate traffic relief.
- 3.1.8 Eco-Bos western route: Related to the development of planning application for the West Carclaze and Baal eco-communities but was never formally proposed. This route extends west from the existing A391 north of the Scredda roundabout, goes around the edge of the West Carclaze and Great Treverbyn mica dams and heads in a north westerly direction before rejoining the existing A391 on the opposite side of the Single Road in Stenalees. This route was discounted for reasons including cost and timing issues associated with funding, concerns about visual impact and inconvenience to residents in Penwithick.
- 3.1.9 Purple route: Extends from the existing A391 north of the roundabout at Scredda but diverts northwards through Baal and then open land to the east of Penwithick. This route was discounted due to effects on County Wildlife Sites and impacts to the open countryside.
- 3.1.10 Route D: Extends from the existing A391 north of the roundabout at Scredda and, then follows a more westerly alignment past two disused tips, towards South Carluddon Farm and Carluddon Farm, crossing the existing A391 and continuing north to Bugle, passing west of Penwithick. This was selected as a preferred option as it formed part of the previously submitted, but withdrawn, 2006 planning application, provided little impact on the existing road network during

construction, avoided an ecologically designated site, had support from the landowner and could contribute to the regeneration of the area

- 3.1.11 The proposal takes forward the first section of 'Route D' unfortunately there is no funding available at this time for the remainder of the route. The proposal will move traffic away from the Carluddon mini roundabout that leads into the village of Penwithick and the Eden Project and therefore be an improvement to this part of the road network.
- 3.1.12 Further detail on the consideration of alternative developments is provided in Chapter 4 of the ES.

4 Key Environmental Effects

4.1 Introduction

- 4.1.1 An assessment of the effects of the proposed Development has been completed for each of the specialist environmental topics considered as part of the ES. The assessments are completed where appropriate based on methods provided by the Highways Agency's Design Manual for Roads and Bridges (DMRB) and guidelines specific to each specialist topic.
- 4.1.2 The significance of effects that could occur as a result of the proposed Development has been determined by considering the magnitude (level of change from the existing circumstances) of a potential impact and the sensitivity of the environment or objects that could be impacted. Impacts can be beneficial (positive), adverse (negative) or neutral.
- 4.1.3 Effects are described as **major**, **moderate** or **minor** significance, or **negligible**. Effects predicted to be minor or negligible are considered to be Not Significant. While effects predicted to be a moderate or major effect are considered Significant.
- 4.1.4 Where ever possible, measures to mitigate (to eliminate or reduce) potential negative impacts have been included in the design of the proposed Development. Potential impacts that could not be "designed out" have been addressed through other mitigation measures, such as management plans and monitoring.

4.2 Landscape and Visual

- 4.2.1 Chapter 7 of the ES considers the effects of the proposed Development on the landscape character and visual amenity of the development area.
- 4.2.2 The landscape character of the development area is dominated by the activities of the china clay industry. The landscape has a variety of features including quarried rock faces, tip slopes, turquoise lagoons, willow and gorse shrubs, reclaimed woodland areas and historic agricultural field systems.
- 4.2.3 The proposed Development is located within the Hensbarrow National Character Area and the St Austell and Hensbarrow China Clay Area regional Landscape Character Area. Effects to these character areas will be neutral or slight.
- 4.2.4 Views of the proposed Development are most prominent in the locations at the closest point to the development area, located at South Carluddon Farm near the Sky Tip. Landscape mitigation measures have been proposed to provide visual screening and to reduce the magnitude of visual change on this property in the first, seventh and fifteenth years of operation. Subject to further consultation with the landowner, this could include a 3 metre high visual/ noise attenuation barrier alongside further oak woodland planting. The overall significance of visual effects for the property located at the closest point to the proposed Development would be moderate.
- 4.2.5 The proposed Development will have a slight beneficial effect on views and residential properties located near the existing Carluddon mini-roundabout, due to the reduced volume of traffic that will occur at these locations. A moderate visual effect would be experienced at views that overlook the Development site from the north at Caerloggas Downs and near Penhale Cottage with views across Great Treverbyn Mica Dam.
- 4.2.6 Whilst the alignment of the proposed Development would cause a local change on the character of the site, landscape mitigation measures including planting largely oak and willow woodland, heather moorland and wildflower meadows, provide an opportunity to improve the landscape character of the site and support the objectives of the Cornwall Biodiversity Action Plan. Key vegetation groups potentially lost through construction would be replaced and proposed Cornish hedgebanks located to the north of Penhale Cottage provide an opportunity to re-connect historic field systems previously lost through China Clay operations. These measures will improve driver views and provide a visual screen to high sided vehicles travelling on the A391 road improvement.
- 4.2.7 Overall, the landscape and visual effects of the proposed Development are considered to be acceptable and appropriate to the setting and landscape character of the site.

