

# Vattenfall Wind Power Ltd

## Thanet Extension Offshore Wind Farm

### Environmental Statement Volume 3

### Chapter 8: Traffic and Access

June 2018, Revision A

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Vattenfall Wind Power Ltd  
Thanet Extension Offshore Wind Farm  
Volume 3  
Chapter 8: Traffic and Access  
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Drafted By:	Amec Foster Wheeler
Approved By:	Helen Jameson
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Vattenfall Wind Power Ltd  
First Floor  
1 Tudor Street  
London  
EC4Y 0AH  
T +44 207 451 1150

[www.vattenfall.co.uk](http://www.vattenfall.co.uk)

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## 8 TRAFFIC AND ACCESS

### 8.1 Introduction

8.1.1 This chapter of the Environmental Statement (ES) describes the existing onshore environment with regard to traffic and access and assesses the potential effects of the onshore electrical transmission works from the proposed Thanet Extension Offshore Wind Farm (Thanet Extension), also referred to as the ‘proposed development’, on the highway network and its users. The chapter should be read in conjunction with the project description in Volume 3, Chapter 1: Onshore Project Description (Document Ref: 6.3.1).

8.1.2 The following sections of the chapter include:

- A summary of relevant legislation and planning policy;
- A description of the methodology for the assessment, including details of the study area and the approach to the assessment of effects;
- A summary of consultation with stakeholders;
- A review of the baseline (existing) conditions;
- Details of the measures proposed as part of the project to avoid or reduce environmental effects, including mitigation and design measures proposed as part of the project (embedded mitigation);
- An assessment of the likely effects for the construction, Operations and Maintenance (O&M) and decommissioning phases of the project, taking into account the measures proposed;
- Identification of any further mitigation measures or monitoring required in relation to likely significant effects; and
- Assessment of any cumulative effects with other proposed developments.

8.1.3 The assessment of effects in this chapter of the ES, in relation to changes in traffic flows from current baseline to future baseline scenarios, has been undertaken using the predicted number of construction vehicles as presented within Volume 3, Chapter 1: Onshore Project Description (Document Ref: 6.3.1). These have been generated by identifying the anticipated dates of construction for the proposed development and then estimating the quantity of vehicles associated with the works.

8.1.4 Given that an exact route for the cable works is not determined at this stage, the maximum design envelope must be considered. This assumes that the cable could route anywhere within Thanet Extension Red Line Boundary (RLB).

8.1.5 This chapter therefore sets out a series of options and parameters for which maximum values are shown. The maximum values constitute the worst-case scenario in relation to Thanet Extension.

### 8.2 Statutory and policy context

8.2.1 A summary of relevant national, regional and local policies and plans is provided in Table 8.1. These policies and plans have been considered to help define the scope of the assessment within the ES.

**Table 8.1: Legislation and policy context**

Policy/legislation	Key provisions	Section where provision addressed
National planning policies		
National Policy Statement (NPS) for Energy (EN-1)	The NPS discusses generic impacts associated with the transport of materials, goods and personnel to and from a development during all project phases. If a project is likely to have significant transport impacts the applicant will be required to produce a Transport Assessment (TA). The likely impact from substantial Heavy Goods Vehicle (HGV) traffic should be managed through the use of a Construction Traffic Management Plan (CTMP), with provision of adequate parking and arrangements for abnormal disruption. A Travel Plan will also be required in some instances setting out mitigation and management measures.	Consideration of the construction, O&M and decommissioning phases of the proposed development are set out in sections 8.10 ‘Environmental assessment: construction phase’, 8.12 ‘Environmental assessment: O&M phase’ and 8.13 ‘Environmental assessment: decommissioning phase’.
	As part of the Governments wider policy objectives, mitigation measures as part of sustainable developments must be carefully considered throughout the planning stages.	This chapter will present the likely transport impacts as a result of the proposed development, as well as identifying potential mitigation strategies.

Policy/legislation	Key provisions	Section where provision addressed
	Should additional infrastructure be required as part of a development, discussions should be held with network providers regarding the potential for Government co-funding.	Additional transport infrastructure required for the proposed development is limited to a number of additional temporary accesses on/ off the proposed development. Any temporary improvements will be removed upon completion.
	Demand management measures must be considered where any form of mitigation is required.	Mitigation measures proposed within this chapter relate to routing and timing of HGV and staff movements.
	<p>The Secretary of State (SoS) may attach requirements to a consent where there is likely to be substantial HGV traffic that:</p> <ul style="list-style-type: none"> <li>Control the number/ routing of HGV movements during specific periods of the construction process; and</li> <li>Through consultation with network providers and the police force, ensure adequate arrangements are in place for the delivery of any abnormal loads.</li> </ul>	<p>Routing for HGV movements has been identified, as well as proposed working hours, in order to minimise the impact of the proposed development on the surrounding highway network.</p> <p>Transportation of Abnormal Indivisible Loads (AILs) will be subject to a separate study.</p>
NPS for Renewable Energy Infrastructure (EN-3)	Where a cumulative impact is likely, a cumulative transport assessment should form part of the assessment to consider the impacts of abnormal traffic movements relating to the project in question.	Section 8.14 'Environmental assessment: cumulative effects' discusses the relevant committed developments within the vicinity of the proposed development, as well as assessing their cumulative impact on the proposed development.

Policy/legislation	Key provisions	Section where provision addressed
National Planning Policy Framework (NPPF)	Sustainable transport modes should be favoured to enhance travel choice. Developments that generate significant movement should be located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. The NPPF also encourages solutions that support reductions in greenhouse gas emissions and reduce congestion.	<p>Information on available sustainable transport options within proximity of the works can be found in section 8.7 'Existing Environment'.</p> <p>As stated within section 8.8.3 'Embedded Mitigation', a CoCP will be implemented which proposes travel planning measures, where necessary. This will look at the routing of staff trips to/ from the proposed development, and aim to reduce overall greenhouse gas emissions and congestion by promoting the use of car sharing and sustainable travel options.</p>
Local planning policies		
Thanet District Council (TDC) – Local Plan TDC LP Policy TR3	The district and county councils will ensure, by means of a legal agreement that proper provision is made for transport infrastructure that is necessary and relevant to the development to be permitted. Proposals for transport infrastructure will be assessed in terms of their impact on the capacity and safety of the transport network together with their social and economic impacts.	<p>The existing local and Strategic Road Network (SRN) provides adequate transport infrastructure necessary for the delivery of construction HGVs.</p> <p>As outlined in section 8.9 'Embedded mitigation', minor improvements may be required at the proposed development accesses. Bellmouths will be managed by traffic marshals and all temporary access arrangements will be constructed to Design Manual for Roads and Bridges (DMRB) standards.</p> <p>An AIL desk study is included in Volume 5, Annex 8-1: Abnormal Indivisible Load Access Study (Document Ref 6.5.8.1) to this chapter</p>

Policy/legislation	Key provisions	Section where provision addressed
Thanet District Council (TDC) – Local Plan TDC LP Policy TR15	Development proposals likely to generate significant travel demand and/or traffic movement will be required to demonstrate, through green travel plans, specific measures to encourage and facilitate use of walking, cycling and public transport in preference to private car travel.  The council will seek to approve measures, which will assist implementation of green travel plans.	As outlined in section 8.9 ‘Embedded mitigation’, a CoCP will be implemented which proposes travel planning measures, where necessary, encouraging the use of sustainable transport methods to access the proposed development.
Dover District Council (DDC) Core Strategy (adopted 2010) CS Policy DM12	Applications involving the creation of a new access or the increased use of an existing access onto a trunk or primary road will not be permitted if there would be a significant increase in the risk of accidents or traffic delays unless sufficient mitigation is provided.	A full review of existing collision patterns and trends based upon the existing personal injury collision records can be found in section 8.7 ‘Existing environment’.

### 8.3 Consultation and scoping

- 8.3.1 Vattenfall Wind Power Ltd (VWPL) engaged with a range of statutory and non-statutory stakeholders in early 2016 with the aim of the discussions being to provide feedback on the initial access design and likely issues for assessment, to inform stakeholders of expected timescales and constraints and seek advice on the appropriateness of survey strategies.
- 8.3.2 VWPL (2016) ‘Thanet Extension Offshore Wind Farm, Environmental Assessment – Report to Inform Scoping’ was produced to support the request for Environmental Impact Assessment (EIA) from the Planning Inspectorate (PINS) for Thanet Extension.
- 8.3.3 VWPL engaged with statutory and non-statutory stakeholders in November 2017 under Section 42 of the Planning Act 2008, through production of Preliminary Environmental Information.
- 8.3.4 Table 8.2 provides a summary of the consultation relating to traffic and access undertaken to date.

Table 8.2: Summary of consultation relating to traffic and access

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
February 2017 Scoping Opinion The Planning Inspectorate (SoS)	The SoS expects the Applicant to undertake an assessment of impact, specifically construction impacts on the SRN. Attention is drawn to the role of Manston Airport in ‘Operation Stack’.	The ‘Operation Stack’ is considered in section 8.7.5.
	The SoS expect the Applicant to justify the methodologies for assessment such as the inclusion of Guidelines for Environmental Impact of Road Traffic (GEART).	Methodologies are detailed in section 8.4.4, and the application of GEART outlined in section 8.4.6.
	Any cross-referencing between topic chapters should be clear and SoS welcomes consideration of inter-relationships on traffic and access.	Inter-relationships between chapters are discussed in section 8.8.3.
	Sensitive receptors should be specifically identified and their levels of sensitivity defined within the Environmental Statement (ES).	Possible areas which may be sensitive to traffic flow changes are outlined within Table 8.12.
	The ES should set out the traffic demand that has been used for assessment and the reasons for the assumptions made.	Table 8.11 outlines the design envelope being assessed.
	Potential impacts associated with employee and HGV movements for the offshore construction and O&M should be considered.	Construction traffic impacts are identified within Table 8.14.
February 2017 DDC Scoping Opinion	DDC defer to Kent County Council (KCC) as highway authority for detailed comments on traffic and access.	Noted

Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
February 2017 HE Scoping Opinion	Highways England (HE) wish to fully understand the implications of the construction phase of the development in terms of level, location and duration at junctions between M2J7 and A299 at Brenley Corner and A256 and A2 at Dover.	HE have been provided with traffic information relating to the construction and operational phase.  HE confirms there is unlikely to be any impact on the SRN during operation or construction. A Construction Code of Practice (CoCP) which will provide details on how traffic would be managed.
	The assessment should consider the former Manston Airfield multi-agency response 'Operation Stack'.	Manston Airfield developments are recognised in paragraph 8.10.21, and Operation Stack discussed in section 8.7.5.
February 2017 KCC Scoping Opinion	Confirms the preparation and submission of a detailed transport Scoping Report and advises early engagement.	Noted
December 2017 HE (forms part of the Section 42 responses)	Concerns related to the impact of staff travel on the SRN during the construction phase. HE particularly interested in working hours (shift patterns / office hours), likely "home" locations (e.g. if staff are likely to be split fairly evenly across the A299 and A256 junctions or the majority use one or the other, and / or if a significant proportion will be local/ locally based for the duration of construction and therefore not use the SRN).	Working hours identified in Table 8.11.  Distribution and routing is identified in section 8.6  KCC have confirmed that no TA is required and that no further capacity assessment of the highway network, other than what is presented in this chapter, is required.
	Concerns about any proposals that could have an adverse impact on the safety, reliability or operation of the SRN.	Impacts on the SRN are discussed in section 8.7.9

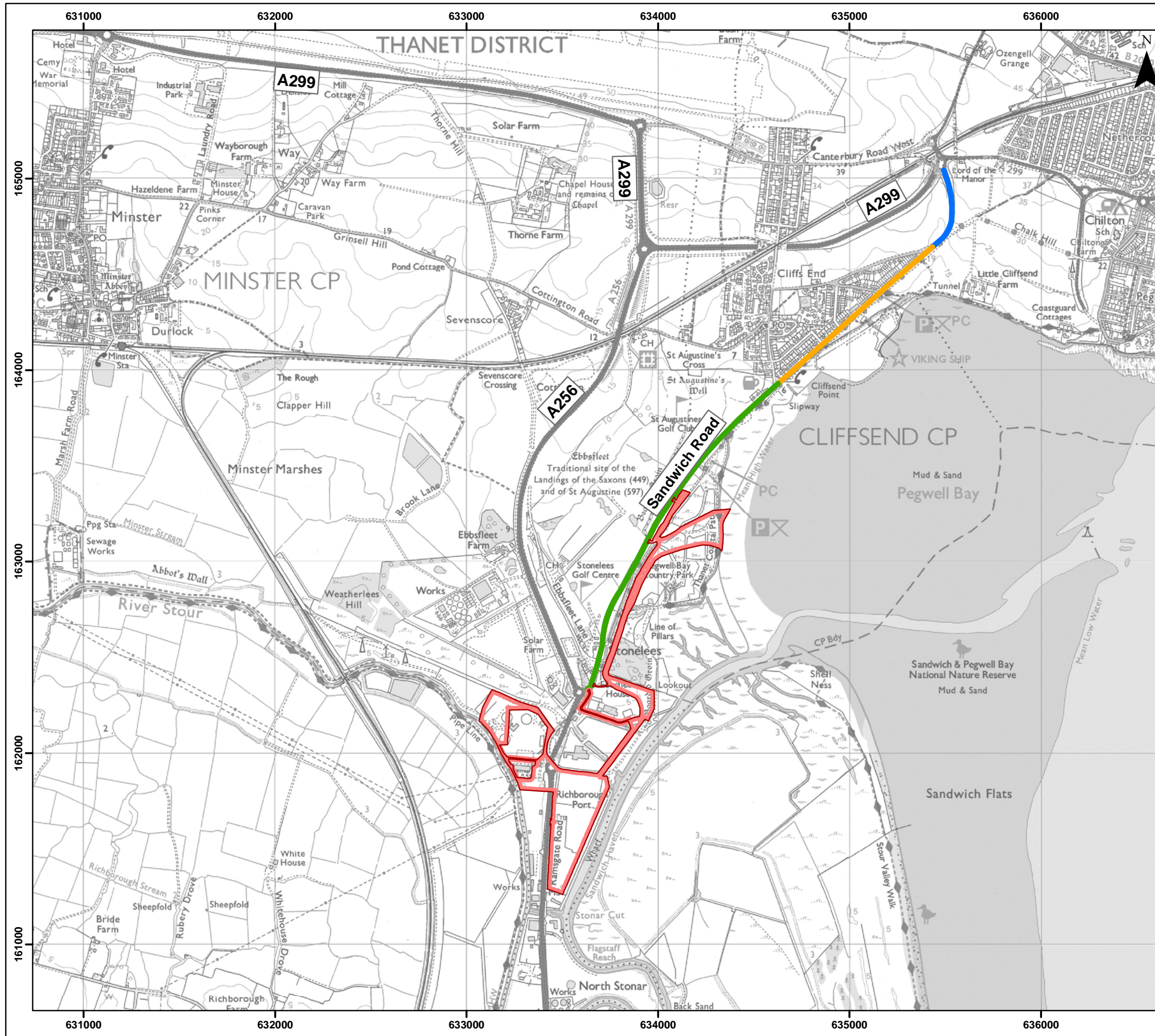
Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
	A separate assessment should be undertaken to identify suitable routes to transport AILs to proposed development site.	An AIL desk study is included in volume 5, Annex 8-1: Abnormal Indivisible Load Access Study (Document Ref 6.5.8.2) to this chapter
	We require confirmation of the likely volume of trips associated with Thanet Extension per day, and an indication of the temporal profile.	Table 8.11 outlines the volume of trips associated with Thanet Extension.  Temporal profile cannot be confirmed until pre-construction phase when more detail on delivery movements and schedules will be known.
December 2017 DDC (forms part of the Section 42 responses)	Points of access to the proposed development site especially for construction purposes would be the key consideration for DDC.	Paragraph 0 outlines the points of access for consideration
December 2017 KCC (forms part of the	Applicant will need to consider any vehicle movements associated with taking materials and personnel to and from the port in relation to the offshore works, including any AILs.	Vehicle movements associated with personnel and construction movements are identified in Table 8.11.



