14 Access, Traffic and Transport

14.1 Introduction

1 This chapter assesses the access, traffic and transport effects associated with the Onshore Works for the Neart na Gaoithe Offshore Wind Farm. It considers the potential effects of the traffic generated during the construction and operational phases, proposed access arrangements, measures to minimise disruption to the road network and considers potential effects on the East Coast Main Line (ECML) railway.

2 The key objectives of the assessment are to:

- review baseline traffic flow information;
- assess the effect of the works on the road network and the ECML;
- examine how predicted construction traffic levels affect local roads; and
- identify suitable and safe mitigation measures and assess any residual effects (air quality effects relating to traffic and transportation are examined in **Chapter 15: Air Quality** with noise and vibration effects discussed in **Chapter 16: Noise and Vibration**).

3 The key traffic and transport issues identified as a result of the Onshore Works are:

- increase in traffic volumes during the construction phase;
- change to traffic composition during the construction phase, including abnormal loads delivering substation components;
- crossing the A1(T) and local roads during the construction phase involving temporary lane and road closures;
- crossing the ECML.

14.1.1 Effects Assessed in Full

4 The following effects have been assessed in full:

- potential effects of the works on the local transport network during construction, particularly the A1(T), local roads and how the ECML would be affected.

14.1.2 Effects Scoped Out

5 Following a desk based study on the existing traffic flows in the study area as well as professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, the following topic areas have been 'scoped out', as proposed in the Scoping Report:

- an assessment of operational effects of the proposed works.

6 It is considered that once the works are operational, it is unlikely that the development will impact on the local transport network. Potential maintenance vehicles (or other vehicle movements associated with the operation of the works) are likely to be very limited as discussed later in this chapter.

14.2 Engagement

7 Consultation was undertaken with Transport Scotland for the provision of baseline traffic flow data. Their response has been taken into account in this assessment and is presented in **Table 14.1** below.

8 As part of the scoping process, East Lothian Council (ELC) and BEAR Scotland were asked to comment on any specific issues with regards to the Traffic and Transport element of the ES. BEAR Scotland manages and maintains the trunk road network in the south-east of Scotland on behalf of Transport Scotland. The A1(T) is therefore included in BEAR Scotland's portfolio. ELC produced a scoping response highlighting the information required with respect to traffic and transport related matters and met with Mainstream to discuss their requirements for works affecting the local road network. Mainstream also met with BEAR Scotland to discuss the implications of crossing the A1 (T). A summary of issues raised through consultation is provided in **Table 14.1**.

9 Subsequent correspondence with ELC indicated that a full Transport Assessment would not be required; however, a traffic assessment for the construction works should be carried out. ELC requested that the Traffic and Transport section of the ES cover the following areas; all of which are discussed in this chapter:

- determination of baseline traffic levels;
- review of development proposals and predicted construction requirements;
- assessment of the effects of construction traffic on existing traffic flows on the A1(T);
- details of the construction traffic routes to the sites;
- details of construction vehicle types;
- details of site traffic (e.g. employee journeys to site);
- site-based access for construction vehicles and surface make-up;
- timescales and construction period;
- construction vehicle movements; and
- proposed mitigation measures.

Consultee	Scoping/Other Consultation	Issue Raised	Response/Action Taken
Transport Scotland	Other Consultation	Provision of traffic flow data for the A1(T).	Data provided and incorporated in the assessment
East Lothian Council	Scoping and Other Correspondence	Traffic generation during construction and traffic management. Requested that a traffic assessment be carried out for the construction works. No Transport Assessment will be required.	Assessment carried out and mitigation measures highlighted Noted
BEAR Scotland	Other Consultation	For the open-trenching technique lane closures would be required and 3-way traffic lights are the preferred means to manage this.	Traffic signals will be provided to manage flows on the A1(T)

Table 14.1: Consultation Responses

14.3 Assessment Methodology

10 The assessment was undertaken through a combination of consultation and desk study. This provided information on:

- existing traffic levels;
- the characteristics of the proposed access routes;
- current vehicle types and flows;
- predicted traffic generated by the proposed scheme during the construction phase;
- proposed site access arrangements

14.4 Assessment of Significance

11 The IEMA Guidelines for the Environmental Assessment of Road Traffic (1993) state that two rules can be adopted to delimit the scale and extent of the assessment.

12 The IEMA Guidelines identify threshold values for traffic flow increases of 10% and 30%. Where the predicted increase in traffic flows is lower than these thresholds, the guidelines suggest the significance of the effects can be stated to be low or insignificant and further detailed assessments are not required. However, to ensure the relative assessment of the increase in road traffic in environmental terms the following criteria outlined in **Table 14.2** and **Table 14.3** have been used to determine the magnitude of effect and receptor sensitivity respectively.

13 The impact of the Onshore Works directly related to an increase in vehicle numbers is measured based on six key impact criteria although other related impacts are also assessed in this chapter:

- severance;
- driver delay;
- pedestrian delay;
- pedestrian and cycle amenity;
- fear and intimidation; and
- accidents and safety.

14 The above impact criteria and their magnitude thresholds are detailed in **Table 14.2**.

Impact	Magnitude of Impact			
	Negligible	**Minor**	**Moderate**	**Major**
Severance results from the creation of new barriers such as roads combined with increased traffic flows along existing routes	Change in total traffic or HGV flows of <30%	Change in total traffic or HGV flows of 30-60%	Change of total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows over 90%
Driver Delay is caused by the impact of the works on the local road network. As the cable route crosses several roads, it is inevitable that driver delay will occur.	Change in journey time of <30 secs	Change in journey time of 30 secs – 1 min	Change in journey time of 1 min – 2 mins	Change in journey time of >2 mins
Pedestrian Delay results from increases in traffic flow, speed or composition along existing routes.	Change in total traffic or HGV flows of <30%	Change in total traffic or HGV flows of 30-60%	Change of total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows over 90%
Pedestrian and Cyclist Amenity relates to the relative pleasantness of a journey and can be affected by increases in traffic.	Change in total traffic or HGV flows of <30%	Change in total traffic or HGV flows of 30-60%	Change of total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows over 90%
Fear and Intimidation: the pedestrian's level of fear and intimidation is linked to the volume of traffic on the local road network.	Change in total traffic or HGV flows of <30%	Change in total traffic or HGV flows of 30-60%	Change of total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows over 90%
Accidents and Safety: an increase in vehicles could have an effect on accident risk and safety on the local road network.	Change in total traffic or HGV flows of <30%	Change in total traffic or HGV flows of 30-60%	Change of total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows over 90%

Table 14.2: Magnitude of Impact Criteria

Receptor Sensitivity	Receptor Type
Major	Receptors of greatest sensitivity to traffic flow: schools, colleges, playground, accident blackspots, retirement homes, urban/residential roads without footways that are used by pedestrians. (Para 2.5 IEMA Guidelines, 1993)
Moderate	Traffic flow sensitive receptors including congested junctions, doctors surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycleways, community centres, parks, recreation facilities.
Minor	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision.
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

Table 14.3: Receptor Sensitivity

15 The magnitude of change and the sensitivity of the receptor are then reviewed to determine the overall significance as indicated in **Table 14.4**.