4.3 Noise and Vibration

- 4.3.1 Chapter 8 of the environmental assessment considers the potential noise and vibration impacts resulting from the construction and operation of the proposed Development.
- 4.3.2 As with any large scale construction programme, there will be temporary impacts on local noise sensitive receptors, such as houses and community facilities. However, after careful management and mitigation measures, it is expected that construction noise would result in adverse impacts that are temporary and short term.
- 4.3.3 The noise sensitive receptors that are likely to be most exposed to temporary construction noise impacts are those located adjacent to the proposed new road alignment at South Carluddon Farm and Carluddon Farm and those nearest to the sections where the proposed Development meets the existing road network i.e. at the northern and southern ends of the Development site. To a lesser extent, noise impacts are also likely at those properties located adjacent to the existing road network due to potential increases in the movement of Heavy Goods Vehicles used for construction.
- 4.3.4 Ground vibration from traffic movement occurs when there are defects in the road surface. Since the new road will initially have a surface that is of a high standard without defects, it can be assumed that, on opening, groundborne vibration will not be an issue. However, if the road surface conditions deteriorate over time groundborne vibrations may be generated. Providing the highway authority maintain the road in good repair groundborne vibration is not likely to be an issue during operation.
- 4.3.5 There are a number of measures which can and have been implemented to prevent, reduce and offset noise impacts, such as constructing noise barriers. Any required measures will be detailed in Method Statements regarding construction management, traffic management, overall site management, and resident management. A Construction Environmental Management Plan will help ensure that noise impacts relating to construction activities are minimised.
- 4.3.6 During the operational phase, noise impacts are predicted at noise sensitive receptors located nearest to the proposed Development at South Carluddon Farm and Carluddon Farm. Mitigation is proposed such as acoustic barriers which will provide an acoustic and visual screening to these properties.

4.4 Air Quality

- 4.4.1 Chapter 9 of the ES considers local air quality effects during construction and operation of the proposed Development in the opening year of 2015.
- 4.4.2 Air quality is predominantly measured by levels of annual mean nitrogen dioxide (NO₂) and annual mean particulate matter (PM₁₀). NO₂ is typically generated from combustion sources, such as car engines and exhausts. PM₁₀ measures airborne dust and fine particulate matter. Demolition, earth works and car exhausts are typical sources of PM₁₀.
- 4.4.3 The main impacts during the construction phase will be related to PM₁₀ generated during construction and landscaping activities. The release of dust has the potential to cause a nuisance at nearby sensitive receptors (such as houses and workplaces) due to the soiling of windows, washing, cars etc. Dust emissions from the site will be controlled using mitigation measures detailed in a Construction Environmental Management Plan. This will ensure that potential adverse effects are minimised where possible. With appropriate mitigation measures construction related dust will have a negligible to minor effect on sensitive receptors. Exhaust emissions are also likely to be negligible.
- 4.4.4 The operational impact of the proposed Development on NO₂ concentrations is predicted to be of a negligible to minor in magnitude, while impacts on PM₁₀ concentrations will be negligible. All concentrations are predicted to be well within EU and national air quality guidelines and objectives.
- 4.4.5 During operation the main air quality effects will be from traffic associated with the development. The proposed road improvement moves the main flow of traffic away from those properties currently adjacent to the A391, and as such those receptors all receive a benefit in terms of air quality from the proposed Development.
- 4.4.6 The properties in Carluddon that are moved closer to the proposed road and the Stenalees area is likely to receive a minor to moderate adverse impact in relation to PM₁₀ and NO₂ concentrations as the proposed Development encourages more traffic to pass through this area; however predicted PM₁₀ and NO₂ concentrations are still well within EU and national air quality guidelines and objectives, with the overall impacts on air quality considered to be negligible.