Date and consultation phase/ type	Consultation and key issues raised	Section where comment addressed
Section 42 responses)	<p>KCC requests that closures of the Public Right of Way (PRoW) route should be kept to the minimum.</p> <p>Any construction on or adjacent to the route should take into account the users of the route, with no loss in surface conditions, widths, views and perceived safety.</p> <p>Any construction traffic that crosses the route should be appropriately managed so as not to unnecessarily impede users, affect the safety of the public, or harm the route.</p>	<p>Embedded mitigation measures for PRoW Management are discussed in section 8.9 and in detail in Volume 3, Chapter 4 Tourism and Recreation (Document Ref: 6.3.4).</p> <p>KCC have confirmed that no TA is required and that no further capacity assessment of the highway network, other than what is presented in this chapter, is required.</p>

### 8.4 Scope and methodology

- 8.4.1 The study area identified to assess the traffic related impacts of Thanet Extension is shown in Figure 8.1. This was identified as the highway network surrounding Cliffsend including the A256, A299 and Sandwich Road.
- 8.4.2 A desktop study was undertaken to assess potential construction access routes, highway infrastructure and transport facilities within proximity of Thanet Extension. This included a review of five-year Personal Injury Accident (PIA) data obtained from KCC and local sustainable transport provision (information obtained from Sustrans and Stagecoach). An Automatic Traffic Count (ATC), Manual Classified Count (MCC) and pedestrian and cycle movement survey was also undertaken on highway links within the study area to identify vehicle classification and vehicle speeds travelling on the local highway network as well as the number of pedestrians and cyclists.



**Figure 8.1**  
 Study Area and Local Road Network

**Legend**

- Onshore Red Line Boundary
- Sandwich Road Descriptor Sections
- Section 1
- Section 2
- Section 3

Datum: OSGB 1936  
 Projection: BNG

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 Ordnance Survey 0100031673

1:20,000

Drg No	39080-Lon151a			<b>Figure 8.1</b>
Rev	1.0	Date	01/05/2018	
By	JP	Layout	N/A	

8.4.3 A site audit was undertaken on 27 - 28<sup>th</sup> March 2017 in order to observe the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak traffic hours. The following aspects were observed:

- Existing operational capacity of the junctions on potential construction routes;
- Potential receptors to increased levels of HGV traffic and to AIL deliveries;
- Any 'pinch points'/ sections of junctions/ road layouts identified as potential constraints affected as a result of HGV/ AIL movements; and
- A review of existing pedestrian/ cycle infrastructure along potential construction routes to identify potential impacts to vulnerable road users.

8.4.4 GEART, published January 1993 by the Institute of Environmental Assessment (IEMA), are guidelines for the assessment of the environmental impacts of road traffic associated with new developments, irrespective of whether the developments are subject to formal EIAs.

8.4.5 The purpose of the guidelines is to provide the basis for systematic, consistent and comprehensive coverage for the appraisal of traffic impacts arising from development projects. GEART is the guidance that informs this assessment.

8.4.6 GEART provide two screening rules that are used to establish whether an environmental assessment of traffic effects should be carried out on receptors. These are as follows:

- Rule 1 – Include road links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); and
- Rule 2 – Include any other specifically sensitive areas where the net traffic flows have increased by 10% or more.

8.4.7 Where the predicted traffic flows are lower than the above thresholds, GEART suggest the significance of the effects can be stated as negligible and further detailed assessments on effects on receptors is not warranted on those roads.

8.4.8 The GEART rules identified are not absolute and the geographical scope on an assessment must be considered on a scheme-specific basis and for each potential effect individually, many of which are not necessarily led by changes in traffic volumes. The document is the latest guidance available, however does not necessarily reflect the multimodal congested urban landscape experienced now. It is therefore necessary for an assessor to employ an ever increasing professional judgement to ensure that effects are adequately and appropriately considered.

#### Increase in traffic levels and driver delay

8.4.9 Criteria from GEART have been used to assess the significance of effects on traffic levels and driver delay, which state the need for assessment where changes in traffic flows exceed 30%.

#### Public transport delay to passengers

8.4.10 Based on professional judgement, in order to assess the significance of effects on receptors, the magnitude of impact has been assessed using a sliding scale of:

- Between 30% and 90% change in total traffic or HGV flows; and/ or
- Any change to total journey times by public transport of between 20 - 80% lasting more than four weeks in any 12 month period.

#### Pedestrian amenity and severance

8.4.11 Based on professional judgement, in order to assess the significance of effects on receptors, the magnitude of impact has been assessed using a sliding scale of:

- Between 30% and 90% change in total traffic or HGV flows; and/ or
- Where there will be a temporary maximum increase in pedestrian journey length along roads and/ or PRowS for between four weeks and six months.

#### Delays to NCN Route 15 / ECP users

8.4.12 Based on professional judgement, in order to assess the significance of effects on receptors, the magnitude of impact has been assessed using a sliding scale of:

- Between 30% and 90% change in total traffic or HGV flows; and/ or
- Where there will be a temporary maximum increase in pedestrian/cyclist journey length along roads and/ or PRowS for between four weeks and six months.

#### Accidents and road safety

8.4.13 This assessment is informed by a review of existing collision patterns and trends. This is based on existing personal injury collision records and the forecasted increase in traffic.

### 8.5 Assessment criteria and assignment of significance

8.5.1 Table 8.3 summarises the resource, corresponding receptors, and their importance and/ or sensitivity as part of the assessment as contained in GEART and using professional judgement. The sensitivity of each highway link under assessment will be identified using these criteria.

**Table 8.3: Sensitivity/ importance of the environment**

Environmental value (Sensitivity)	Description/ reason	Receptor
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident blackspots, retirement homes and urban/ residential homes without footways that are used by pedestrians and cyclists.	Residents/ workers travelling to and from work or home on foot and by bicycle, school children, leisure walkers and equestrians.
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycle ways, community centres, parks and recreation facilities.	Residents/ workers travelling to and from work or home, on foot and by bicycle; and people visiting these land uses.
Low	Receptors with some sensitivity to traffic flows: places of worship, public open space, nature conservation areas, listed buildings, tourist/ visitor attractions and residential areas with adequate footway provision.	Residents/ workers travelling to and from work or home, on foot and by bicycle; and people visiting these land uses.
Negligible	Receptors with low sensitivity to traffic flows: Motorway and Dual Carriageways and/ or land uses sufficiently distant from affected routes and junctions.	Residents/ workers travelling by foot or by bicycle.

**Table 8.4: Magnitude of impact**

Transport effect	Magnitude of impact			
	High	Medium	Low	Negligible
Driver Delay	Increase in total traffic or HGV flows over 90%.	Increase in total traffic or HGV flows of 60 - 90%.	Increase in total traffic or HGV flows of 30 - 60%.	Increase in total traffic or HGV flows of less than 30%.
Public Transport Delay	Increase in total traffic or HGV flows over 90%. and/ or Any increase to total journey times by public transport of more than 80% lasting for more than four weeks in any 12 month period.	Increase in total traffic or HGV flows of 60 - 90%. and/ or Any increase to total journey times by public transport of 60 - 80% lasting for more than four weeks in any 12 month period.	Increase in total traffic or HGV flows of 30 - 60%. and/ or Any increase to total journey times by public transport of 40 - 60% lasting for more than four weeks in any 12 month period.	Increase in total traffic or HGV flows of less than 30%. and/ or Any increase to total journey times by public transport of 20 - 40% lasting for more than four weeks in any 12 month period.
Pedestrian Amenity	Increase in total traffic or HGV flows over 90%.	Increase in total traffic or HGV flows of 60 - 90%.	Increase in total traffic or HGV flows of 30 - 60%.	Increase in total traffic or HGV flows of less than 30%.

8.5.2 Sensitivity judged as High or Medium results in Rule 2 being considered for that highway link. Sensitivity judged as low or negligible results in Rule 1 being considered for that highway link.

8.5.3 Table 8.4 provides a summary of the magnitude of impact for each transport effect.

Transport effect	Magnitude of impact			
	High	Medium	Low	Negligible
Pedestrian Severance	Increase in total traffic or HGV flows over 90% and/ or Where there will be a temporary maximum increase in pedestrian journey length of 500 m or more along a road or other PRow for more than six months over a 12 month period.	Increase in total traffic or HGV flows of 60 - 90%. and/ or Where there will be a temporary maximum increase in pedestrian journey length of 250 – 500 m along a road or other PRow for a three to six month period over 12 months.	Increase in total traffic or HGV flows of 30 - 60%. and/ or Where there will be a temporary increase in pedestrian journey length of up to 250 m along a road or other PRow for between four weeks and three months over a 12 month period.	Increase in total traffic or HGV flows of less than 30%. and/ or Where there will be no temporary increase in pedestrian journey length.
PRow	Increase in total traffic or HGV flows over 90%. and/ or Where there will be a temporary maximum increase in pedestrian journey length of 500 m or more along a road or other PRow for more than six months over a 12 month period.	Increase in total traffic or HGV flows of 60 - 90%. and/ or Where there will be a temporary maximum increase in pedestrian journey length of 250 – 500 m along a road or other PRow for a three to six month period over 12 months.	Increase in total traffic or HGV flows of 30 - 60%. and/ or Where there will be a temporary increase in pedestrian journey length of up to 250 m along a road or other PRow for between four weeks and three months over a 12 month period.	Increase in total traffic or HGV flows of less than 30%. and/ or Where there will be no temporary increase in pedestrian journey length.

Transport effect	Magnitude of impact			
	High	Medium	Low	Negligible
Accidents and Road Safety	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.

8.5.4 Table 8.5 provides a summary of the significance of potential transport related effects. This is judged on the relationship of the magnitude of impact of each assessment criteria, to the assessed sensitivity of each highway link.

**Table 8.5: Significance of potential effects**

		Sensitivity			
		High	Medium	Low	Negligible
Negative Magnitude	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Minor	Minor	Negligible	Negligible
Beneficial Magnitude	Negligible	Minor	Minor	Negligible	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Medium	Major	Moderate	Minor	Negligible
	High	Major	Major	Moderate	Minor

Note: shaded cells are defined as significant effects.

## 8.6 Uncertainty and technical difficulties encountered

- 8.6.1 Routing of staff has been based on a worst-case scenario, allowing for 100% to arrive from both north and south of the proposed development. This will not necessarily be the case, as staff are likely to route from a wider area, and distribution spread more evenly across the local network. At this stage final staff routing is unknown, therefore this is considered to be a robust assessment.
- 8.6.2 Due to the proposed working hours, it is likely that staff movements will occur outside of network peak hours and have a limited, if any, impact on the AM and PM peak hour highway network capacity.
- 8.6.3 Routing of HGVs has also been based on a worst-case scenario, with 100% being applied to each road link. As construction traffic routing is currently unknown, this is considered to be a robust approach and presents the maximum impacts on the surrounding highway network.

## 8.7 Existing environment

### Highway Network

- 8.7.1 The area of highway network most likely to be impacted upon by increased levels of HGV traffic flows is illustrated in Figure 8.1 and outlined below.

#### A256

- 8.7.2 The A256 is a dual carriageway road (approximately 8 m wide) subject to the national speed limit (70 miles per hour (mph)) which acts as the main north-south connection between Cliffsend and Dover. The A256 carries a significant amount of traffic on a daily basis, with peak hour flows exceeding 3,000 vehicles (both southbound and northbound) as well as a large proportion of HGVs. The road acts as a bypass for Cliffsend and is anticipated to form the primary route for construction vehicles to and from the onshore cable corridor.

#### A299

- 8.7.3 The A299 is a dual carriageway road (approximately 7.5 m wide) subject to the national speed limit (70 mph) which provides the main east-west connection between Ramsgate and the M2. The A299 turns to single carriageway upon entering Ramsgate, from the roundabout with the A256/ Sandwich Road to the roundabout with Military Road (speed limits vary from 50 - 30 mph).