16 Potential effects are considered to be of Major, Moderate, Minor or Negligible significance. Major and Moderate significance represent effects considered to be significant in the context of the EIA Regulations. Qualitative assessments were undertaken of the effects, and professional judgement used to determine the significance of residual effects.

Sensitivity of Receptor	Magnitude of Impact			
	Major	**Moderate**	**Minor**	**Negligible**
Major	Major	Major	Moderate	Minor
Moderate	Major	Moderate	Minor	Negligible
Minor	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

Table 14.4: Determination of Significance of Effects

17 The Scottish Government's *Transport Assessment Guide* (2012) specifies that a formal Transportation Assessment (TA) is only required where a new development is likely to result in a significant increase in the number of operational trips on the local road network in its vicinity. In the case of the Onshore Works, whilst the number of construction trips is high, the number of operational trips is minimal as discussed later within this chapter. As a result, this document examines the effect of construction trips on the local road network as a percentage of the existing traffic.

14.4.1 Data Sources

18 Estimates of traffic generation have been made based on knowledge of construction and operational traffic requirements of similar schemes that are either in operation or have been given planning consent. The Scottish Government (Transport Scotland) has provided traffic flow data for the A1(T). Construction programme, personnel and vehicle estimates have been provided by Xero Energy and Mainstream.

19 An independent traffic survey company was commissioned to carry out traffic surveys at six locations in the vicinity of the construction area. Whilst providing current traffic flows for the A1 (T), the data also allows an understanding of traffic flows on the surrounding local roads.

14.5 Policy Context

14.5.1 National Policy

20 The 'Guidelines for the Environmental Assessment of Road Traffic' produced by the Institute of Environmental Management and Assessment (IEMA 1993; the IEMA Guidelines) are referred to within this chapter and are used as

a basis for assessing the significance of the impact of construction traffic on the A1(T) and local road network. The IEMA Guidelines suggest two broad rules which should be used to identify the assessment area. These are:

- Rule 1: *include road links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%); and*
- Rule 2: *include any other specifically sensitive areas where traffic flows would increase by 10% or more*.

21 In addition, the following national planning policy is also relevant to this scheme:

- *Scotland's transport future: The transport white paper – June 2004* (Scottish Executive 2004), sets out the Government's vision for transport;
- *Scotland's National Transport Strategy* (Scottish Executive 2006), sets out the Scottish Government's long term vision for transport together with objectives, priorities and plans;
- SPP *Scottish Planning Policy* (Scottish Government 2010), is the statement of the Scottish Government's policy on nationally important land use planning matters including Renewable Energy and Transport;
- *National Planning Framework for Scotland* (Scottish Government 2009) sets out the long term spatial strategy for Scotland's development;
- PAN 50 *Controlling the Environmental Effects of Surface Mineral Workings: Annex C: The Control of Traffic at Surface Mineral Workings* (Scottish Executive 1998), provides guidance on traffic movements from mineral workings, which is relevant to other construction sites; and
- PAN 75 *Planning for Transport* (Scottish Executive 2005a), offers guidance on sustainable transport planning.

14.5.2 Regional Policy

22 The following regional planning policy is relevant in East Lothian and the Scottish Borders:

- South East of Scotland Transport Partnership (SEStran) Regional Transport Strategy 2008 – 2023 (SEStran 2008).

14.5.3 Local Policy

23 The following local policy/guidance is relevant to this scheme:

- East Lothian Council Local Transport Strategy 2001 (ELC 2001);
- East Lothian Council Local Plan 2008 (ELC 2008).

24 The area intended for the construction of the Onshore Works is covered by the *East Lothian Council Local Plan 2008* (ELC 2008). Within the Local Plan, Policy DC1 is relevant to the works and covers development in the countryside and undeveloped coast. It states that development which is not primarily related to agriculture, horticulture, forestry and countryside recreation will be permitted where "*it can be suitably serviced and accessed and there are no significant traffic or other environmental impacts*".

25 Relevant planning policies are set out in **Chapter 6: Legislation and Planning Policy**.

14.6 Existing Conditions

14.6.1 Existing Road Network

26 The Onshore Works are located in East Lothian to the south and east of Dunbar. The nearest trunk road is the A1(T) which is a strategic route that connects Edinburgh with the east coast of the UK to the south. It is proposed that access to the Onshore Works will be taken via existing junctions from the A1(T) and the local road network leading to the substation location at Crystal Rig II Wind Farm and the landfall at Thorntonloch.

27 The Onshore Works are also situated adjacent to the Firth of Forth. The nearest harbour facility is at Dunbar with a berthing pier located adjacent to the Nuclear Power Station at Torness. A site location plan to give context and to illustrate the construction traffic routes and access points is provided in **Figure 5.4** (refer to **Chapter 5: Project Description)**.

14.6.2 Existing Traffic Flows

28 Transport Scotland provided traffic flow data collected at Automatic Traffic Counters (ATCs) on the A1(T) at Thorntonloch (Grid ref: 374730,674335) within the vicinity of the site. The hourly profile (with vehicle classification breakdown) was developed from the weekly average flow profiles for February 2012, as this was identified as a neutral month with a representative set of traffic flows and has been used as the baseline traffic flow data. In addition to the data provided by Transport Scotland, an independent traffic survey company was commissioned to conduct turning count surveys at six key junctions within the vicinity of the works. These junctions are illustrated on **Figure 14.1 Surveyed Junction Locations**.

29 The ATC data is preferred to the turning count survey data as the method of identifying the baseline traffic flows due to the number of data sets available allowing an average to be calculated and resulting in a more accurate baseline value. **Table 14.5** summarises the traffic flow information both in daily 10-hour and weekly 10-hour formats. The time period (08:00-18:00) used to derive the data is considered to be appropriate as it is assumed that most of the deliveries to site would take place during the day (08:00-18:00) even though 24-hour working is envisaged in respect of some elements of the Onshore Works. The working day is expected to begin at 08:00 and end at 18:00 for the majority of the Onshore Works elements. **Table 14.5** indicates the baseline traffic flow information recorded on the A1(T)

Road	Grid Reference	Daily Average 10 Hour Traffic Flow 0800-1800 (2-way)	Weekly Average 12 Hour Traffic Flow 0800-1800 (2-way)
A1(T)	374730, 674335	6,008	36,676

Table 14.5: Traffic Flow Information

30 An assessment of the February 6-day daily (10-hr) traffic flows calculated from the ATC data was carried out to determine if growth had been experienced between 2008 and 2012. As **Table 14.6** shows, no growth is experienced and therefore no growth has been applied to the Baseline traffic flows.