4.5 Traffic and transportation

- 4.5.1 Chapter 10 of the ES considers potential transport impacts of the proposed Development in the opening year of 2015.
- 4.5.2 The A391 is part of Cornwall's strategic highway network and links the A30(T) to the north of St Austell with the A390 that runs east-west between Liskeard to the east and Truro to the west.
- 4.5.3 Changed road conditions during construction can have negative impacts on community severance (division that can occur in a community when it becomes separated by a major traffic route), drivers and pedestrian delays, fear and intimidation, amenity and; accidents and safety. Impacts could be felt most where there are likely to be vulnerable road users, such as school children walking and catching buses to local schools.
- 4.5.4 The majority of construction traffic is expected to reach the Development site along the existing A391. There is likely to be some local impact, particularly in Bugle and Stenalees but through careful management of delivery vehicles, working hours and appropriate traffic management through the submission of a Construction Environmental Management Plan these impacts can be mitigated.
- 4.5.5 After mitigation, the construction of the proposed Development would have minor adverse impacts on community severance and delays to pedestrians. Minor adverse impacts may be experienced through fear and intimidation from traffic management measures and an increased number of Heavy Goods Vehicle's, with a similar impact on accidents, particularly to drivers unfamiliar with the area. There would be no perceived effects on delays to drivers or on the amenity of pedestrians.
- 4.5.6 The proposed Development will have a better alignment than the existing route and therefore journey times between the St Austell area and Bugle and the A30(T) at Innis Downs should decrease and the journey experience between the A30 to the north and St Austell improved. Following it's opening, traffic volumes would increase on the A391 north of the proposed Development, and to the south of Scredda roundabout. There will be a significant reduction in traffic flows to the south of the Carluddon crossroads and on the B3374 through Penwithick.
- 4.5.7 During operation there is potential for adverse impacts on pedestrian delays, fear and intimidation and community severance between Bugle and Stenalees, as well as driver delays from increased traffic at the Bugle crossroads. After mitigation measures, including improved pedestrian crossings, localised road narrowing and other speed restraint measures, the operation of the proposed Development would have a minor adverse impact on community severance, pedestrian delay and fear and intimidation at Bugle and Stenalees,
- 4.5.8 Full details of mitigation measures for potential transport impacts have been provided in a Transport Assessment that accompanies the Planning Application.

4.6 Ground Contamination and Mining Legacy

- 4.6.1 Chapter 11 of the ES considers the ground conditions at the proposed Development site, the effects of past mining activities and the presence of ground contamination.
- 4.6.2 The route of the Carluddon A391 Road Improvement runs close to the Sky Tip. Imerys (landowner) has undertaken stability and geo-technical assessments on this spoil tip, this identified that it should not be adversely affected through the construction of the road.
- 4.6.3 The earliest historical Ordnance Survey plans indicate that china clay mining was being undertaken at the site since Circa 1881 and expanded from 1938 to 1976 to cover the majority of the site. The central area of the site is made up of material mined from this time, including the Sky Tip mound located next to the site. Around 1991 mica dams appeared in the western most mine pits. There has been little change on the site since then.
- 4.6.4 The ground conditions on site have been identified as Made Ground or top soil on weathered granite rock. Man-Made ground is typical in locations where mining activities have occurred and materials are "tipped" or placed throughout the site. Alluvium (loose material deposited by streams or rivers) also exists in valley areas of the site.
- 4.6.5 Through the implementation of various management plans, including a Construction Environmental Management Plan (CEMP), which includes strict guidelines and adheres to best practice no significant impacts to ground contamination, soils, human, health, mineral resources and spoil heap stability is predicted.
- 4.6.6 After the implementation of these mitigation measures, the proposed Development will have no effect or a minor adverse affect to soils, human health, mineral resources and stability.