#### Sandwich Road

- 8.7.4 Sandwich Road can be split into three sections for descriptive purposes:

- Section 1 (between the roundabout with the A299/ A256 and the mini roundabout with Cliffs End Road). This section is a single carriageway road (approximately 7.5 m wide) subject to a 40 mph speed limit. Heading north to south there are initial traffic calming measures in place, with dragons teeth warning drivers upon approaching the 30 mph speed limit zone as well as central traffic island build outs acting as lane narrowing features;
- Section 2 (between the mini roundabout with Cliffs End Road and the junction with Foads Lane). This section is a single carriageway road (approximately 6 m wide) subject to a 30mph speed limit. There are pedestrian footways present along its entirety, with street lighting provided at regular intervals. The carriageway is fronted by residential properties on the west (set back and separated by grass verging/ walls/ fencing) and Sandwich and Pegwell Bay National Nature Reserve to the east. Traffic calming features are present along this stretch of carriageway in the form of pedestrian ghost islands, raised pedestrian crossing tables, and central road hatching narrowing available lane width; and
- Section 3 (between the junction with Foads Lane and the roundabout with the A256). Between Foads Lane and Pegwell Bay Country Park, there is a signalised traffic calming arrangement which permits single file traffic only. This is in the form of a 3 m wide carriageway with kerbside build outs restricting vehicle speed and fencing erected to restrict forward visibility. The speed limit increases to 40 mph shortly after this arrangement to the entrance to Pegwell Bay Country Park after which it increases to the national speed limit (60 mph). The carriageway is fronted by St Augustine's Golf Club to the north-west and Pegwell Bay Country Park to the south-east. There are no pedestrian footways present along this section of Sandwich Road. Within the southern section, upon approach to the roundabout with the A256, there is a three-arm signalised T-junction with Ebbsfleet Lane (the access road for Stonelees Golf Centre).

### Operation Stack

- 8.7.5 The assessment shows consideration for 'Operation Stack', also known as 'Op Stack'. Op Stack is the procedure for managing traffic during disruption to Eurotunnel or ferry services in Kent. HGVs waiting to use these services queue on the M20, whilst all other traffic is diverted to use other routes.
- 8.7.6 Op Stack is effective between Junction 8 (Maidstone services) and Junction 9 (Ashford) of the M20. If more road space is required for queueing HGVs, the section is extended to Junction 11 (Westenhanger).
- 8.7.7 If Junctions 8 to 11 reach queue capacity, the HE will use Manston Airfield to park Port of Dover freight.

**SRN – A2/M2/M20**

8.7.8 Managed by HE, the A2/M2/M20 provides the west-east connection from the M25 to the regional road network (A299/A256). These roads carry high volumes of daily traffic including HGVs.

8.7.9 The impact of construction vehicles on the SRN is likely to be minimal given the distance between the SRN and the proposed development. It is likely that construction and operational traffic will have diluted before reaching the SRN and is therefore scoped out of further assessment.

**Traffic Flows**

8.7.10 Amec Foster Wheeler commissioned Basepoint Data to undertake a traffic survey on Sandwich Road.

8.7.11 An ATC (Automatic Traffic Count) was undertaken for a seven-day period between 9<sup>th</sup> – 15<sup>th</sup> May 2017 at the following location:

- Sandwich Road, Ordnance Survey Reference: TR 34739 64021, approximately 150 m west of Foads Lane/ Sandwich Road priority junction.

8.7.12 A summary of average weekday 12-hour flows is provided in Table 8.6.

**Table 8.6: Average weekday 12-hour traffic movements**

Road	All Vehicles	LVs	MGVs	HGVs	LV (%)	HGVs (%)
Sandwich Road	3,027	2,758	266	3	91.1	8.9

8.7.13 A pedestrian/ cycle count was also undertaken for the shared footway provision along Sandwich Road. A summary of the north and southbound movements is provided in Table 8.7.

**Table 8.7: National Cycle Network Regional Route 15 / England Coastal Path movements – Sandwich Road**

Weekday (07:00 – 19:00)	Pedestrian Flow	Cyclist Flow	Total
Northbound	82	73	155
Southbound	71	62	133
Total movements	153	135	288
Weekend (07:00 – 19:00)	Pedestrian Flow	Cyclist Flow	Total
Northbound	105	124	229
Southbound	124	109	233
Total movements	229	233	462

8.7.14 Amec Foster Wheeler also commissioned 360 TSL to undertake multi-modal turning counts at key junctions in the study area. Using this information, a summary of the baseline daily traffic flows is provided in Table 8.8, categorised into the following classifications:

- Light Vehicles (LVs);
- Medium Goods Vehicles (MGVs); and
- HGVs.

**Table 8.8: Summary of 12-hour (07:00 - 19:00 hours) traffic movements**

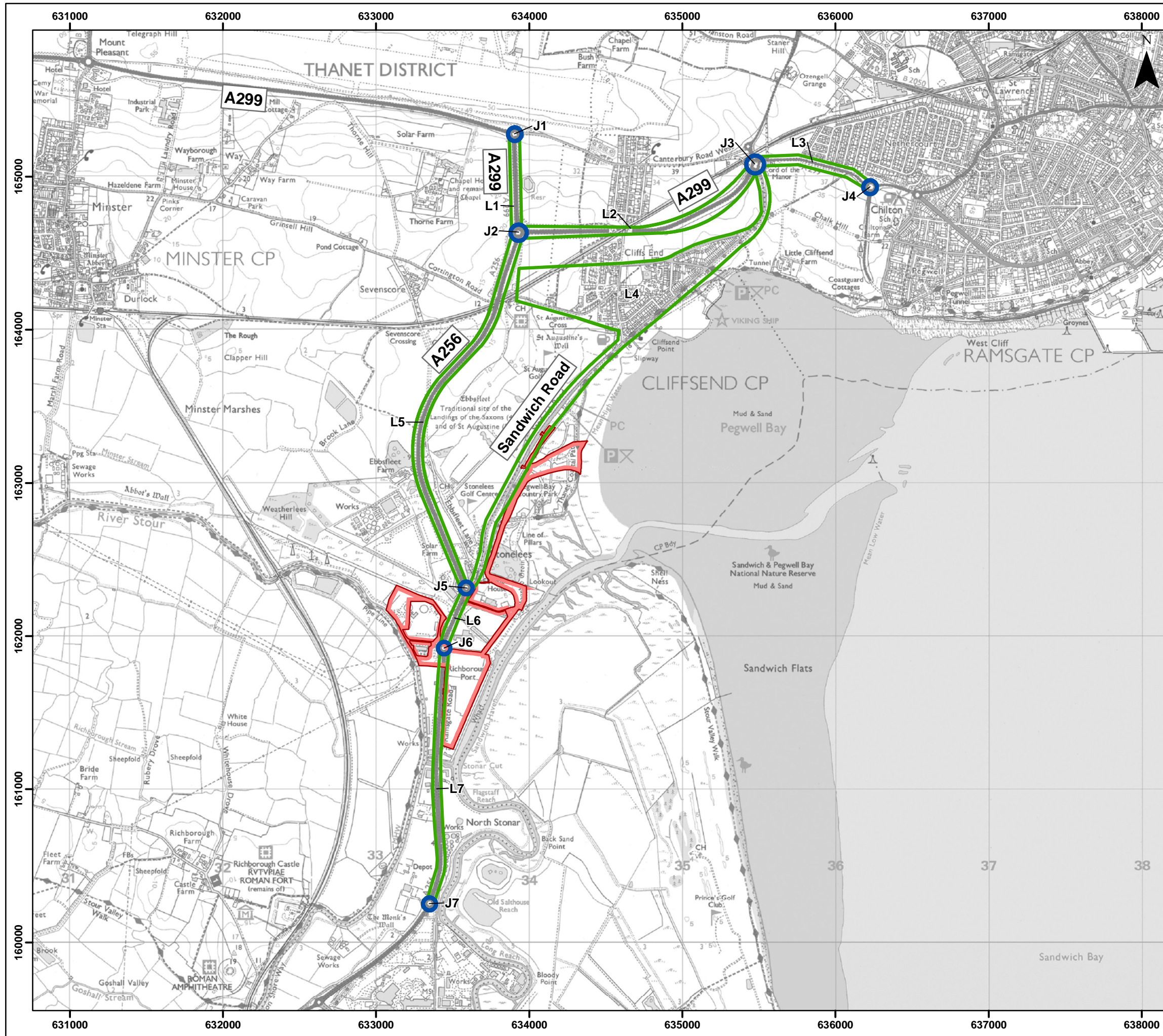
Road	All Vehicles	LVs	MGVs	HGVs	LV (%)	MGV (%)	HGV (%)
A299 Hengist Way (N)	18,117	16,756	837	524	92.5	4.6	2.9
A299 Hengist Way (E)	27,522	26,220	957	345	95.3	3.5	1.3
A299 Canterbury Road (E)	19,321	18,581	610	130	96.2	3.2	0.7
A256 Richborough Way	22,618	21,378	375	365	94.5	3.9	1.6
A256 (south of Ebsfleet Roundabout)	25,632	24,336	925	371	94.9	3.6	1.4

8.7.15 It can be seen that LVs make up the majority of the baseline vehicle flows at the above links/ junctions (over 90%), with HGVs being less than 3% of baseline flows.

#### Personal Injury Accidents

8.7.16 The data included in this report is comprised of PIAs that have been recorded by KCC. The PIA study area is identified in Figure 8.2. This study area includes highway links that could be used for construction traffic routing to the proposed development. PIA analysis at the Base Port has been scoped out due to the fact that the Base Port has not been confirmed.





# THANET EXTENSION OFFSHORE WIND FARM

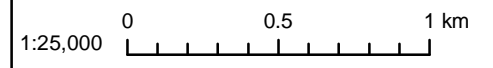
**Figure 8.2**  
 PIA Junctions and Links

- Legend**
- Onshore Red Line Boundary
  - Junctions
  - Links

Datum: OSGB 1936  
 Projection: BNG



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Drq No	39080-Lon152a			<b>Figure 8.2</b>
Rev	1.0	Date	01/05/2018	
By	JP	Layout	N/A	

8.7.17 The impact of casualties differs according to the severity of the injuries sustained. Three groups are usually differentiated as follows:

- Fatal: any death that occurs within 30 days from causes arising out of the accident;
- Serious: records casualties who require hospital treatment and have lasting injuries, but do not die within the recording period for fatality; and
- Slight: where casualties have injuries that do not require hospital treatment, or, if they do, the effects of the injuries quickly subside.

8.7.18 Records of the PIAs have been obtained from KCC database which uses information collected from the Police.

8.7.19 Records have been obtained over a five year period between 1<sup>st</sup> October 2011 and 30<sup>th</sup> September 2016. A summary of which is shown in Table 8.9.

**Table 8.9: Study area accident assessment summary (01/10/11 – 30/09/2016)**

Junction / Link	Description	Severity			Vulnerable Road User	Total
		Slight	Serious	Fatal		
J1	A299/ Canterbury Road	6	2	-	2	8
J2	A299/ A256/ Cottington Link Road	6	1	-	3	7
J3	A299/ A256/ Sandwich Road	11	3	-	7	14
J4	A299/ A255	2	-	-	-	2
J5	A256/ Sandwich Road	5	1	-	1	6
J6	A256/ Richborough Energy Park	6	2	-	2	8
J7	A256/ Ramsgate Road	6	-	-	1	6
L1	Between Junction 1 and Junction 2	1	-	-	-	1
L2	Between Junction 2 and Junction 3	4	-	1	2	5
L3	Between Junction 3 and Junction 4	3	-	-	1	3
L4	Cliffsend	7	4	-	4	11
L5	Between Junction 2 and Junction 5	7	1	-	1	8
L6	Between Junction 5 and Junction 6	4	-	-	1	4
L7	Between Junction 6 and Junction 7	4	1	-	-	5
Total		72	15	1	25	88

- 8.7.20 An assessment of the PIAs on the local highway network in the vicinity of the proposed development has been undertaken and broken down into the following junctions and links, and an assessment made for each.

#### Junctions

- 8.7.21 Junction 1 – A299/ Canterbury Road: A total of eight accidents were recorded at this junction, six as slight, and two as serious in severity. From these, two involved vulnerable road users (motorcyclist) resulting in both slight and serious in severity. Both were caused as a result of driver error, one from following the vehicle ahead too closely, and one due to losing control of the machine.
- 8.7.22 Junction 2 – A299/ A256/ Cottington Link Road: A total of seven accidents were recorded at this junction, six as slight and one as serious in severity. From these, three involved vulnerable road users (motorcyclist) resulting in one serious and two slight accidents. All were caused as a result of the motorcyclists losing control of their machines.
- 8.7.23 Junction 3 – A299/ A256/ Sandwich Road: A total of 14 accidents were recorded at this junction, 11 as slight and three as serious in severity. From these, seven involved vulnerable road users (motorcyclist and pedal cyclist) resulting in three serious and four slight accidents. All were caused as a result of driver error, with factors such as poor turning manoeuvre, loss of control, and failing to judge the other vehicles speed/path.
- 8.7.24 Junction 4 – A299/ A255: A total of two accidents were recorded at this junction, both of which were classified as slight in severity and involved no vulnerable road users. Causation factors were recorded as loss of control of vehicle and obstructing the path of an oncoming vehicle.
- 8.7.25 Junction 5 – A256/ Sandwich Road: A total of six accidents were recorded at this junction, five as slight and one as serious in severity. From these, one involved a vulnerable road user (motorcyclist) resulting in a slight accident. The cause of the accident was as a result of driver error/ losing control of the vehicle.
- 8.7.26 Junction 6 – A256/ Richborough Energy Park: A total of eight accidents were recorded at this junction, six as slight and two as serious in severity. From these, two involved vulnerable road users (motorcyclist) resulting in a serious and slight accident. Both were caused as a result of driver error/ loss of control of vehicle, with contributing factors such as late braking and excessive speed.
- 8.7.27 Junction 7 – A256/ Ramsgate Road: A total of five accidents were recorded at this junction, four as slight and one as serious in severity. No vulnerable road users involved. All were caused as a result of driver error, with causation factors such as excessive speed, poor turning manoeuvres and loss of control of vehicles.