31 The turning count surveys were conducted between 07:00 and 19:00 on Thursday 7th June 2012 at each of the junctions illustrated in **Figure 14.1**. Each vehicle making a particular turn at each of the junctions is recorded and classified by vehicle type. These counts are then added together to produce a value representing vehicles making each movement between the hours of 08:00 and 18:00 representing the predicted working day and ensuring a worst case scenario.

32 The junction turning count results are provided in **Table 14.10** and are considered later in this chapter.

	2008	2009	2010	2011	2012
A1 (two-way) traffic flows	6467	6462	6531	5975	6008

Table 14.6: February 6-day (Mon-Sat) daily (08:00-18:00) traffic flows (two way) at Thorntonloch

14.7 Assessment of Effects

14.7.1 Proposed Access from the Trunk Road Network

33 The majority of construction traffic will access the site via Junction 1 indicated on **Figure 14.1**. This junction provides access to the cable route south of the A1(T) and a route to the substation location at Crystal Rig II Wind Farm from the A1(T).

14.7.2 Onsite Access

34 The Application Boundary incorporates all land required for construction and covers a length of 12.3 km from Thorntonloch to Crystal Rig II Wind Farm. As a result, there will be 18 points of access from the local road network to the Onshore Works. Access will also be provided to the landfall works and transition pit site as well as the substation at Crystal Rig II Wind Farm.

35 Access points are illustrated on **Figure 5.4** and summarised in **Table 14.7**

36 Most of the access points are for the purposes of the cabling works. Access points 1 and 2 (shown in **Table 14.7**) will be utilised for the landfall works as well as cabling works whereas Access point 18 (shown in **Table 14.7**) will be used to gain access to the substation at Crystal Rig as well as for the cabling works.

Access Point	Eastings (m)	Northings (m)	Access For
1	374903	674193	Cabling / Landfall
2	374707	674390	Cabling / Landfall
3	374617	674387	Cabling

Access Point	Eastings (m)	Northings (m)	Access For
4	374604	674373	Cabling
5	374389	674350	Cabling
6	372290	674670	Cabling
7	372284	674665	Cabling
8	371996	674387	Cabling
9	371989	674375	Cabling
10	371638	673879	Cabling
11	371638	673869	Cabling
12	371038	673316	Cabling
13	371028	673319	Cabling
14	370635	673677	Cabling
15	369694	673350	Cabling
16	369261	673220	Cabling
17	369242	672322	Cabling
18	369237	672316	Cabling / Substation

Table 14.7: Access Points

14.7.3 Construction Programme

37 An 82-week construction programme (80 weeks general construction plus an assumed 2 weeks for site compound set-up) is proposed based on 6-day working weeks; however, it is anticipated that 24-hour working would be required should trenchless construction techniques be utilised at the landfall area (and in respect of work at the A1 and East Coast Mainline). For the purposes of this assessment, the programme is related to week numbers rather than a calendar-specific based approach. It is assumed that the majority of deliveries to the site would take place during the day (although 24 hour working is proposed at certain locations including the landfall), as such the baseline traffic flows used have been calculated between the hours of 08:00 and 18:00 and assuming a 6-day working week ensuring a more robust assessment by comparing weekly construction traffic against existing traffic data collected on Mondays to Saturdays. The vast majority of the project is expected to be constructed based on a 6-day working week working between the hours of 08:00 and 18:00.

38 The estimates for construction traffic include two scenarios proposed for the landfall works as the exact method will be dependent on the ground and seabed conditions encountered at the landfall. These scenarios are:

- Landfall crossing via trenchless construction techniques; and
- Landfall crossing via open cut trench.

14.7.4 Onsite Track Construction

39 It is anticipated that a large proportion of the vehicle movements identified within this chapter will use local roads. All deliveries, labour and removal of waste are therefore expected to use the local roads to get to and from the site.

40 Construction vehicles will access the beach for the landfall works via the haul road and a temporary bridge over the Thornton Burn. A temporary haul route would also be maintained within the main 'working corridor' of the cable corridor.

41 Haul roads will be formed of crushed stone / hard standing or tracked. Wheel washers will also be provided at site access points.

14.7.5 Effects on the East Coast Main Line

42 The Onshore Works will interface with the operational East Coast Main Line between Dunbar and Berwick-Upon-Tweed Railway Stations. The interface is defined as eight individual crossings representing the three individual cores of each of the two cables with an additional two fibre optic cores. This line is electrified at all times to 25kV by means of overhead line equipment.

43 In order to progress the proposal, there will be a need to make a formal application to Network Rail for a wayleave agreement. This will initiate the clearance process which involves internal consultation with all departments who may be affected by the proposal to confirm if there are any objections and conditions to the scheme and use of Network Rail land. The project will be allocated to a Surveyor who will instigate this process.

44 Network Rail is obliged to verify whether all possible risks have been properly identified and then assess how such risks might be safety-managed and also ensure the scheme proposals comply with all appropriate Railway Group Standards. This means Network Rail is required to go through a thorough vetting process of the proposed permanent and temporary works design and installation methodology.

45 The proposed methodology will then be subject to separate technical approval where, in addition to an interest in the detail of the proposed installation process and equipment, Network Rail will have a particular interest in the geotechnical aspects including calculated settlement or other ground movement predictions based on appropriate site specific ground investigation information. There is general guidance and information available which includes the Network Rail document entitled 'Guidance Notes for the use of Outside Parties in Connection with the Laying of Services Below the Railway by Undertrack Crossing'. A general guidance document entitled 'Requirements for Constructional Work On or Near Railway Operational Land' will apply to the other construction elements of the works which could potentially have an impact on Network Rail infrastructure.

46 There will also be a requirement to enter into a Basic Asset Protection Agreement (BAPA) with Network Rail allowing dedicated resources to work with the project and its contractors and consultants in order to take the project forward. This will allow the design, development and approval stages followed by the asset protection services. It will also include any supervision and safety management resources deemed necessary to safeguard the operational railway and its' infrastructure during the construction works. The BAPA serves to formally set out the terms and conditions of the works interface(s) between the respective organisations.

47 The ECML will be crossed using trenchless construction techniques. In order to carry out the works, it is proposed that 24-hour working will take place over a three week period. This work may have a detrimental effect on the operation of the line and may require trains to travel at reduced speeds where the works are being carried out, which would potentially increase train journey times on this route.