4.7 Water Quality

- 4.7.1 Chapter 12 of the ES considers the affects of the proposed Development on the surface water environment, including surface water quality and flood risks.
- 4.7.2 Surface water features which may experience impacts are the Crinnis River (also known as Sandy River), a drainage ditch to the northeast of the Development site and a number of unnamed small drainage ditches on the site. The Crinnis River is a heavily modified water body due to urbanisation. There will be no direct impacts to the River, however water discharged from the southern section of the proposed Development will eventually reach this watercourse. The drainage ditch to the northeast of the site and unnamed small drains will experience direct effects from water being discharged from the Development site.
- 4.7.3 During construction, surface water pollution impacts could occur from silt-laden runoff (water draining away from the site) if allowed to drain into watercourses untreated, fuel spillages and leaks from construction plant and machinery and chemicals used/stored on site (e.g. cement, paints, etc.) and inappropriate disposal of waste water.
- 4.7.4 Flooding impacts could occur from blockage of existing drainage ditches or temporary drainage systems from mud/debris and the risk of flooding increase as a result of a temporary increase in impermeable areas on site (areas where fluid cannot drain appropriately).
- 4.7.5 The site is considered to be at a low-moderate risk of generating significant volumes of silty runoff that could lead to water pollution. The risk of a serious spillage leading to a significant impact upon a nearby watercourse is low.
- 4.7.6 Appropriate measures to prevent water pollution and flooding will be required during construction work and will be detailed in a Construction Environmental Management Plan and a Pollution Prevention Plan. These measures include developing a drainage system to prevent flooding and silt-laden runoff from entering surface water drains without treatment (e.g. earth bunds, silt fences, straw bales, settlement ponds or proprietary treatment) and storing fuel and other potentially polluting chemicals in a secure and bunded storage area. With appropriate mitigation, the risk to all surface water features from silt laden runoff and chemical spillages during construction are low and no temporary adverse impacts are predicted. Flood risks in construction would be reduced to a negligible impact.
- 4.7.7 During the operational phase of the road surface water pollution can occur from routine highway runoff which could contain pollutants such as hydrocarbons, heavy metals, inert particulates, litter and organic matter; and spillages from polluting substances (e.g. petrol, acid, foodstuff, etc.). There is also a potential risk of increased flooding risk as a result of changes to drainage on site and an increase in impermeable areas.
- 4.7.8 During operation of the development, traffic flow predictions show that highway runoff will not cause the water quality in the affected watercourses to exceed Environmental Quality Standards. Sustainable Drainage Systems have been proposed which will reduce and treat runoff and will provide adequate protection. This will represent an improvement on the existing situation. The risk of significant spills during operation is low and does not exceed the Environmental Quality Standard of a 1% annual probability.

4.8 Natural Heritage

- 4.8.1 Chapter 13 of the ES examines the potential ecological impact of the proposed Development.
- 4.8.2 Ecological receptors located within, or in the vicinity of, the proposed Development that could be potentially affected include the St Austell Clay Pits Special Areas of Conservation (SAC), located within 15m of the proposed Development, Mid Cornwall Moors SAC, approximately 1.2km to the north, Carbis Moor County Wildlife Sites (CWS), within 200m, and the Treskilling Downs, Trethurgy & Garkar Valley CWSs, located within 1.1km of the proposed Development. In addition, there are nine habitat types, two plant species, (the Western rustwort (a protected species of liverwort) and Bluebell), reptiles, birds and mammals, including bats, dormouse and badger.
- 4.8.3 The construction of the proposed Development could result in impacts from temporary pollution during construction (such as dust), the felling of scattered trees, loss of habitats and the potential loss, disturbance and displacement of fauna and flora. During operation, impacts could predominantly occur from pollution such as dust, increased nitrogen from vehicles and potential spills. The most effective mitigation against impacts is to avoid areas of ecological importance through the design and location of the proposed Development. Where impacts cannot be avoided, mitigation measures to reduce impacts can be implemented.