#### Links

- 8.7.28 Link 1 – Between Junction 1 and Junction 2: There was one accident recorded along this link, classified as slight in severity. No vulnerable road users were involved, and the cause was as a result of driver error, with the causation factor of driver illness.
- 8.7.29 Link 2 – Between Junction 2 and Junction 3: A total of five accidents were recorded along this link, four as slight and one as fatal. From these, two involved vulnerable road users (motorcyclist) resulting in one slight and one fatal accident. The vulnerable road user accident was caused as a result of wet weather conditions, the other as a result of rider error. The fatal accident occurred on 14<sup>th</sup> July 2015 at 00:17 hours, with the road surface and weather conditions recorded as dry and fine respectively. The accident occurred as vehicles 1 (motorcycle) and 2 (car) were travelling east along Hengist Way. Vehicle 2 moved into the offside lane to overtake vehicle 1. During this the rider of vehicle 1 lost control, colliding with the kerb and central reserve, causing the rider to fall from their vehicle, leading to fatal injuries as a result.
- 8.7.30 Link 3 – Between Junction 3 and Junction 4: A total of three accidents were recorded along this link, all as slight in severity. From these, one involved a vulnerable road user (motorcyclist), and was caused as a result of driver error as the rider of the motorcycle collided with the wing mirror of a stationary vehicle.
- 8.7.31 Link 4 – Cliffsend: A total of 11 accidents were recorded within Cliffsend, seven as slight and four as serious in severity. From these, four involved vulnerable road users (motorcyclist and pedal cyclist) resulting in slight and serious accidents. All were caused as a result of driver error, with causation factors such as failing to judge vehicle speeds, loss of control, and driver hesitation.
- 8.7.32 Link 5 – Between Junction 2 and Junction 5: A total of eight accidents were recorded along this link, seven as slight and one as serious. From these, one involved a vulnerable road user (pedal cyclist). The cause was as a result of driver error, with causation factors such as passing too closely, poor manoeuvre and failing to judge the cyclists speed/ path.
- 8.7.33 Link 6 – Between Junction 5 and Junction 6: A total of four accidents were recorded along this link, all of which were classified as slight in severity. From these, one involved a vulnerable road user (pedal cyclist). The cause was as a result of driver error, with contributing factors such as failing to judge the other vehicles path/ speed.
- 8.7.34 Link 7 – Between Junction 6 and Junction 7: A total of five accidents were recorded along this link, four classified as slight and one as serious in severity. No vulnerable road users were involved. All were caused as a result of driver error, with causation factors such as vehicle malfunction, lack of awareness, loss of vehicle control, and aggressive driving.

8.7.35 From the above assessment it can be concluded that there are no accident trends/ clusters within the search area, and none were caused as a result of poor road layout. There is therefore no reason to believe any further personal injury accidents will be caused as a result of increased traffic from the proposed development.

**Pedestrian and Cycle Provision**

*A256*

8.7.36 No pedestrian or cyclist facilities are provided on the A256 (Richborough Way).

8.7.37 A wide shared pedestrian/ cycle footway is provided on the A256 between Ebbsfleet Roundabout to the north, to the A256/ Sandwich Bypass/ Ramsgate Road Roundabout to the south. This section forms part of the Sustrans National Cycle Network (NCN) Regional Route 15 / England Coastal Path (ECP).

*A299*

8.7.38 No pedestrian or cyclist facilities are provided on the A299.

*Sandwich Road*

8.7.39 From site observations, the northern part of Sandwich Road at Cliffsend is considered the section of carriageway most susceptible to change for vulnerable road users. Pedestrian and cycle provision along this section is good, as outlined in the following sections. Pedestrian and cycle provision is illustrated in Figure 8.3.

8.7.40 Section 1 (between the roundabout with the A299/ A256 and the mini roundabout with Cliffs End Road). NCN Route 15 / ECP joins this section of carriageway at the junction with Chalk Hill which provides a connection to Pegwell to the east. This is a shared pedestrian/ cycle provision and is segregated from the carriageway by hedgerows/ grass verges.

8.7.41 Section 2 (between the mini roundabout with Cliffs End Road and the junction with Foads Lane). NCN Route 15 / ECP continues along the eastern side of the carriageway segregated by grass verge until reaching a point between the junctions with Cliffs End Grove and Foads Lane where the shared provision continues although with no formal segregation from Sandwich Road. Pedestrian footways are provided on both sides of the carriageway also with no segregation. Footway provision along the western side terminates south of the junction with Mount Green Avenue, with pedestrian refuges provided. Footways on both sides of the carriageway are present south of the junction with Foads Lane, with a pedestrian refuge provided. At this point, the NCN Route 15 / ECP becomes fully segregated, bypassing the service station. There is also a raised table zebra crossing located approximately 5 m south of the junction with Foads Lane. Pedestrian footway provision continues along the eastern side of the carriageway, providing access to the sheltered bus stop and service station.

8.7.42 Section 3 (between the junction with Foads Lane and the roundabout with the A256). NCN Route 15 / ECP continues through Pegwell Bay Country Park fully segregated to the east of Sandwich Road and parallel to the main carriageway. At the junction with Ebbsfleet Lane NCN Route 15 / ECP leaves the Country Park and becomes a shared pedestrian/ cycle footway fronting the carriageway to the roundabout with the A256. Soft segregation is present along this section in the form of a raised kerb and reflective bollards to provide a sense of separation from the carriageway. Guard railings are also present in small sections and at the toucan crossing located on the southern arm of the junction.

**Bus Provision**

8.7.43 Figure 8.4 shows the bus routes within proximity of the study area, summarised in Table 8.10.

**Table 8.10: Summary of bus services within the vicinity of the study area**

Service Number	Route	Frequency		Service Provider
		Mon - Fri	Saturday	
42	Monkton – Minster – Cliffs End – Nethercourt – Ramsgate (- Westwood – Margate)	Seven journeys	Five journeys	Stagecoach
87/ 88	Dover – Buckland – Temple Ewell or A2 – Coldred – Shepherdswell – Eythorne – Elvington – Eastry – Sandwich – Cliffs End - Ramsgate	Hourly	Hourly	Stagecoach
88A	Dover – Buckland – Temple Ewell or A2 – Coldred – Shepherdswell – Eythorne – Elvington – Eastry – Sandwich – Cliffs End - Ramsgate	Two journeys	Two journeys	Stagecoach

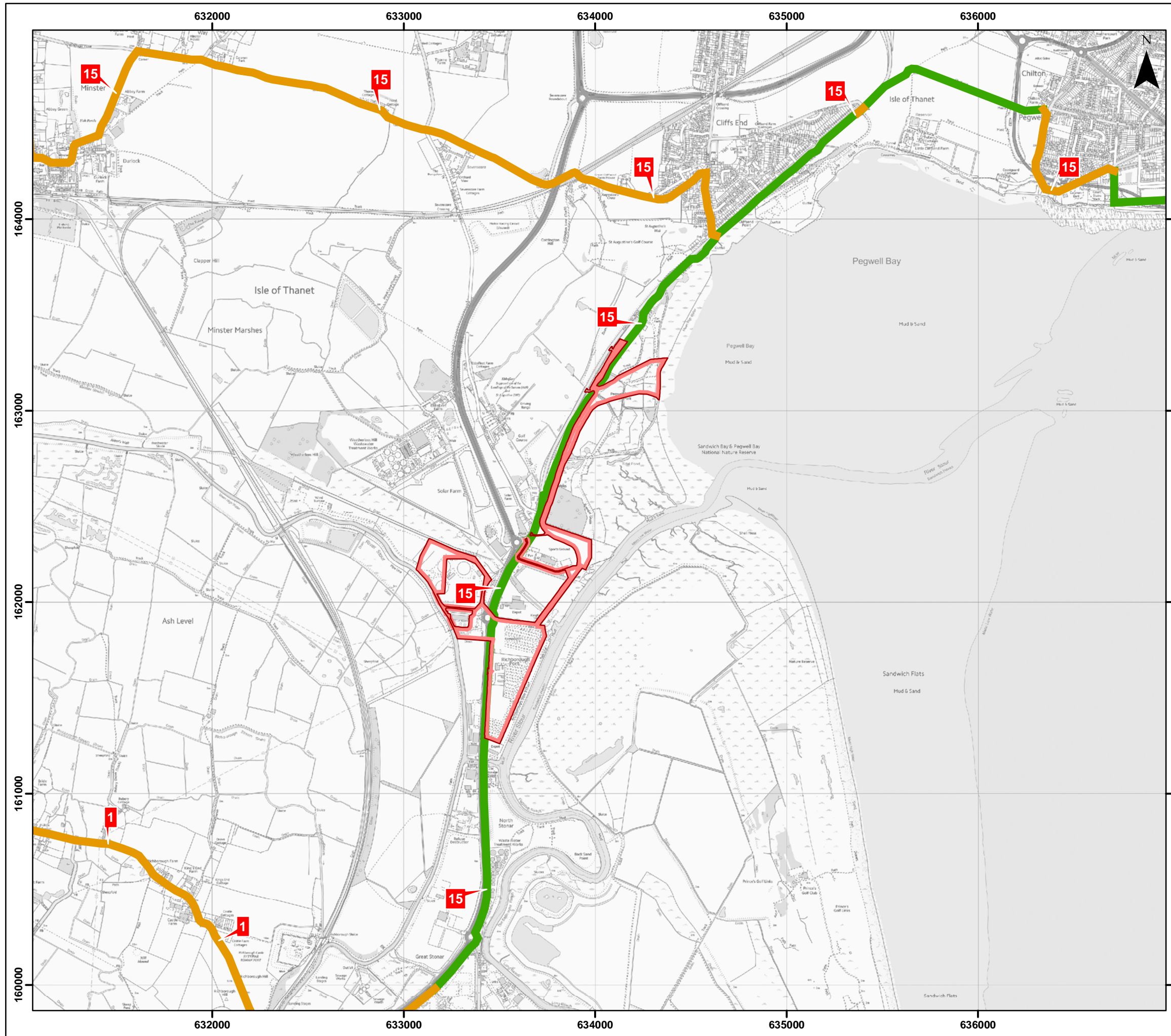
8.7.44 Whilst service frequency in the area is relatively low across the three bus services, consideration should be given to these when deciding on construction traffic routes.

### The onshore export cable corridor




- 8.7.45 The following section provides a description on the traffic and access related features situated within the onshore export cable corridor only.
- 8.7.46 NCN Route 15 / ECP routes within Pegwell Bay Country Park. Further details are provided in section 8.7 including details of a count survey undertaken.
- 8.7.47 There are five access points proposed (illustrated in Figure 8.5 four along Sandwich Road, and one from the existing A256/Richborough Energy Park roundabout Access One (Grid reference: TR 34076 63319) provides access to a construction and laydown area, and will be used by HGVs
- Access Two (Grid reference: TR 33954 63102) is located further south, approximately 467 m, and provides access to a construction and laydown area, and is likely to be used by HGVs.
  - Access Three (Grid reference: TR 33689 62412) is situated approximately 60m south of Ebbsfleet Lane signal junction. This is a new simple priority access and will provide egress/ingress to the cable trench. This will also provide access to a further construction and laydown area.
  - Access Four (Grid reference: TR 33642 62327) is situated approximately 154m south of the Ebbsfleet Lane signal junction. This is an existing access which provides egress/ingress to the Baypoint Club. This will also provide access to a further construction and laydown area for HGVs.
  - Access Five (Grid reference: TR 33541 61908) will be achieved via the existing A256/Richborough Energy Park roundabout. This will be utilised for all substation equipment, including delivery of the Super Grid Transformer (SGT). This will act as the only access for AILs.

## 8.8 Key parameters for assessment

- 8.8.1 Table 8.11 identifies the maximum adverse scenario in environmental terms, defined by the project design envelope.
- 8.8.2 A number of options for the landfall and cable works have been considered, as identified within Volume 3, Chapter 1: Onshore Project Description (Document Ref: 6.3.1)). This assessment has been based on the worst-case traffic impact, which has been identified in Table 8.11 below.



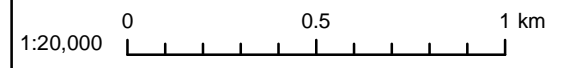
## Figure 8.3 Pedestrian and Cycle Provision

- Legend**
-  Onshore Red Line Boundary
  -  On-road route on the National Cycle Network
  -  Traffic-free route on the National Cycle Network