14.7.6 Effects on the Road Network

14.7.6.1 Crossing the A1(T) and Local Road Network

48 During the construction process, both the A1(T) and the local road network will be affected. Temporary closures (whether full or lane specific) will be required on several local roads. For crossing the local roads during the open cut trenching process, the construction would generally take two shifts resulting in the closure of each road for up to two days based on normal working hours. This would be managed through temporary road diversions.

49 The local roads which will be crossed via Open Cut Trenching are as follows:

- Innerwick Station Road (located at Grid Reference 374601 674377)
- Corsick Hill Road (Grid Reference 372287 674668)
- Innerwick-Dovecote Brae Road (Grid Reference 371991 674384
- Innerwick to Oldhamstocks Road (Grid Reference 371626 673870)
- Thurston Mains to Elmscleugh Road (Grid Reference 371032 673318)
- Woodhall to Elmscleugh Road (Grid Reference 369238 672324)

50 Lane closures on the A1(T) will be required in order to carry out work on crossings using either open cut trenching or trenchless construction techniques although at least one carriageway will remain open at all times. The selection of the preferred construction method will be agreed in consultation with Network Rail and Transport Scotland. Traffic management will be required, including the use of traffic signals as agreed in advance with BEAR Scotland and in consultation with ELC. It is anticipated that the A1(T) crossing will be completed in approximately 48 hours (i.e. two consecutive nights) with traffic management in place throughout this period. This is predicted to result in an effect of **Minor** significance.

51 The local road network in the vicinity of the Onshore Works will also require lane closures at various points to allow the cable route to cross. These roads are less sensitive than the A1(T) due to the number of vehicles currently using them however it is acknowledged that users of the local road network will experience delays in their journeys as a result of the works being carried out. This is predicted to result in an effect of moderate significance.

14.7.7 Assessment of Construction Vehicles on the Road Network

14.7.7.1 Assumptions for calculating effects of construction vehicles on the road network

52 To calculate the number of traffic movements, a series of detailed assumptions have been made and are summarised as follows:

14.7.7.1.1 General Assumptions

- Each element of the works (Landfall / Onshore Cable Route / Substation) is treated separately in terms of personnel / vehicle movements although construction of the three sites will likely run as a parallel process;
- The construction works are based on the stated connection design i.e. two 220kV power circuits, with a single trench;
- For each of the work elements, workforce requirements are based on sequential tasks;
- It is anticipated that the civil engineering and earthworks workforce requirements will be sourced locally. There will also be a small number of unskilled posts that will likely utilise a local workforce e.g. site security, cleaning etc;
- Specialist activity workforces will be sourced nationally or provided by the equipment manufacturer e.g.
  - Cable pulling and installation
  - Cable jointing
  - Directional drilling
  - Substation electrical plant installation and commissioning.
- Vehicle movements are presented as overall estimates for each site;
- Vehicle movements are defined as a return journey between the vehicle's origin and the construction site, or between different parts of the construction site. All movements are applied to all traffic count receptor points for robustness;
- Mobilisation of the site compound is assumed to take place in weeks 1 and 2 (the vehicle movements quoted are from previous similar projects where it was necessary to set up a site compound and welfare facilities. These numbers are therefore reasonable and realistic);
- An average of 1.5 workers per vehicle is assumed for Labour Transport;
- Traffic will access the construction area from the A1(T) at Junction 1 as indicated in **Figure 14.1**;
- Each movement is treated as though it will access the site via the same junction off the A1(T) ensuring this assessment examines the absolute worst case scenario.

14.7.7.1.2 Landfall Area Assumptions

- It has been assumed that the access haul road to the transition pit and beach will be constructed as part of the onshore cable trenching works. However, the establishment of the transition pit, offshore cable installation and jointing with onshore cables is assumed to form part of the landfall works.
- For the Trenchless Landfall Technique, the following assumptions apply:
  - The drill will be performed by a large drill rig, approximately 200t. The drilling process will take approximately 13 weeks to complete (working 24/7) with a further 2 weeks required for mobilisation / demobilisation;
  - Fresh water supplies for mixing drilling muds will be brought to the site via tankers;
  - All material bored from the drilling process will be extracted as slurry onshore and will require to be taken offsite as a result of drilling activity;
  - Duct delivery is based on a 1000 m drilling length for both bores.
- For the Open Cut Trench Landfall Technique, the following assumptions apply:
  - The open cut trench method has assumed the worst case scenario for landfall installation conditions requiring a 4-week construction window;
- Works will be performed by tracked excavators that will also be used for the onshore cable trenching works (and separate rock breaker machines will not be required).
- For both Trenchless and Open Cut Trench scenarios, it is estimated that approximately 6-10 workers will be onsite. Trenchless crossing will likely extend 22 weeks for the entire process (working 24/7, two shifts per day), while Open Cut Trenching will take only 11 weeks for the entire process.

14.7.7.1.3 Onshore Cable Route Assumptions

- The assessment of vehicle movements for the Onshore Cable Route works is based on the trench and construction corridor design as highlighted in **Chapter 5**;
- Estimates for haul road construction have been made assuming that 0.5 m depth of aggregate material will be used for all sections of the route;
- The cables will be jointed every 500 m;
- Three cable drums will be delivered per articulated lorry based on 500 m lengths;
- A vehicle movement will be associated with delivery of the cable drums to the construction compound, with a separate movement for delivery from the compound to the installation site;
- For all HDD crossings, fresh water supplies will be brought to site via tankers;
- HDD crossings will be performed by approximately 20t drill rigs;
- Two cable jointing gangs will work simultaneously (one for each circuit) at each jointing location;
- All concrete required for construction will be brought to site in ready-mix trucks;
- All construction plant and welfare facilities will be brought to site once and left for the duration of works;
- For civil works, cable installation and cable jointing, it is anticipated than 23 workers will be on site on average, with a maximum of 32;
- The onshore cable route works are estimated to take approximately 75 weeks, assuming sequential construction (except for cable jointing). This may reduce should multiple construction gangs work in parallel along the cable route.

14.7.7.1.4 Substation Assumptions

- The vehicle movement and personnel estimates for the substation works are based on the currently proposed substation layout;
- The finished level of the substation is approximately 298 m, requiring 16,240 m3 of imported fill;
- The excavated material (62,160 m3) will not be suitable as fill and will need to be taken off site. However, some material (13,100 m3) will be used to create a berm around the substation. This will leave 49,060 m3 to be taken off site;
- All concrete required for construction will be brought to site in ready-mix trucks;
- Only the two 400/220kV transformers and two large 220kV reactors will represent abnormal loads;
- All construction plant and welfare facilities will be brought to site once and left for the duration of works being marshalled within and from the site construction compound;
- It is estimated that approximately 20 workers would be on site regularly for the duration of construction;
- The substation construction works are anticipated to be performed over 80 weeks.

14.7.7.1.5 Construction Vehicle Types

53 It is likely that vehicle types listed in **Table 14.8** will be utilised during the construction process. The eventual vehicle types used will however largely depend on the management of the project during construction.