- 4.8.4 Fields surveys and assessments of ecological impacts have occurred throughout the design and assessment phase of the proposed Development. As a result, potentially significant adverse impacts have been avoided.
- 4.8.5 A number of mitigation measures are required to be implemented, details of which will be sought through a Construction Environmental Management Plan (CEMP). Such measures include constructing site compounds and access tracks of the minimum size required for safe working, restricting stockpiling of non-waste materials to specific sites, dust management.
- 4.8.6 Following mitigation, construction will have a slight adverse affect on the St Austell Clay Pits SAC and a neutral to slight adverse effect on the Carbis Moor CWS. The Western rustwort will experience a slight beneficial effect through relocation to a refuge as part of a wider conservation strategy, although temporary risks from pollutants like dust could have a slight adverse effect. Habitats will experience a neutral to slight beneficial effect, bats will experience a slightly adverse effect and reptiles a neutral to slightly adverse effect.
- 4.8.7 During operation, there will be a slightly beneficial impact on the St Austell Clay Pits SAC. This is due to the positioning of the road being located further away from the site, meaning that there will be a reduction in nitrogen deposited from the proposed Development. However, nitrogen deposition could have a neutral to slightly adverse impact on the Carbis Moor CWS.
- 4.8.8 The operation of the proposed Development will have a slightly beneficial impact on the Western rustwort as colonies at risk will be transferred to refuge areas. Reptiles, birds, bats, badgers and dormouse will experience neutral to slight adverse impacts.
- 4.8.9 Overall, it is considered that the proposed Development will have a slight adverse effect on ecological receptors.

4.9 Cultural Heritage

- 4.9.1 Chapter 14 of the ES examines the known archaeological remains and built heritage items in the development area and considers the potential for the existence of previously unrecorded archaeological items.
- 4.9.2 Through analysis of historic records and mapping, aerial photographs and a site walkover survey, nine heritage assets were identified within the proposed Development sites of the A391 Road Improvement and Technology Park. Two of these assets date from the prehistoric period. They are both the supposed sites of barrows (mounds of earth and/or stone) however traces of these asset were not found on site. The remaining seven heritage assets are post-medieval and relate to the agricultural and mining history on site, they include workers smallholdings, workers cottages and a guide post. These assets were recorded on historic mapping but no trace survives on site.
- 4.9.3 Physical impacts on the archaeology and heritage on site could be caused by the following construction activities: excavation and blasting associated with construction of the new road system; construction of compounds/storage areas; and the creation of new footpaths and footbridges.
- 4.9.4 A total of thirteen direct impacts on previously recorded archaeology of negligible to low value have been identified from the construction of the proposed Development. The nature of the proposed Development will mean that it is not possible to preserve any of these assets. However these assets will be recorded prior to construction and any structures or remains that survive will also be recorded. As a result of the removal of identified heritage assets during construction, there are no further impacts predicted during operation.
- 4.9.5 Chapter 15 of the ES examines the potential adverse and beneficial impacts to land use, the community and socio-economic characteristics of the local area and region.
- 4.9.6 The proposed Development will have a major beneficial impact on meeting the land use, transport and recreation objectives identified for the area in Cornwall Council's St Austell, St Blazey and China Clay Area Regeneration Plan.
- 4.9.7 Public access to the site will be improved by new or upgraded pedestrian and cycle paths and bridges connecting the site to the existing A391. This will provide better access and connections to local tourism and recreation sites and will improve safety for pedestrian and cyclist by reducing interaction with road traffic.
- 4.9.8 The proposed Development will divert the majority of non-local traffic away from areas with high traffic congestion. This will have a minor beneficial impact to residents and visitors to the area. This congestion and poor connections to the A30 have been identified as a major issue for economic growth in St Austell and in Cornwall as a whole. The proposed

Development may have a moderate to major beneficial effect on improving these issues, which may contribute to economic growth.