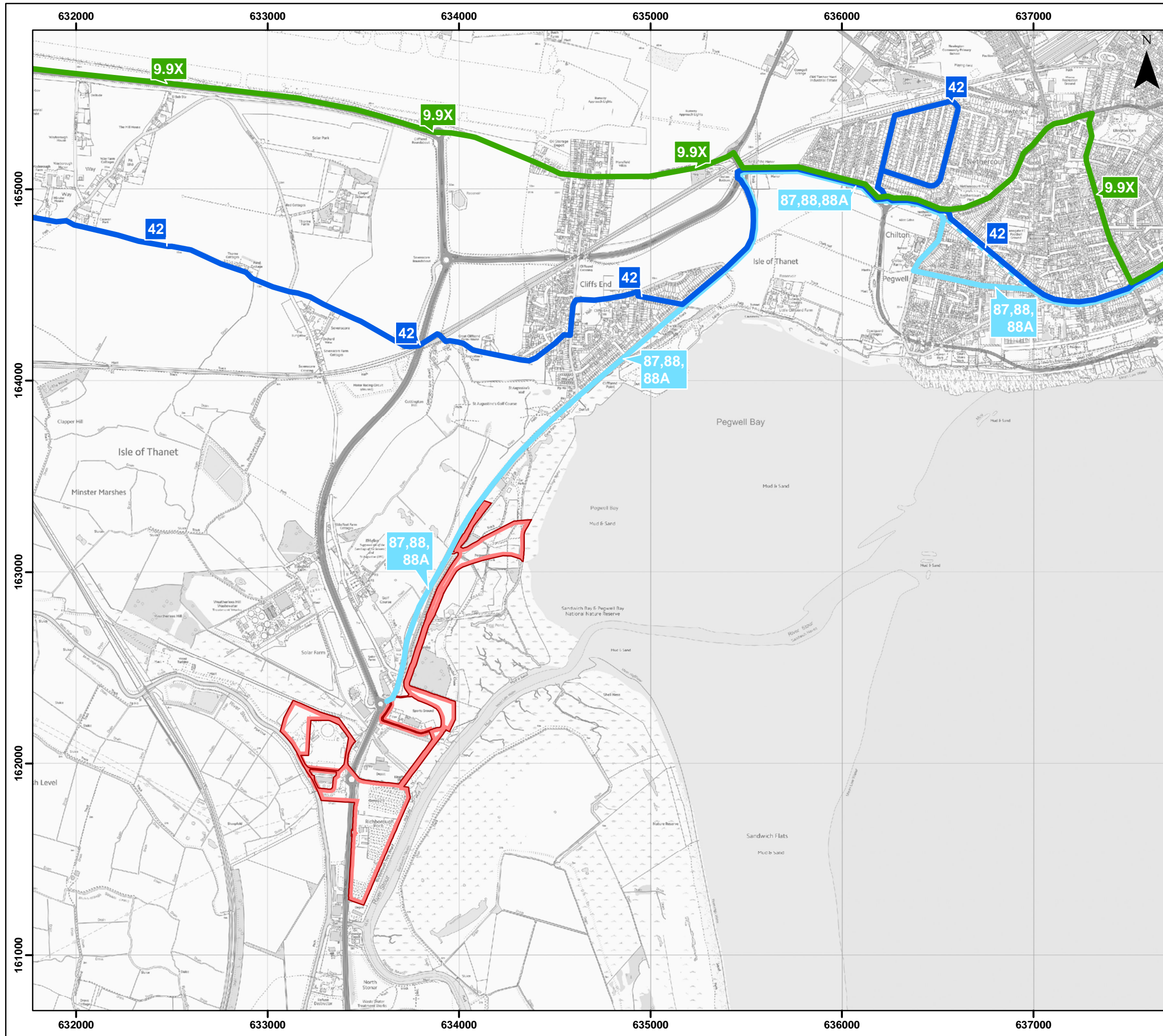
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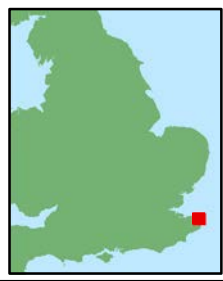



# THANET EXTENSION OFFSHORE WIND FARM

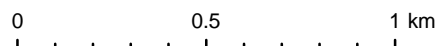
## Figure 8.4 Bus Routes and Services

- Legend**
-  Onshore Red Line Boundary
  -  Route 9.9X
  -  Route 42
  -  Routes 87, 88, 88A
  -  Routes 87, 88, 88A

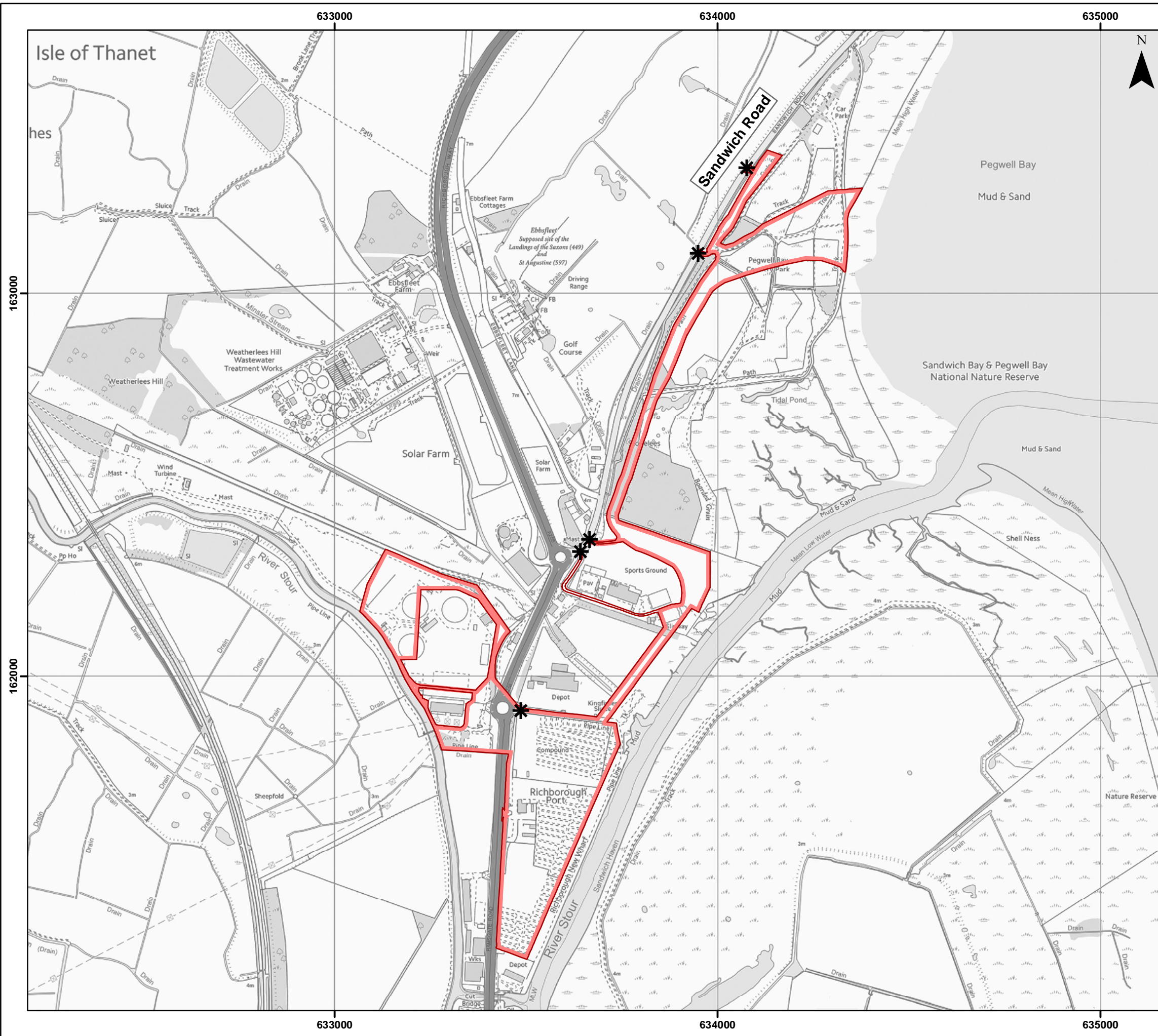
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## Figure 8.5

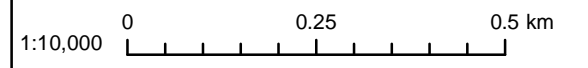
### Site Access Locations

- Legend**
- Onshore Red Line Boundary
  - \* Access Location

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Projection: BNG



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**Table 8.11: Maximum design scenario assessed**

Potential effect	Maximum design scenario assessed	Justification
<b>Construction</b>		
Traffic effect of combined construction and staff movements	<p>The traffic impact assessment assumes that the construction phases of the substation and onshore cable works will run simultaneously.</p> <p>This equates to a total of 351 HGV round trips (351 arrivals to the destination site, and 351 departures to vehicle origin site), and 200 LV round trips (100 arrivals, 100 departures). This equates to 702 HGV and 200 LV total vehicle movements within a 07:00 – 19:00 hour’s working day as the worst-case scenario.</p> <p>It should also be noted that the LV movements include both LVs and personnel vehicle.</p> <p>The construction of the offshore wind farm is not anticipated to generate any HGV trips to the Base Port.</p>	<p>This represents a worst-case scenario, with the maximum vehicles expected in any one particular work day being applied to existing base flows.</p>
Traffic effect of construction staff movements	<p>The traffic impact assessment does not take into consideration the ability for construction workers to travel to the proposed development by non-car modes (bus, rail, walking and cycling).</p>	<p>By assuming all staff trips are made using a car, this will assess the maximum number of vehicle trips impacting upon the network at any one time.</p> <p>Should sustainable modes of transport be promoted, this impact on the road network will reduce.</p>
Traffic effect of HGV movements on the road network	<p>There has been no allowance for intermodal freight transfer (rail/ marine) of site based materials/ equipment.</p>	<p>This would result in a reduction of HGV traffic movements on links within the study area. As this assessment presents a worst-case, intermodal transfer has been disregarded as a result.</p>

Potential effect	Maximum design scenario assessed	Justification
	<p>All HGV movements will occur during a six day working week (Monday – Saturday (between 07:00 – 19:00 hours, discrete locations may require 24-hour working).</p>	<p>This results in a maximum traffic generation scenario.</p>
Traffic effects of construction traffic routing	<p>100% of both construction and staff movements have been applied to links on the road network.</p>	<p>As final routing has yet to be finalised, this approach assesses the worst-case impact to all road links within the study area. Applying the 100% to each link assesses the maximum number of HGV trips impacting upon the network at any one time.</p>
Traffic impact of construction phasing	<p>The future base year for the traffic impact assessment is 2020.</p>	<p>The construction programme commences in September 2020. Using this as the base year will present the worst-case traffic impact, due to minimum levels of base traffic growth occurring.</p>
<b>Operation &amp; Maintenance (O&amp;M)</b>		
Traffic effects of O&M: cable route	<p>It is anticipated that less than one round trip staff movement per week will be made for the onshore cable works.</p>	<p>Minimal trips will be required for the ongoing maintenance of the onshore cable works.</p>
Traffic effects of O&M: onshore substation	<p>The substation will be unmanned however, it will on average generate one staff round trip per week made by LV.</p>	<p>Minimal trips will be required for the ongoing maintenance of the onshore cable works.</p>
Traffic effects of O&M: offshore wind farm	<p>It is anticipated that there could be in the region of 50 round trip maintenance movements per day associated with Thanet Extension.</p>	<p>This is a worst-case assumption on the requirement of maintenance trips. Due to the low number of vehicle trips the assessment of O&amp;M phase has been scoped out.</p>

Potential effect	Maximum design scenario assessed	Justification
	It is anticipated that there could be approximately 48 round trip HGV movements per year associated with the O&M of Thanet Extension.	This is a worst-case assumption on the requirement of maintenance trips. Due to the low number of vehicle trips the assessment of O&M phase has been scoped out.
Decommissioning		
All decommissioning activities	Assumed to be the same as construction as a worst-case scenario.	Methods of decommissioning would not be known until this process is desired. Activities are however likely to be similar to those involved during the construction phase, but are unlikely to be extensive. Due to uncertainty in final vehicle numbers associated with this activity, any assessment has been scoped out and would be assessed when required.
Cumulative effects		
Traffic effects of cumulative impacts	Assumed that cumulative traffic will be captured within local growth factors contained within TEMPro (Trip End Model Presentation Program).	TEMPro accounts for future traffic growth.
	Further review of applications within a 5 km catchment of the proposed development has been undertaken in section 8.14.8.	Due to the low trip generation and the locations of the cumulative developments identified, it is assumed that these trips will disperse before interacting with the study area, and therefore have no cumulative impact as a result.

8.8.3 There is an inter-relationship with this chapter and the Air Quality and Noise and Vibration chapters (Volume 3, Chapter 9: Air Quality (Document Ref: 6.3.9); Volume 3, Chapter 10: Noise and Vibration (Document Ref: 6.3.10), respectively) in so far as these two chapters consider traffic flows. The traffic flows will be made available and these two chapters will utilise these as part of their assessments.

### 8.9 Embedded mitigation

8.9.1 Measures have been secured in the CoCP (Document ref: 8.1) recognising the need to manage the traffic impact as a part of Thanet Extension. These measures will be further defined in a Construction Traffic Management Plan (CTMP) submitted for approval post-consent. The CTMP is secured by requirement in the draft DCO.

8.9.2 The following section describes the potential effects and the rationale for incorporating embedded mitigation into the proposed development in order to help avoid effects occurring, or to reduce the impact of effects on receptors. The following measures and principles are incorporated into the CoCP:

- Traffic routing strategy – ensuring vehicles access the proposed development via the most appropriate route and avoid unnecessary conflict with sensitive areas;
- Traffic timing strategy – programme vehicles arrival/ departures and working hours to lessen the impact on the highway network;
- Temporary signage – in accordance with DfT (2009) to inform local road users of construction access points and the presence of HGVs;
- Traffic Marshals – to marshal access points and PRoW crossing whilst deliveries are taking place;
- Temporary traffic management – provided on approaches to accesses in the form of traffic warning signs, possible reductions in speed limit signs to ensure safe passage of vehicles. All signage in accordance with DfT (2009);
- Proposed development access locations designed in accordance with DMRB (1995); and
- Travel planning measures – will provide details of how staff should travel to the proposed development by alternative modes in an effort to reduce single occupancy vehicles travelling to the proposed development.
- The linear nature of the project will allow for an even distribution of activities and associated daily HGV demands;
- The CoCP contains the principles of a Staff Travel Plan, where necessary, to manage the arrival and departure profile of staff and encourage sustainable modes of transport, especially car-sharing. A package of measures could include:
  - Appointment of a Travel Plan Coordinator (TPC);
  - Provision of a public transport information;
  - Mini-bus service for transport of site staff;
  - Promotion of a car sharing scheme; and
  - Car parking management.

- Where required, impacted PRoWs will be continually manned to reduce the impact on users; new bellmouth locations will be assessed to ensure safe use by all intended vehicles. Further information is provided in the Access Strategy (Document Ref: 8.4). If necessary, Swept Path Analysis (SPA) will be undertaken to ensure vehicles do not affect road users on the carriageway or footway. Bellmouths will be managed by traffic marshals and all temporary access arrangements will be constructed to DMRB standards; and
- A desk based AIL study has been undertaken to identify appropriate routes to the proposed development from the ports of Tilbury, Dover and Ramsgate, as well as the SRN. The AIL study is available in Volume 5, Annex 8-1: Abnormal Indivisible Load Access Study (Document Ref 5.8.1).