General and Light Goods Vehicles	Heavy Good Vehicles and Abnormal Load Vehicles
• Labour Transport: car or van (assuming an average of 1.5 workers per vehicle); and • Delivery Van.	• 32t Grab Wagon (may vary to smaller or larger vehicle); • Articulated Lorry; • Low Loader; • Abnormal load vehicle (split axle vehicle used for delivering large indivisible loads i.e. transformers and reactors); • 120t Crane (size is estimated); • 200t Crane (size is estimated); • 8-wheel Readymix truck; • 6-wheel water tanker; and • 3.5t Tipper.

Table 14.8: Predicted Construction Vehicle Types

54 **Table 14.9** summarises the two-way vehicle movements that will take place over the construction period. One trip is equal to two vehicle movements, i.e. delivery and return journey.

Activity	Type of Vehicle	Details	Total Two-way Vehicle Movements
Preconstruction			
Site Mobilisation / Demobilisation	Low Loaders and HGVs	Deliveries for site office and compound set-up and removal following project completion.	120
Landfall crossing via trenchless construction techniques			
• Temporary Bridge • Beach Works • Transition Pit • Cable Pull-in	Low Loaders / HGVs / Cranes	The drilling will be performed by a large drill rig which will be brought to site on Low Loaders and HGVs. Cranes will also be used during this part of the construction process. Fresh water for mixing drilling muds will be brought to the site by tankers.	252
Landfall crossing via open cut trench			
• Temporary Bridge • Beach Works • Transition Pit • Cable Pull-in	Low Loaders / HGVs / Cranes	Works will be carried out by tracked excavators that will also be used for the onshore cable trenching works (separate rock breaker machines will not be required	36
Onshore Cable Route Works			
• Trenching • Cable Installation • Jointing • Crossings	Low Loaders / HGVs / Cranes	Up to three cable drums will be delivered per articulated lorry. For all trenchless construction technique crossings, fresh water will be brought to the site by tankers. Drilling rigs will be brought to the site on low loaders and HGVs. All concrete required for construction will be brought to the site in ready-mix trucks. The 32t Grab Wagons used for the bulk of the construction work have been included as accessing the site from the A1(T) each time for robustness.	7,945
Substation			
• Earthworks and Civils • Electrical Equipment Installation • Commission-ing tests of electrical equipment	Low Loaders / HGVs / Cranes / Abnormal Load Vehicles	It is assumed that excavated material not used in landscaping at the substation will be taken off site by HGVs. All concrete required for construction will be brought to the site in ready-mix trucks. Only the two 400/220kV transformers and two large 220kV reactors will represent abnormal loads. The 32t Grab Wagons used for the bulk of the construction work have been included as accessing the site from the A1(T) each time for robustness.	7,058
Construction staff: trenchless construction techniques			
Construction personnel	Car or Minibus (1.5 persons per vehicle)	• Landfall Work: 1,607 two-way trips • Onshore Cable Works: 5,852 two-way trips • Substation Works: 3,900 two-way trips	11,359
Construction staff: open cut trench			
Construction personnel	Car or Minibus (1.5 persons per vehicle)	• Landfall Works: 289 two-way trips • Onshore Cable Work: 5,852 two-way trips • Substation Works: 3,900 two-way trips	10,041
Total Vehicle Trips During Construction: trenchless construction techniques			26,734
Total Vehicle Trips During Construction: open cut trench			25,200

Table 14.9: Summary of Predicted Construction Traffic

14.7.8 Changes in Traffic Composition during Construction Phase

55 There will be an effect on the composition of traffic flows during construction as a result of the increased number of HGVs (this will take place under both construction scenarios i.e. trenchless construction or open cut trenching).

56 In the trenchless construction scenario (see **Appendix 14.1a**), the highest number of HGVs predicted is 229 per week (38 per day / 4 per hour) during 11 weeks of year 1. When combined with the car/LGV trips associated with the Onshore Works, the worst case scenario in terms of vehicle numbers occurs over 6 weeks of Year 1 where 161 cars/LGVs are expected in addition to the 229 HGVs. During year 2 of the onshore works, the highest number of HGVs predicted occurs over 3 separate weeks where 197 vehicles are expected per week (32 per day / 3 per hour). During these 3 weeks, 254 car/LGV trips per week are also predicted.

57 In the open cut trenching scenario (see **Appendix 14.1b**), the vehicle generation is exactly the same in year 1 as it is in the trenchless construction scenario where the highest number of HGVs predicted is 229 per week (38 per day / 4 per hour) during 11 weeks. When combined with the car/LGV trips associated with the Onshore Works, the worst case scenario in terms of vehicle numbers occurs over 6 weeks of Year 1 where 161 cars/LGVs are expected in addition to the 229 HGVs. The differences in the scenarios occur in Year 2 when the landfall works take place. The open cut trenching scenario generates less vehicles than the trenchless construction scenario. In year 2, open cut trenching produces as a worst case scenario, 186 HGV movements per week (31 per day / 3 per hour) over one week only. The car/LGV movements predicted as a worst case scenario during this week is 194 movements.

58 The changes in traffic composition during the construction phase is likely to be negligible on the A1(T), given a high number of HGVs already use this road. In terms of the local roads, the changes are likely to have a greater magnitude albeit against a lower sensitivity, with a predicted effect of moderate significance.

59 Transportation of the abnormal loads is likely to cause some minor delay to the traffic along the A1 and local road network for a short time period. The nature and extent of these delays will be dependent on the timing of the vehicle movements and it is anticipated that abnormal loads will be escorted by the police. Given that the number of abnormal loads associated with the Onshore Works is predicted to be minimal (likely to be only a few movements during the construction phase) and the associated disruption is temporary in nature, the significance of the effect of abnormal loads is judged to be of short term moderate significance.

14.7.9 Increase in Traffic Volume on the A1(T)

60 The 12-hour flow profile (with classification breakdown) for February 2012 was used as baseline traffic flow data on the A1(T). This has been calculated as daily 10-hour and a weekly 10-hour average.

61 The construction programmes, broken down by site activity and vehicle movements, assuming both the trenchless construction techniques and open cut trenching scenarios and illustrating the percentage effect on A1(T) traffic flows are shown in **Appendices 14.1a** and **b** and summarised in the remainder of this chapter.

14.7.9.1.1 Construction Scenario: Trenchless construction techniques

62 The highest levels of construction traffic will take place during six weeks of Year 1 (weeks 13, 16, 22, 25, 31, 34) where 390 total weekly vehicle movements are predicted. In Year 2, the highest levels of construction traffic occur over three weeks (weeks 9, 15 and 18) where 450 weekly vehicle movements are predicted.