- 4.9.9 Approximately 43 jobs will be generated during the construction phase, which is the equivalent of 4 permanent jobs. The high number of construction jobs in the local area indicates that a local workforce could largely complete the construction works.
- 4.9.10 Construction will result in slight changes to road and traffic conditions, although disruption to existing traffic is expected to be small because the Development site is mostly located away from the existing A391.
- 4.9.11 Maintaining public access to paths and rights of way during construction and a commitment to using the maximum available local workforce and services is recommended to minimise disruptions and maximise community benefits.

4.10 In-combination impacts

- 4.10.1 Two planning applications have been submitted which are located adjacent to each other. Should the A391 Road Improvement be consented, this will form the main access to the Technology Park. The EIA assessed both schemes separately and in-combination (together). In-combination, the developments will provide appropriate landscaping, using local plant species and provide linkages for animals such as bat and invertebrates to forage.
- 4.10.2 The provision of non motorised and the green bridge means that accessing the Technology Park from the A391 can be achieved through a variety of travel modes and not just by car.
- 4.10.3 In addition, the developments combined to create employment opportunities, with 14 jobs proposed during the construction and 170 in operation.

4.11 Cumulative impacts

- 4.11.1 As part of the assessment cumulative impacts were taken in to consideration, whereby other schemes either awaiting planning permission, those which have been consented (but not built) or whereby works which have started on construction were considered as part of the assessment. A total of 18 projects were identified in the local area and assessed under each of the topic areas.
- 4.11.2 One of the main considerations as part of the cumulative assessment was the eco-community scheme submitted to Cornwall Council by Eco-Bos in 2011. Should the eco-community be granted planning permission, works on the pilot phase could start at the same time as the construction and operation of this proposed Development, although this is considered unlikely.
- 4.11.3 Both the A391 Road Improvement and Technology Park will be visible from the proposed eco-community. In addition, there is a risk of increased flooding in the local area due to an increase in hardened (i.e. paved) areas which could prevent water drainage. However, this can be mitigated and is not considered to pose a significant impact. The proposed eco-community has been modelled into scenarios in the traffic and transportation chapter, and it is known that there will be an increase in traffic going forward which could lead to a build up of traffic in Stenalees and Bugle. Mitigation measures are proposed as part of this scheme and further measure will be required to accommodate other proposals.

4.12 Summary and Conclusion

- 4.12.1 The purpose of the road improvement is to provide a better linkage to the A30, with the intention that it could be the driver for the economic regeneration of St Austell and the surrounding area. Benefits of the scheme include better pedestrianised access along the A391 in to St Austell, surrounding villages, tourist attractions and clay trails. The existing A391 will still be open, for use by buses and residents. Access to the new A391 from the existing A391 will be via the double mini roundabouts at Carluddon. Traffic will be reduced significantly as a result of the proposed Development at the villages of Penwithick and Carluddon. However, the proposed road improvement is predicted to have an impact on traffic round Stenalees and Bugle and mitigation measures are required to offset this impact.
- 4.12.2 The Carluddon A391 Road Improvement is likely to have significant impacts in terms of landscape and noise on Carluddon and South Carluddon Farm. However mitigation is proposed to help reduce these impacts to screen these properties from the proposed Development.

- 4.12.3 A Construction Environmental Management Plan will be produced, should the project be consented, which will follow best practice in European and UK environmental standards. This will mitigate against impacts on noise, air quality, ground contamination, the water environment, natural heritage and cultural heritage.
- 4.12.4 The proposed Development will have a major beneficial impact on achieving transformational regeneration of the area through the delivery of transport, recreation and landscape improvements.