**8.10 Environmental assessment: construction phase**

- 8.10.1 Sensitivity judged as High or Medium results in Rule 2 being considered for that highway link. Sensitivity judged as Low or Negligible results in Rule 1 being considered for that highway link.
- 8.10.2 Given the potential receptors described in section 8.7 ‘Existing environment’, Table 8.12 summarises those highway links that are considered sensitive to a change in traffic flows and where an increase of 10% or more in the proportion of total vehicles or HGVs will trigger an assessment of effects based on Rule 2.
- 8.10.3 An increase of 30% or more in the proportion of total vehicles or HGVs will trigger an assessment of effects on the remaining highway links based on Rule 1.

**Table 8.12: Locations sensitive to changes in traffic flows**

Highway Link	Rationale	Receptor Sensitivity	Assessment (Rule 1/2)
Sandwich Road	Proximity of the unsegregated cycle path/ footway in this location and proximity of residential dwellings to the highway.	Medium	Rule 2
A299 Hengist Way (N)	Dual carriageway subject to high vehicle flows. No sensitive land uses identified. No pedestrian/ cyclist provision.	Negligible	Rule 1
A299 Hengist Way (E)	Dual carriageway subject to high vehicle flows. No sensitive land uses identified. No pedestrian/ cyclist provision.	Negligible	Rule 1
A256 Richborough Way	Dual carriageway subject to high vehicle flows. No sensitive land uses identified. No pedestrian/ cyclist provision.	Negligible	Rule 1
A256 (S)	Dual carriageway subject to high vehicle flows. Shared-use footway identified, used by cyclists and pedestrians however, footway is very wide and not deemed sensitive. Dropped kerb crossings provided in addition to toucan crossing.	Low	Rule 1
A299 Canterbury Road (E)	Wide footways identified and residential dwellings set back from the carriageway. Soft segregation of footway and pedestrian refuge crossing points identified. It is not anticipated that HGVs will route along this link.	Low	Rule 1

Construction trips have been calculated for each of the following distinct phases of work:

- Onshore cable; and
  - Onshore substation.
- 8.10.4 The peak numbers of anticipated construction movements required for each phase of construction have been provided by VWPL and are outlined below.

**Onshore Cable**

8.10.5 In consideration of the maximum adverse scenario, it has been assumed that onshore cable works will be undertaken within Sandwich Road, and as a result, short-term single lane closures may be necessary to enable the works.

**Onshore substation**

8.10.6 Maximum peak round trip movements have been provided for both HGV and LV trips. These are an assumed worst-case and would be unlikely to be at this level throughout the duration of the construction phase.

8.10.7 Due to the uncertainty in vehicle routing to/ from the proposed development, 100% of anticipated HGV and LV trips relating to the onshore cable and substation have been applied to all road links, representing a worst-case assessment.

8.10.8 Table 8.13 below shows the anticipated maximum peak daily HGV and LV trips associated with each phase of construction. These represent an absolute worst-case, as mentioned previously, and are unlikely to be the average daily traffic flows throughout the duration of the construction period.

**Base Port**

8.10.9 The Base Port of origin is currently unknown, and any assessment at the Base Port has been scoped out. It is assumed that very few construction trips would route to the Base Port and therefore be likely to result in negligible impact compared to the predicted construction trips associated with the onshore cable works and substation.

**Construction Vehicle Movements**

**Table 8.13: Anticipated round trip HGV and LV movements - construction**

Peak round trip HGV movements per Day	Peak round trip LV movements per Day
702	200

8.10.10 This equates to a total of 351 HGV round trips (351 arrivals to the destination site, and 351 departures to vehicle origin site), and 200 LV round trips (100 arrivals, 100 departures). This equates to 702 HGV and 200 LV total vehicle movements within a 07:00 – 19:00 hour’s working day as the worst-case scenario. It should also be noted that the LV movements include both LVs and personnel vehicle. The figures provided are considered to represent a reasonable worst-case scenario.

**Construction Vehicle Routing**

8.10.11 It is anticipated that all construction HGVs will access the proposed development via the primary highway routes in the region. It is not anticipated that HGVs will route from Ramsgate along the A299 Canterbury Road (E), therefore this link has not been included within this assessment.

8.10.12 It is anticipated that all staff LV trips will access the proposed development via the primary highway routes in the region. The most logical route being A299 Hengist Way to the north and A256 from the south. On days where the peak 200 LV trips occur, 104 of these are associated with the landfall and cable works, with 96 associated with the Substation. Whilst all will route along the A256/A299, only the landfall and cable works trips will access the proposed development via Sandwich Road. Therefore, the assessment of LV increase on Sandwich Road only takes into consideration the 104 LV trips associated with the landfall and cable works.

8.10.13 Routing will be formally agreed with the construction contractor once appointed. A plan showing the proposed access routes for construction vehicles is included in Figure 8.6 and Figure 8.7.

**Abnormal Indivisible Loads**

8.10.14 A separate assessment has been undertaken to identify suitable routes to transport the required AILs to the proposed development. This study is available in Volume 5, Annex 8-1: Abnormal Indivisible Load Access Study (Document Ref 6.5.8.2).

8.10.15 The movement of abnormal vehicles is controlled by SOS (2003) and subject to management and prior agreement with the Police, HE, and KCC.

8.10.16 It is envisaged that all AILs would be escorted by a pilot car and Police escort and be scheduled to travel during off-peak hours where possible. This would ensure the safety of other road users and result in minimal disruption.

8.10.17 All AILs will access the proposed development from the existing A256/Richborough Energy Park roundabout.

**Future Baseline**

8.10.18 The preferred option for projecting existing traffic data for future year assessments is to use appropriate local traffic forecasts such as TEMPro. TEMPro is a program developed by the DfT providing traffic growth projections used to project long-term forecasts.

8.10.19 TEMPro trip end forecasts are based on a model using, inter alia, projections of housing and employment that are provided periodically by all relevant planning authorities for their area. As such, projections would include all committed and planned development (as at the time of data supply) within Thanet.

- 8.10.20 For this assessment, a future baseline year of 2020 has been selected. In consideration of the maximum design scenario, construction activities for the onshore cable works and substation begin simultaneously during September 2020, meaning this will present a worst-case in terms of traffic impact.
- 8.10.21 Op Stack will continue to operate as usual within the future baseline, however due to the redevelopment of Manston Airfield, the site will no longer be used to park Port of Dover freight. The development proposals for Manston Airport consist of developing a dedicated air freight facility, which will offer passenger, executive travel, and aircraft engineer services. The facilities for air freight and cargo operations would be able to handle a minimum of 10,000 air freight air traffic movements per year.

#### **Construction Vehicle Impacts**

- 8.10.22 To understand the future impacts of the proposed development, a number of transport related effects have been considered.

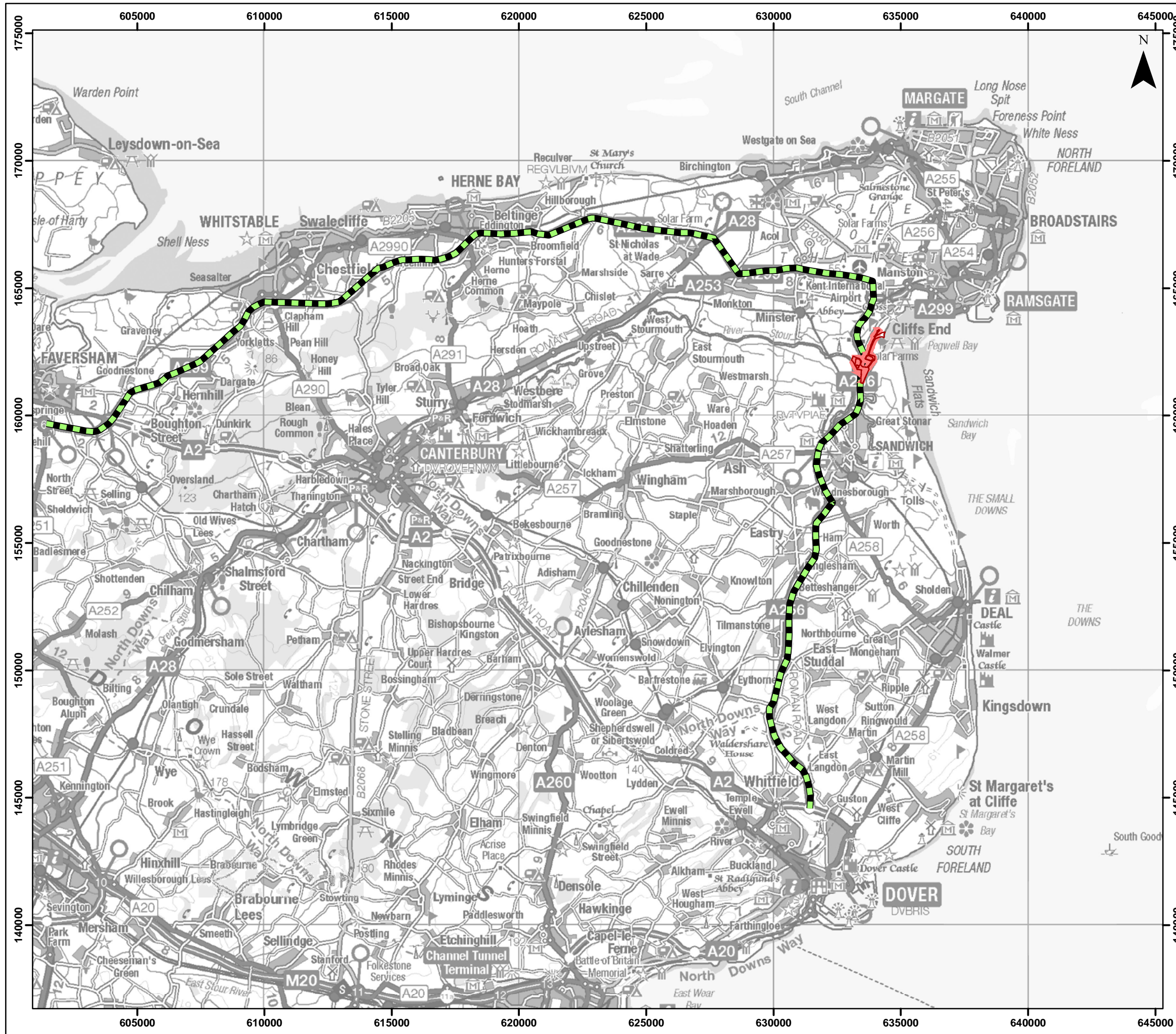
#### **Percentage Increase to Traffic**

- 8.10.23 Total daily peak round trip vehicle movements are likely to equate to 702 HGVs and 200 LVs during the construction programme.
- 8.10.24 Based on the existing traffic flows collected and presented in section 8.7 'Existing environment', this would result in percentage increases on links as shown in Table 8.14 below.

**Table 8.14: Summary of predicted increase in average weekly round trip traffic**

Road Link	GEART rule screening	Future baseline all vehicles	Future baseline HGVs (includes MGVs)	Future baseline LV flows	Predicted HGV flows	Predicted LV flows	Predicted increase all vehicles (%)	Predicted HGV increase (%)	Predicted LVs increase (%)	Further assessment required
A299 Hengist Way (N)	Rule 1	18,961	1,424	17,537	702	200	4.7	49.3	1.1	Exceeds 30% - assessment required
A299 Hengist Way (E)	Rule 1	28,805	1,363	27,442	702	200	3.1	51.5	0.7	Exceeds 30% - assessment required
A256 Richborough Way	Rule 1	23,672	1,298	22,374	702	200	3.8	54.1	0.9	Exceeds 30% - assessment required
A256 (S)	Rule 1	26,826	1,356	25,470	702	200	3.3	51.8	0.8	Exceeds 30% - assessment required
A299 Canterbury Road (E)	As stated in paragraph 8.10.11 this link has not been included within this assessment. It is not anticipated that HGVs will route along this link to/from the proposed development									
Sandwich Road	Rule 2	3,168	281	2,887	702	104	25.4	249.8	3.6	Exceeds 10% - assessment required

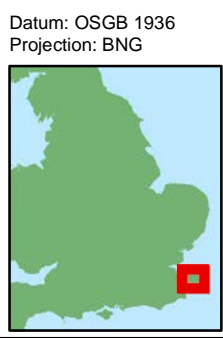
Note: HGVs include OGV1 (Other Goods Vehicle), OGV2 and PSV (Public Service Vehicle) as per DMRB (2001).