63 Effects on traffic on the A1(T) can be calculated by taking the predicted weekly construction vehicle trips, and calculating this as a percentage of the weekly (based on 6-day working) 10-hr base traffic flow of 36,676 on the A1(T).

64 As previously discussed, no growth was applied in baseline traffic. The assessment therefore indicates that the increase in traffic on the A1(T) will be 390 vehicle per week (1.1% increase in the baseline weekly traffic flow of 36,676 on the A1(T)) over the 10-hour daily period (08:00-18:00) in Year 1 of construction whilst a 1.2% increase in traffic is experienced in Year 2 where an increase of 450 vehicles during the three weeks is identified.

65 In the weeks identified as being the worst case scenario for generated construction vehicles, the total weekly generated vehicle trips is shown as 450 (see **Appendix 14.1**). Assuming a six-day working week and an even distribution of vehicles across the day, this equates to 75 vehicles per day (between 08:00 and 18:00). This level of traffic is considered negligible to the operation of the A1(T).

66 Monitoring of the traffic during construction works is not proposed due to the low percentage increase in traffic.

14.7.9.1.2 Construction Scenario: Open cut trench

67 The highest levels of construction traffic will take place during six weeks of Year 1 (weeks 13, 16, 22, 25, 31 and 34) where 390 weekly vehicle movements are predicted. This is exactly the same as the trenchless construction techniques scenario in Year 1 as the Substation and Cabling work streams are identical. The landfall work streams occur later in the construction programme where predicted construction traffic generated by the substation and cabling work streams is reduced. In Year 2 therefore, the highest level of construction traffic (380) occurs for one week only (week 18).

68 Assuming no growth in baseline traffic, the assessment indicates that the increase in traffic on the A1(T) will be 390 vehicles per week (1.1% increase in baseline flows of 36,676) over the 10-hour daily period (08:00-18:00) during the weeks identified in Year 1 of construction and 1.0% in week 18 of Year 2 of construction where a maximum increase of 380 vehicles is predicted.

69 During the weeks identified as being the worst case scenario for generated construction vehicles, the total weekly generated vehicle trips is shown as 390 (see **Appendix 14.1**). Assuming a six-day working week and an even distribution of vehicles across the days equates to 65 vehicles per day (between 08:00 and 18:00). This level of traffic is considered negligible to the operation of the A1(T).

70 Again, monitoring of the traffic during construction works is not proposed due to the low percentage increase in traffic.

14.7.10 Increase in Traffic Volume on Local Roads: Assessment of Severance, Pedestrian Delay, Pedestrian and Cyclist Amenity, Fear and Intimidation, and Accidents and Safety

71 A summary of the expected levels of traffic predicted for local roads on a daily basis (between 08:00 and 18:00) is provided in **Table 14.10**. The table also indicates a level of Magnitude, Sensitivity and the resulting Significance based on the IEMA Guidelines for the Environmental Assessment of Road Traffic (1993) highlighted in section 14.4 and assessed based on severance, pedestrian delay, pedestrian and cyclist amenity , fear and intimidation and accidents and safety. The observed turning counts were collected by an independent survey company at the six junctions illustrated in **Figure 14.1** and described earlier in this chapter.

72 To calculate the significance of the impact of traffic at each of the junctions, values for Magnitude and Sensitivity require to be identified. Criteria used to identify these values are set out in **Tables 14.2** (Magnitude) and **14.3** (Sensitivity). These values are then used to calculate the Significance of the impact using a matrix set out in **Table 14.4**.

73 The sensitivity of each junction has been carefully considered based on the criteria in **Table 14.3**. Junctions 1 and 2 are located on the A1(T) and are considered to have Moderate sensitivity due to the fact that they are located on a major trunk road. Junction 3 is located in close proximity to the village of Innerwick therefore its sensitivity is considered to be Minor. Junctions 4-6 are located a distance from the A1(T) and Innerwick in areas where it is unlikely that pedestrians will be walking and there are no local amenities such as parkland, schools and listed buildings. Junctions 4-6 are however used (albeit infrequently), therefore any increase in traffic is likely to have an effect on pedestrians. As such, the sensitivity of Junctions 4-6 is considered to be Minor.

74 **Table 14.10** overleaf provides a summary of the effects on the local road network.

Junction	Arm	Movement	Observed	Construction	Percentage Increase per Movement	Percentage Increase per Junction	ASSESSMENT OF IMPACTS: Severance / Pedestrian Delay / Pedestrian and Cyclist Amenity /Fear and Intimidation / Accidents and Safety		
							Magnitude	Sensitivity	Significance
1 A1(T) / Unnamed Road	A1 (E)	Left	42	7	17%	2%	Negligible	Moderate	Negligible
		Ahead	3830	0	0%				
	South Arm	Left	457	68	15%				
		Right	79	7	9%				
	A1 (W)	Ahead	4044	0	0%				
		Right	463	68	15%				
2 A1(T) / Unnamed Road	A1 (E)	Left	44	0	0%	0%	Negligible	Moderate	Negligible
		Ahead	3518	7	0%				
	South Arm	Left	59	0	0%				
		Right	34	0	0%				
	A1 (W)	Ahead	4072	7	0%				
		Right	42	0	0%				
3 Unnamed Road / Unnamed Road	South Arm	Ahead	54	0	0%	77%	Moderate	Minor	Minor
		Left	1	0	0%				
	West Arm	Left	39	75	192%				
		Right	2	0	0%				
	North Arm	Ahead	53	0	0%				
		Right	47	75	160%				
4 Unnamed Road / Unnamed Road	North Arm	Ahead	31	0	0%	99%	Major	Minor	Moderate
		Left	5	0	0%				
	East Arm	Left	42	75	179%				
		Right	6	0	0%				
	South Arm	Ahead	33	0	0%				
		Right	35	75	214%				
5 Unnamed Road / Unnamed Road	South Arm	Ahead	48	75	156%	89%	Moderate	Minor	Minor
		Left	16	0	0%				
	West Arm	Left	22	0	0%				
		Right	14	0	0%				
	North Arm	Ahead	46	75	163%				
		Right	22	0	0%				
6 Unnamed Road / Unnamed Road	South-East Arm	Ahead	12	0	0%	231%	Major	Minor	Moderate
		Left	0	0	0%				
	South-West Arm	Left	21	75	357%				
		Right	2	0	0%				
	North Arm	Ahead	8	0	0%				
		Right	22	75	341%				

Table 14.10: Local Roads (observed flows recorded between 0800 and 1800): Assessment of Effects (Severance/Pedestrian Delay/Pedestrian and Cyclist Amenity/Fear and Intimidation/Accidents and Safety).

75 The effect of construction traffic on the local traffic (non-trunk road) at Junctions 1 and 2, on the A1(T) is low particularly when compared to the existing traffic on the A1(T). At each of the local junctions (junction 3-6), the effect of construction vehicles is higher albeit against extremely low levels of existing traffic. The percentage effect increases significantly as the distance from each junction to the A1(T) increases.

76 The generated construction traffic illustrated in **Table 14.10** results in a worst case scenario of weekly traffic being 450 return trips (this would occur if trenchless construction techniques are utilised at the landfall. Refer to **Appendix 14.1a: trenchless construction techniques**). Assuming 6-day working (Monday-Saturday) which is the case for the majority of the project (work at the landfall may extend to 24 hours, 7 days a week); the daily traffic can be assumed to be 75 construction vehicles making a return trip. This equates to approximately 7.5 vehicles per hour (roughly one vehicle every 10 minutes) if spread evenly across the 10-hour period (08:00-18:00).

77 These levels of traffic are low when compared to the observed levels of traffic and by assessing both magnitude and sensitivity and are likely to have no greater than a minor effect on the operation of the local road network at junctions 1 to 3 and 5. At junctions 4 and 6, due to the observed traffic being minimal, the magnitude of the increase in traffic is major and when combined with a sensitivity value of minor, results in the significance being rated as moderate.

78 The significance criteria based on the IEMA *Guidelines for the Environmental Assessment of Road Traffic* indicate that the effect on the local road network is not expected to exceed a moderate level. For certain junctions (1, 2, 3 and 5), the effect of increased construction traffic (in accordance with IEMA Guidelines) is predicted to be of minor or negligible significance (which is not significant in EIA terms). It is, however, acknowledged that the actual effect of increased construction traffic could be perceived as significant in a local context (albeit for a temporary period).

14.7.11 Driver Delay

79 The assessment of driver delay uses thresholds derived by examining changes in journey times. The other effects including severance, pedestrian delay etc use thresholds derived from the expected increase in vehicle flows.

80 **Table 14.11** summarises the assessment of driver delay at each of the junctions identified. It is assumed that delay incurred would be as a result of temporary traffic management in the form of traffic signals which normally have a signal time of no greater than two minutes. The magnitude of the driver delay at each junction is therefore determined as moderate. Sensitivity values are the same as those determined when assessing the impacts based on the change in vehicle flows. The temporary traffic management would be required at points where the cable route crosses the local road network using the open cut trenching technique and which would generally result in lane closures.

Junction	Change in Journey Time	Assessment Of Effects: Driver Delay		
		Magnitude	Sensitivity	Significance
1: A1(T) / Unnamed Road	Change in journey time of 1 min – 2 mins	Moderate	Moderate	Moderate
2: A1(T) / Unnamed Road	Change in journey time of 1 min – 2 mins	Moderate	Moderate	Moderate
3: Unnamed Road / Unnamed Road	Change in journey time of 1 min – 2 mins	Moderate	Minor	Minor
4: Unnamed Road / Unnamed Road	Change in journey time of 1 min – 2 mins	Moderate	Minor	Minor
5: Unnamed Road / Unnamed Road	Change in journey time of 1 min – 2 mins	Moderate	Minor	Minor
6: Unnamed Road / Unnamed Road	Change in journey time of min – 2 mins	Moderate	Minor	Minor

Table 14.11: Assessment of Effects: Driver Delay

81 The effects of driver delay are more evident on the trunk road where a delay of up to two minutes could be significant. On the A1(T), by combining the magnitude and sensitivity, the significance of driver delay is predicted to be moderate. At junctions 3 to 6, as the sensitivity of the roads is less, the overall significance of driver delay is expected to be minor.

14.7.12 Proposed Mitigation Measures

82 The following mitigation measures will be used to offset the traffic and access effects including severance, driver delay, pedestrian delay, pedestrian and cyclist amenity, fear and intimidation and potential effects on accidents and safety and will be implemented by the appointed contractor during the construction phase:

- A Traffic Management Plan (TMP) will be produced for the construction phase of the development. This plan will be prepared by the appointed contractor and will be agreed with the police, ELC, BEAR Scotland and Transport Scotland and is likely to include details such as the timing of site deliveries and measures to encourage multi-occupancy of vehicles used by construction workers;
- Lane closures will be implemented on the A1(T) and local roads will be closed where they will be crossed. Temporary traffic signal control will be used to manage the traffic flows and ensure the continued safe operation of the road;
- The contractor will notify and liaise with the police, ELC and BEAR Scotland when and if abnormal loads are being transported to the site and when road closures are planned;
- Temporary Traffic Regulation Orders (TTRO) may be required for the transportation of abnormal loads;
- The contractor will be expected to attend Local Roads Authority and Utilities Liaison meetings to discuss the works.

14.8 Future Monitoring Requirements

14.8.1 Construction

83 With a TMP in place, monitoring of the traffic associated with the onshore elements of the project during construction will not be required.

14.8.2 Operation

84 An estimate of operational vehicle trips has been provided by Mainstream which illustrates that the level of trips is negligible. This is illustrated in **Table 14.12**. Therefore, monitoring of the traffic associated with the onshore elements of the project during operation will not be required.

Element	Activity	No of visits per year	Duration (days)	Number of Vehicles		Return Journeys to Site (no per year)	
				Cars/LGVs	HGVs	Cars/LGVs	HGVS
Substation	Regular Inspections	52	1	1	0	52	0
	Annual Maintenance	1	10	4	1	40	10
Cable	Regular Inspections	1	2	1	0	2	0

Table 14.12: Operational Traffic Movements

85 The substation will not be permanently manned, but will need to be visited weekly for regular inspections. Each visit will require at least two personnel (in a van or car). For scheduled maintenance, the requirements can be summarised as approximately two weeks per year, requiring up to 10 personnel during this period. Additional site visits would be required for faults.

86 A full check of the cable system would be carried out on an annual basis. Access would normally be along the agreed cable route by foot. In the unlikely event that there is any failure of cables, a fault finder with test gear would locate the fault along the cable section. Once located, the area around the fault would be excavated and the fault repaired. If the cable cannot be repaired, a new length of cable would be inserted and jointed to replace the failed section.

14.8.3 Decommissioning

87 The assessment of decommissioning is based upon the removal of the substation, the cable, transition pits and all other related components. The effect of decommissioning on Access, Traffic and Transport is assessed below.

14.8.3.1.1 Decommissioning of the Cable, Transition Pits and Other Related Components

88 Potential effects during decommissioning of the cable, transition pits and other related components are likely to be similar to those predicted during construction (the significance of effects is not anticipated to be any greater than at construction). Effects anticipated include:

- increase in traffic volume during the decommissioning phase;
- changes in traffic composition during decommissioning;
- works at the crossings of the A1(T) and local roads during decommissioning involving temporary lane and road closures and consequent effects on driver delay and severance;
- works at the crossing of the ECML.