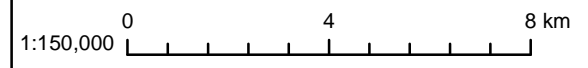
**Figure 8.6**  
Construction Traffic - Wider Area

**Legend**

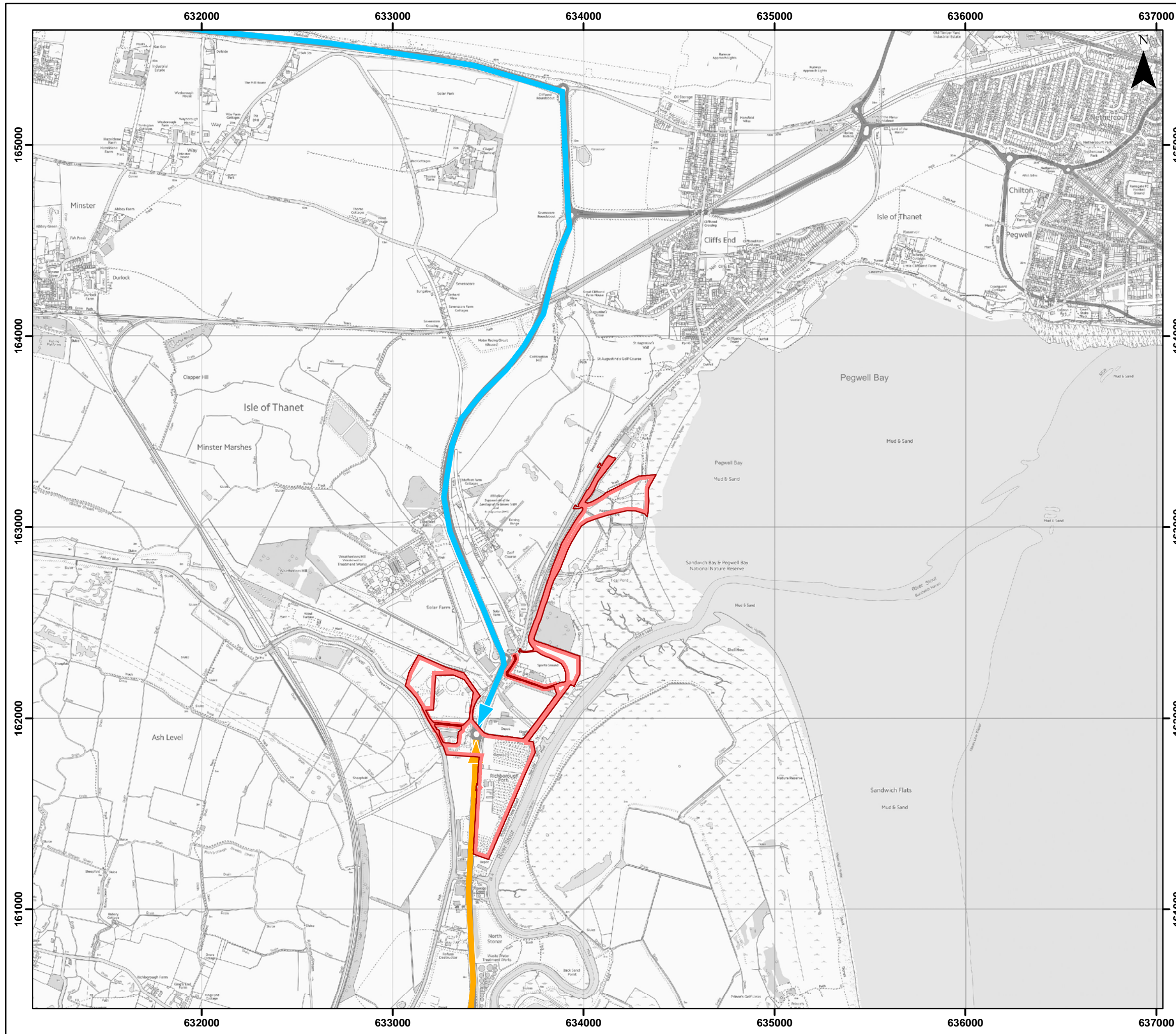
- Onshore Red Line Boundary
- HGV Construction Route



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Drg No	39080-Lon156a			<b>Figure 8.6</b>
Rev	1.0	Date	02/05/2018	
By	JP	Layout	N/A	



**Figure 8.7**  
Construction Traffic - Local Road Network

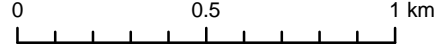
**Legend**

-  Onshore Red Line Boundary
- HGV Construction traffic route
  -  From A2
  -  From M2

Datum: OSGB 1936  
Projection: BNG



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Rev	1.0	Date	01/05/2018	
By	JP	Layout	N/A	



- 8.10.25 Table 8.14 shows the proposed percentage increase in construction traffic flows associated with the proposed development.
- 8.10.26 The greatest impact as a result of construction HGV trips is predicted to occur on Sandwich Road, resulting in an increase of 249.8%. The high percentage increase of HGVs on this road is due to the low baseline HGV flows.
- 8.10.27 The greatest impact as a result of LV construction trips is predicted to occur on Sandwich Road, resulting in an increase of 4.2%.
- 8.10.28 The greatest impact as a result of all construction trips (both HGV and LV) is predicted to occur on Sandwich Road, resulting in an increase of 26.0% against all future baseline vehicles.
- 8.10.29 Given the potential receptors described in Table 8.12, Table 8.14 identifies the highway links that are taken forward for assessment based on the percentage impacts on these links exceeding the 10% threshold (Rule 2) or 30% threshold (Rule 1).
- 8.10.30 As a result of the large number of peak HGV movements outlined in Table 8.14, all road links within the study area exceed their respective screening threshold. Therefore, an assessment of environmental effects has been undertaken for the highway links identified.

## 8.11 Environmental assessment: Construction phase

### Predicted effects and their significance: A299 Hengist Way (N)

- 8.11.1 The GEART threshold is exceeded by 19.3% along this road link during the worst-case scenario.

#### Driver Delay

- 8.11.2 Given that the highway link has a Negligible receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Negligible** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

#### Public Transport Delay

- 8.11.3 Given that the highway link has a Negligible receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Negligible** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

#### Pedestrian Amenity

- 8.11.4 No pedestrian facilities are available on this highway link therefore, no assessment is required and the effect is scoped out.

#### Pedestrian Severance

- 8.11.5 No pedestrian facilities are available on this highway link therefore, no assessment is required and the effect is scoped out.

#### Public Rights of Way

- 8.11.6 There are no PROWs on this highway link therefore, no assessment is required and the effect is scoped out.
- 8.11.7 An assessment of pedestrian and cyclist PROW is presented in Volume 3, Chapter 4: Tourism and Recreation (Document Ref: 6.3.4).

#### Accidents and Road Safety

- 8.11.8 An increase, or decrease, in accidents may result from changes in traffic flows, however analysis has shown that existing PIAs recorded during the last five years is low on the construction routes, and without significant trends in occurrence. It is unlikely that the number of PIAs will increase as a result of the additional HGV trips. Furthermore, temporary traffic management and banksman control of proposed development accesses will effectively mitigate any small increase in road safety risks. The effect is considered to be of Negligible sensitivity (Table 8.12), Negligible magnitude (Table 8.4), and therefore **Negligible** adverse significance (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

### Predicted effect and their significance: A299 Hengist Way (E)

- 8.11.9 The GEART threshold is exceeded by 21.5% along this road link during the worst-case scenario.

#### Driver Delay

- 8.11.10 Given that the highway link has a Negligible receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Negligible** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Public Transport Delay*

8.11.11 Given that the highway link has a Negligible receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Negligible** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Pedestrian Amenity*

8.11.12 No pedestrian facilities are available on this highway link therefore, no assessment is required and the effect is scoped out.

*Pedestrian Severance*

8.11.13 No pedestrian facilities are available on this highway link therefore, no assessment is required and the effect is scoped out.

*Public Rights of Way*

8.11.14 There are no PRowS on this highway link therefore, no assessment is required and the effect is scoped out.

8.11.15 An assessment of pedestrian and cyclist PRow is presented in Volume 3, Chapter 4: Tourism and Recreation (Document Ref: 6.3.4).

*Accidents and Road Safety*

8.11.16 An increase, or decrease, in accidents may result from changes in traffic flows, however analysis has shown that existing PIAs recorded during the last five years are low on the construction routes, with no identified patterns or trends. It is unlikely that the number of PIAs will increase as a result of the additional HGV trips. Furthermore, temporary traffic management and banksman control of proposed development access points will effectively mitigate any small increase in road safety risks. The effect is considered to be of Negligible sensitivity (Table 8.12), Negligible magnitude (Table 8.4), and therefore **Negligible** adverse significance (Table 8.5). This is considered to be not significant in terms of EIA the regulations.

**Predicted effect and their significance: A256 Richborough Way**

8.11.17 The GEART threshold is exceeded by 24.1% along this road link during the worst-case scenario.

*Driver Delay*

8.11.18 Given that the highway link has a Negligible receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Negligible** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Public Transport Delay*

8.11.19 Given that the highway link has a Negligible receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Negligible** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Pedestrian Amenity*

8.11.20 No pedestrian facilities are available on this highway link therefore, no assessment is required and the effect is scoped out.

*Pedestrian Severance*

8.11.21 No pedestrian facilities are available on this highway link therefore, no assessment is required and the effect is scoped out.

*Public Rights of Way*

8.11.22 There are no PRowS on this highway link therefore, no assessment is required and the effect is scoped out.

8.11.23 An assessment of pedestrian and cyclist PRow is presented in Volume 3, Chapter 4: Tourism and Recreation (Document Ref: 6.3.4).

*Accidents and Road Safety*

8.11.24 An increase, or decrease, in accidents may result from changes in traffic flows, however analysis has shown that existing PIAs recorded during the last five years is low on the construction routes, with no identified patterns or trends. It is unlikely that the number of PIAs will increase as a result of the additional HGV trips. Furthermore, temporary traffic management and banksman control of proposed development accesses will effectively mitigate any small increase in road safety risks. The effect is considered to be of Negligible sensitivity (Table 8.12), Negligible magnitude (Table 8.4), and therefore **Negligible** adverse significance (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

**Predicted effect and their significance: A256 (S)**

8.11.25 The GEART threshold is exceeded by 21.8% along this road link during the worst-case scenario.

*Driver Delay*

8.11.26 Given that the highway link has a Low receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Minor** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Public Transport Delay*

8.11.27 Given that the highway link has a Low receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Minor** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Pedestrian Amenity*

8.11.28 A shared pedestrian/cycle off-road facility is provided along both sides of the A256 (S), with the eastern side of this facility forming the Sustrans Regional Route 15.

8.11.29 Given that the highway link has a Low receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Minor** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Pedestrian Severance*

8.11.30 A toucan crossing is provided across the A256, approximately 40 m south of Ebbsfleet roundabout, allowing for safe crossing for pedestrians and cyclists.

8.11.31 Given that the highway link has a Low receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Minor** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Public Rights of Way*

8.11.32 Sustrans Regional Cycle Route 15 runs along the eastern side of the carriageway, providing an off-road shared use facility.

8.11.33 Given that the highway link has a Low receptor sensitivity (Table 8.12), and increases in HGVs are between 30-60% resulting in Low magnitude of change (Table 8.4), the level of effect is considered to be of **Minor** adverse significance overall (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

*Accidents and Road Safety*

8.11.34 An increase, or decrease, in accidents may result from changes in traffic flows, however analysis has shown that existing PIAs recorded during the last five years is low on the construction routes, with no identified patterns or trends. It is unlikely that the number of PIAs will increase as a result of the additional HGV trips. Furthermore, temporary traffic management and banksman control of proposed development accesses will effectively mitigate any small increase in road safety risks. The effect is considered to be of Low sensitivity (Table 8.12), Negligible magnitude (Table 8.4), and therefore **Minor** adverse significance (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

**Predicted effect and their significance: Sandwich Road**

8.11.35 The GEART threshold is exceeded by 239.8% along this road link during the worst-case scenario.

*Driver Delay*

8.11.36 Given that the highway link has a Medium receptor sensitivity (Table 8.12), and increases in HGVs are above 90% resulting in High magnitude of change (Table 8.4), the level of effect is considered to be of **Major** adverse significance overall (Table 8.5). This is considered to be significant in terms of the EIA regulations.

8.11.37 It is proposed that the impacts on driver delay caused as a result of HGV increase from the proposed development could be managed through the use of a traffic timing strategy, if required, limiting construction traffic trips to outside of the peak traffic hours, as identified within section 8.9.

8.11.38 Following the incorporation of the embedded mitigation measures, the level of effect is considered to be of **Minor** adverse significance (Table 8.5). This is now considered to be not significant in terms of the EIA regulations.

*Public Transport Delay*

8.11.39 Given that the highway link has a Medium receptor sensitivity (Table 8.12), and increases in HGVs are above 90% resulting in High magnitude (Table 8.4), the level of effect is considered to be of **Major** adverse significance overall (Table 8.5). This is considered to be significant in terms of the EIA regulations.

8.11.40 It is proposed that the impacts on public transport delay caused as a result of HGV increase from the proposed development could be managed through the use of a traffic timing/routing strategy and staff travel plan, if required, limiting construction traffic trips to outside of the peak traffic hours, and encouraging the use of public transport. These measures are identified within section 8.9.

8.11.41 Following the proposed embedded mitigation measures, the level of effect is considered to be of **Minor** adverse significance (Table 8.5). This is now considered to be not significant in terms of the EIA regulations.

#### *Pedestrian Amenity*

8.11.42 A shared off-road pedestrian/cycle facility is provided along the eastern side of Sandwich Road, forming the Sustrans Regional Route 15. This is segregated from the carriageway through the use of soft segregation (raised kerb and repeater bollards).

8.11.43 Given that the highway link has a Medium receptor sensitivity (Table 8.12), and increases in HGVs are above 90% resulting in High magnitude of change (Table 8.4), the level of effect is considered to be of **Major** adverse significance overall (Table 8.5). This is considered to be significant in terms of EIA regulations.

8.11.44 It is proposed that the impacts on pedestrian amenity caused as a result of HGV increase from the proposed development could be managed through the use of a traffic timing and routing strategy, if required, limiting construction traffic trips to outside of the peak traffic hours, ensuring the most appropriate route is used by construction traffic to avoid unnecessary conflict with sensitive areas. Also, banksmen will be used wherever PRoW are impacted. These measures are identified within section 8.9.

8.11.45 Following the proposed embedded mitigation measures, the level of effect is considered to be of **Minor** adverse significance (Table 8.5). This is now considered to be not significant in terms of the EIA regulations.

#### *Pedestrian Severance*

8.11.46 A toucan crossing is provided at the junction with Sandwich Road/Ebbsfleet Lane.

8.11.47 Given that the highway link has a Medium receptor sensitivity (Table 8.12), and increases in HGVs are above 90% resulting in High magnitude of change (Table 8.4), the level of effect is considered to be of **Major** adverse significance overall (Table 8.5). This is considered to be significant in terms of the EIA regulations.

8.11.48 It is proposed that the impacts on pedestrian severance caused as a result of HGV increase from the proposed development could be managed through the use of a traffic timing and routing strategy, if required, limiting construction traffic trips to outside of the peak traffic hours, ensuring the most appropriate route is used by construction traffic to avoid unnecessary conflict with sensitive areas. Also, banksmen and traffic marshals will be used wherever PRoW are impacted, as well as traffic marshals for crossings. These measures are identified within section 8.9.

8.11.49 Following the proposed embedded mitigation measures, the level of effect is considered to be of **Minor** adverse significance (Table 8.5). This is now considered to be not significant in terms of the EIA regulations.

#### *Public Rights of Way*

8.11.50 Sustrans NCN Route 15 runs along the eastern side of the carriageway, providing an off-road shared use facility.

8.11.51 Given that the highway link has a Medium receptor sensitivity (Table 8.12), and increases in HGVs are above 90% resulting in High magnitude of change (Table 8.4), the level of effect is considered to be of **Major** adverse significance overall (Table 8.5). This is considered to be significant in terms of the EIA regulations.