89 Mitigation would be similar to that put forward during construction and would include the following:

- preparation of a TMP for the decommissioning phase of the development;
- lane closures would be implemented on the A1(T) and local roads would be closed (with diversions in place) for a temporary period. Temporary traffic signal controls would be used to manage traffic flows and ensure the continued safe operation of the road;
- regular meetings with ELC and the local community to discuss timing of works, particularly in respect of road closures;
- liaison with Network Rail over any necessary line closures or speed restrictions.

14.8.3.1.2 Decommissioning of the Substation

90 At the end of the life of the Neart na Gaoithe offshore Wind Farm, it is likely that the substation will be retendered for continued use. However, following consultation with ELC, it was agreed that the likely effects of decommissioning the substation would be considered.

91 Potential effects of the decommissioning of the substation, again are similar and not expected to exceed those experienced during the construction of the scheme and include:

- an increase in traffic volume during the decommissioning phase; and
- changes in traffic composition during decommissioning, including abnormal loads removing substation components.

92 Mitigation is also similar to that proposed during construction and includes the following:

- preparation of a TMP for the decommissioning phase of the development;
- liaison with police, ELC and BEAR Scotland when abnormal loads will be accessing the substation site and when road closures are planned; and
- the use of Temporary Traffic Regulation Orders (TTRO) when abnormal loads are accessing the site.

14.9 Assessment of In Combination Effects

93 Certain aspects of the Onshore works will take place alongside the Offshore Works; however, it is not predicted that any of the construction vehicles associated with the offshore works will impact on the local road network or the A1(T) in close proximity to the site. At the cable landfall, the two 220 kV offshore export cables will be brought from the offshore cable laying vessel, to the transition pit. Operational traffic movements are predicted to be minimal for the Onshore Works and in combination effects are assumed unlikely.

14.10 Assessment of Cumulative Effects

14.10.1 Construction

94 Three additional schemes have been identified as having the potential to overlap with the Neart na Gaoithe Onshore Works:

- Aikengall II;
- Crystal Rig III; and
- SPT NnG Scheme.

95 The Aikengall II and Crystal Rig III are both extensions to existing onshore wind farms, whereas the SPT NnG Scheme will allow connection with the Neart na Gaoithe offshore Wind Farm to be made as well as providing a further extension for Aikengall II. All three of these schemes would entail construction vehicles using the same access from the A1(T) proposed as part of the Onshore Works.

96 Construction traffic information was requested from the appropriate organisations for each of these schemes, the outcome of which is summarised in **Table 14.13**.

Scheme	Status
Aikengall II	Limited traffic data associated with the wind farm is available although the scheme is only expected to share the same access route from the A1 to Ogle Lodge (a distance of 2 km). No traffic data is available regarding the construction of the substation.
Crystal Rig III	Traffic estimates have not been finalised.
SPT NnG Scheme	This scheme is not at an advanced stage as yet therefore traffic figures are not available.

Table 14.13: Status of Schemes with Regards to Construction Traffic Generation Data

97 As no traffic data is available for the Crystal Rig III and the SPT NnG Scheme and limited traffic data is available for the Aikengall II and due to uncertainty regarding construction programmes no cumulative assessment has been undertaken. Should one or more of the three schemes run in conjunction with the works related to the Onshore Works, the number of construction vehicles utilising the same road space and construction routes would increase. Mainstream will work with the other developers to manage construction traffic in the event of coincident construction programmes.

14.10.2 Operation

98 No operational effects are envisaged as maintenance vehicle trips for all schemes are likely to be negligible.

14.11 Summary of Effects

99 A summary table of predicted effects before and after proposed mitigation measures is provided in **Table 14.14**.

Predicted Effect	Significance	Proposed Mitigation	Significance of Residual Effect
Construction			
Effect on East Coast Main Line due to crossing points.		Management of the construction works to maintain viable operation of the rail line.	
Crossing the A1(T) via open cut trenching /trenchless techniques	Minor	A TMP will be produced for the construction phase of the development. This plan will be prepared by the appointed contractor and will be agreed with the police, ELC, BEAR Scotland and Transport Scotland and is likely to include details such as the timing of site deliveries and measures to encourage multi-occupancy of vehicles used by construction workers	**Minor**
Crossing the local road network via open cut trenching	Moderate	As above.	**Moderate**
Transportation of abnormal loads	Moderate	As above.	**Moderate**
Changes in traffic composition during Construction Phase	Minor (Significance will vary between negligible at the	As above. The contractor will notify and liaise with the police, ELC and BEAR Scotland when	**Minor** (Residual impacts will vary between

Predicted Effect	Significance	Proposed Mitigation	Significance of Residual Effect
	A1(T) and moderate on the worst case local roads)	and if abnormal loads are being transported to the site and when road closures are planned; and Temporary Traffic Regulation Orders (TTRO) may be required for the transportation of abnormal loads.	**Negligible** at the A1(T) and **Moderate** on the worst case local roads)
Increase in Traffic Volume on the A1(T) (Trenchless Construction Scenario at Landfall)	Negligible	None required.	**Negligible**
Increase in Traffic Volume on the A1(T) (Open Cut Trench Construction Scenario at Landfall)	Negligible	None required.	**Negligible**
Increase in traffic (HGVs + cars/LGVs) as a result of construction on the local road network. This includes effects on Severance/Pedestrian Delay/Pedestrian and Cyclist Amenity/Fear and Intimidation/Accidents and Safety	Moderate (junctions 4 and 6) Minor (junctions 3 and 5) Negligible (junctions 1 and 2)	As for 'changes in traffic composition' above	**Moderate** (junctions 4 and 6) **Minor** (junctions 3 and 5) **Negligible** (junctions 1 and 2)
Increased driver delay as a result of the works on the A1(T) and local road network	Moderate (at junctions 1-2) Minor (junctions 3-6)	Temporary traffic signal control will be used to manage the traffic flows and ensure the continued safe operation of the road;	**Moderate** (junctions 1-2) **Minor** (junctions 3-6)
Operation			
Increase in traffic on A1(T) and local road network during operation	Negligible	None required.	**Negligible**
Decommissioning			
Effects during the decommissioning phase are not predicted to be any greater than at construction.			
In Combination Effects			
Effects in combination with the Offshore Works are considered unlikely.			
Cumulative Effects			
If one or more of the three schemes run in conjunction with the Onshore Works, the number of construction vehicles utilising the same road space and	In absence of detailed traffic data for all schemes, it is not possible to predict the likely significance of	The developer of Neart na Gaoithe will work with the other developers to manage construction traffic in the event of coincident construction programmes.	In absence of detailed traffic data for all schemes, it is not possible to predict the likely
construction route would increase.	effect.		significance of effect.

Table 14.14: Summary of Predicted Effects

14.12 References

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