8.11.52 It is proposed that the impacts on PRoW caused as a result of HGV increase from the proposed development could be managed through the use of a traffic timing and routing strategy, if required, limiting construction traffic trips to outside of the peak traffic hours, ensuring the most appropriate route is used by construction traffic to avoid unnecessary conflict with sensitive areas. Also, banksmen will be used wherever PRoW are impacted, as well as traffic marshals for crossings. These measures are identified within section 8.9.

8.11.53 Following the proposed embedded mitigation measures, the level of effect is considered to be of **Minor** adverse significance (Table 8.5). This is now considered to be not significant in terms of the EIA regulations.

#### *Accidents and Road Safety*

8.11.54 An increase, or decrease, in accidents may result from changes in traffic flows, however existing PIA records show only three accidents occurred within the vicinity of access points along Sandwich Road (no HGVs will route through Cliffsend/Pegwell Bay). Whilst there is the shared pedestrian/cycle facility along the eastern side of the carriageway, as well as a pedestrian crossing at the junction with Sandwich Road/Ebbsfleet Lane, these are segregated and signalised. This minimises the risk associated with increasing HGV numbers as a result of the proposed development.

8.11.55 It is unlikely that the number of PIAs will increase as a result of the additional HGV trips. Furthermore, temporary traffic management and banksman control of the proposed development accesses will effectively mitigate any small increase in road safety risks. The highway link has a Medium receptor sensitivity (Table 8.12), Low magnitude of change (Table 8.4), and therefore **Minor** adverse significance (Table 8.5). This is considered to be not significant in terms of the EIA regulations.

### 8.12 Environmental assessment: O&M phase

8.12.1 Once the onshore cable works and substation elements of the development are complete, very few operational trips are expected to be generated. Most facilities are expected to be unmanned, however they may require periodic maintenance related visits.

8.12.2 The substation would not be permanently manned. However, O&M staff would visit on a regular basis (e.g. monthly) to carry out routine checks and maintenance and occasional access would be required at those joint bays with link boxes. This will on average generate one staff trip per week made by LV. Fewer trips will be made for the onshore cable.

8.12.3 It is anticipated that there could be in the region of 50 round trip LV movement per day, and 48 round trip HGV movements per year associated with the Thanet Extension.

8.12.4 Due to the low numbers of O&M staff trips to the substation, onshore cable and offshore Wind Farm the assessment of the O&M phase has been scoped out.

### 8.13 Environmental assessment: decommissioning phase

8.13.1 The impacts of decommissioning of the development would be similar in nature to those of the construction phase, but likely to be of lower magnitude.

8.13.2 It is proposed that the substation electrical infrastructure and building foundations would be removed as part of the decommissioning phase, with the onshore cables, jointing pits and transition pits remaining *in situ*. The decommissioning methodology cannot be finalised until immediately prior to decommissioning; but would be in line with relevant policy at that time.

8.13.3 It is therefore considered that impacts during decommissioning would be similar in nature to those during construction but would be more limited in geographical extent and timescale. No further assessment is required.

### 8.14 Environmental assessment: cumulative effects

8.14.1 Cumulative effects refer to effects upon receptors arising from Thanet Extension when considered alongside other proposed developments and activities and any other *reasonably foreseeable project(s)* proposals. In this context the term *projects* is considered to refer to any project with comparable effects and is not limited to offshore wind projects.

8.14.2 The approach to cumulative assessment for Thanet Extension takes into account the Cumulative Impact Assessment Guidelines issued by RenewableUK in June 2013, together with comments made in response to other renewable energy developments within the Southern North Sea, and the Planning Inspectorate (PINS) 'Advice Note 9: Rochdale Approach'. The relevant projects, the suggested tiers, and the Cumulative Impact Assessment approach conducted for Thanet Extension have been agreed with the stakeholders under the auspices of the EIA Evidence Plan (Document Ref: 8.5).

8.14.3 In assessing the potential cumulative impact(s) for Thanet Extension, it is important to bear in mind that some projects, predominantly those 'proposed' or identified in development plans etc. may or may not actually be taken forward. There is thus a need to build in some consideration of certainty (or uncertainty) with respect to the potential impacts which might arise from such proposals. For example, relevant projects/ plans that are already under construction are likely to contribute to cumulative impact with Thanet Extension (providing effect or spatial pathways exist), whereas projects/ plans not yet approved or not yet submitted are less certain to contribute to such an impact, as some may not achieve approval or may not ultimately be built due to other factors.

8.14.4 For this reason, all relevant projects/ plans considered cumulatively alongside Thanet Extension have been allocated into 'Tiers', reflecting their current stage within the planning and development process. This allows the cumulative impact assessment to present several future development scenarios, each with a differing potential for being ultimately built out. Appropriate weight may therefore be given to each scenario (Tier) in the decision-making process when considering the potential cumulative impact associated with Thanet Extension (e.g., it may be considered that greater weight can be placed on the Tier 1 assessment relative to Tier 2).

8.14.5 The proposed tier structure that is intended to ensure that there is a clear understanding of the level of confidence in the cumulative assessments provided in Thanet Extension ES is as follows:

#### Tier 1

8.14.6 Thanet Extension considered alongside other projects/ plans currently under construction and/ or those consented but not yet implemented, and/ or those submitted but not yet determined where data confidence for the projects falling within this category is high.

8.14.7 Built and operational projects will be included within the cumulative assessment where they have not been included within the environmental characterisation survey, i.e. they were not operational when baseline surveys were undertaken, and/ or any residual impact may not have yet fed through to and been captured in estimates of 'baseline' conditions or there is an ongoing effect.

**Tier 2**

8.14.8 All projects included in Tier 1 plus other projects/ plans consented but not yet implemented and/ or submitted applications not yet determined where data confidence for the projects falling into this category is medium. It is important to give appropriate consideration to the cumulative impacts arising from other committed developments (i.e. development that is consented or allocated where there is a reasonable degree of certainty that it will proceed).

**8.15 Cumulative Impact Assessment**

8.15.1 In terms of road traffic, the preferred option for projecting existing or historical traffic data for future year assessments is the use of appropriate local traffic forecasts such as TEMPro. TEMPro is a program developed by the DfT providing traffic growth projections used to project long-term forecasts in traffic growth. The forecasts take into account national projections of population, employment, housing, car ownership, and trip rates. This is an accepted approach to assess future baseline traffic.

8.15.2 Volume 1, Chapter 3: Cumulative Impact Assessment – Methodology and Project List (Document Ref: 6.1.3.1) identifies the other developments that have been shortlisted for cumulative impact assessment. The Richborough Connection Project and the 5MW Solar Farm have been reviewed. It was determined that whilst there is some programme overlap with the Thanet Extension construction programme, the peak construction movements associated with Richborough Connection Project occur well in advance of the proposed development and as a result do not give rise to cumulative development impact. The 5MW Solar Farm is not expected to generate significant volumes of traffic and is therefore not assumed to result in cumulative development impact.

8.15.3 All other developments shortlisted for cumulative impact assessment have been reviewed against their location, potential construction routing, opening year of operation, and potential trip generation. Following this, it has been professionally judged that none of the other developments will have cumulative impact with Thanet Extension and they have therefore have been scoped out of this assessment.

8.15.4 No other developments have been identified that will result in any conflict with the proposed development and as a result there is no cumulative impact. The cumulative Rochdale envelope is described in the following table.

**Table 8.15: Cumulative Rochdale envelope**

Impact	Scenario	Justification
Cumulative increase in construction traffic on the road network	Assess committed development that may be under construction simultaneously to Thanet Extension that would result in increased levels of HGV construction traffic.	To determine if cumulative construction trips from multiple sites would result in significant adverse effect.

**8.16 Inter-relationships (2 km)**

8.16.1 In order to address the environmental impact of the proposed project as a whole, this section establishes the inter-relationships between traffic and access and other physical, environmental and human receptors. The objective is to identify where the accumulation of impacts on a single receptor, and the relationship between those impacts, may give rise to a need for additional mitigation.

8.16.2 Table 8.16 summarises the inter-relationships that are considered of relevance to traffic and access and identifies where they have been considered within the ES.

**Table 8.16: Inter-relationships**

Topic and description	Related chapter	Where addressed in this chapter
The relationship between traffic delay and traffic noise upon local residents	Volume 3, Chapter 10: Noise and Vibration (Document Ref: 6.3.10)	Section 8.8.3
The relationship between traffic delay and traffic related air quality upon local residents	Volume 3, Chapter 9: Air Quality (Document Ref: 6.3.9)	Section 8.8.3

**8.17 Mitigation**

8.17.1 Embedded mitigation and existing commitments to good practice are discussed in section 8.9 'Embedded mitigation', and referred to throughout this assessment. The impact assessment takes into account the embedded mitigation before coming to a conclusion of the potential impact to a receptor.

## 8.18 Summary of effects

- 8.18.1 As outlined within section 8.11, it has been determined that as the A256/A299 has Low/Negligible receptor sensitivity, this results in a Low magnitude of change, with the level of effect considered to be of **Minor/ Negligible** adverse significance overall. The effects on these highway links are therefore considered to be not significant in terms of EIA regulations.
- 8.18.2 In the case of Sandwich Road however, it has been determined that due to its Medium receptor sensitivity and High magnitude of change, the level of effect is considered to be of **Major** adverse significance overall, and therefore the effect is considered to be significant in terms of the EIA regulations.
- 8.18.3 Following the implementation of the proposed embedded mitigation measures, the level of effect is considered to be of **Minor** adverse significance (Table 8.5). This is now considered to be not significant in terms of the EIA regulations.
- 8.18.4 Table 8.17 summarises the effects caused as a result of Thanet Extension in terms of traffic and access.

**Table 8.17: Summary of predicted impacts of Thanet Extension – Sandwich Road**

Description of impact	Effect	Additional mitigation measures	Residual Effect
Construction			
Driver delay	<b>Minor</b> adverse (not significant)	None required.	<b>Minor</b> adverse (not significant)
Public transport delay	<b>Minor</b> adverse (not significant)	None required.	<b>Minor</b> adverse (not significant)
Pedestrian amenity	<b>Minor</b> adverse (not significant)	None required.	<b>Minor</b> adverse (not significant)
Pedestrian severance	<b>Minor</b> adverse (not significant)	None required.	<b>Minor</b> adverse (not significant)
PRoW	<b>Minor</b> adverse (not significant)	None required.	<b>Minor</b> adverse (not significant)
Accidents and safety	<b>Minor</b> adverse (not significant)	None required.	<b>Minor</b> adverse (not significant)
O&M			
Due to the low number of vehicle trips the assessment of O&M has been scoped out.			
Decommissioning			
Due to uncertainty in final vehicle numbers associated with this activity, any assessment has been scoped out and would be assessed when required.			



## 8.19 References

- Department for Transport (DfT) (2009), Traffic Signs Manual: Chapter 8, Traffic Safety Measures and Signs for Road Works and Temporary Situations.
- Design Manual for Roads and Bridges (DMRB) (1995), TD 41/95: Vehicular Access to All Purpose Trunk Road.
- Design Manual for Roads and Bridges (DMRB) (2001), BD 21/01: The Assessment of Highway Bridges and Structures.
- Institute of Environmental Assessment (1993), Guidelines for the Environmental Assessment of Road Traffic, Institute of Environmental Assessment.
- Vattenfall Wind Power Ltd (VWPL) (2016), Thanet Extension Offshore Wind Farm, Environmental Impact Assessment, Report to Inform Scoping.
- The Secretary of State (SOS) (2003), 'The Road Vehicles (Authorisation of Special Types) (General) Order 2003'.

## 8.20 Glossary

AIL	Abnormal Indivisible Load - Any load that cannot be broken down into smaller loads for transport without undue expense or risk of damage.	SRN	Strategic Road Network - Nationally significant roads used for the distribution of goods and services and owned by the Secretary of State for Transport, and operated on their behalf by Highways England.
ATC	Automatic Traffic Count - A pneumatic tube-based counter that is installed across a road. ATCs can record volumes of traffic by vehicle direction and classify vehicles and vehicle speeds.	SPA	Swept Path Analysis - Simulates the turning movements of vehicles using specialist software to understand the impact to the public highway.
CTMP	Construction Traffic Management Plan - A CTMP main objective is to minimise the impact of works traffic on the road network and safety of workers and road users.	TA	Transport Assessment - Transport Assessments are thorough assessments of the transport implications of a development where it is likely to have significant transport and related environmental impacts.
CoCP	Code of Construction Practice - A document which identifies the construction standards to be implemented during the construction phase with the objective of minimising effects on communities and the environment.	TEMPro	Trip End Model Presentation Program - This software allows users to view travel forecasts from the National Trip End Model (NTEM) datasets to obtain growth factors.
DMRB	Design Manual for Roads and Bridges - The DMRB is a comprehensive manual which contains requirements, advice and other published documents relating to works on motorway and all-purpose trunk roads.		
HGV	Heavy Goods Vehicle - Goods vehicles over 3.5 tonnes maximum permissible gross vehicle weight (includes OGV1, OGV2 and PSV classes).		
HE	Highways England - A government-owned company with responsibility for the operation, maintenance and improvement of the motorways and trunk roads in England.		
LGV	Light Goods Vehicle - A commercial carrier vehicle with a gross vehicle weight of not more than 3.5 tonnes.		
MGV	Medium Goods Vehicle - Goods vehicles between 3.5 tonnes and 7.5 tonnes max gross vehicle weight.		
MPH	Miles Per Hour - Imperial customary unit for speed expressing the number of statute miles covered in one hour.		
MMC	Multi-Modal Count - A traffic count recording volumes of traffic by vehicle classification at set junctions.		
PIA	Personal Injury Accident - Road traffic accidents where slight, serious or fatal injuries to people have been recorded. The data will generally include such information as the location of an accident, number of casualties, the modes of travel involved, age and gender of those involved, and the contributing factors to the accident.		
PRoW	A path where a person has the right to access land for walking or other certain leisure activities.		