12 Traffic and Transport

Introduction

12.1 This Section of the Screening and Scoping Report outlines the proposed scope for the assessment of traffic impacts arising from the Proposed Project. The Traffic and Transport Chapter of the Environmental Assessment Report will identify the key issues and potential effects in transport terms on the local highway network resulting from the Proposed Project. This will include the potential effects on the various users of the transport network within a defined Study Area, including road traffic, cyclists, and pedestrians.

Legislation and Policy

National Planning Policy

12.2 The Traffic and Transport Chapter of the Environmental Assessment Report will ensure that the assessment adopts and reflects the approach and key principles within national planning policy, namely the following key documents:

- Planning Policy Wales;
- Technical Advice Note (TAN) 18; and
- Wales Spatial Plan.

Planning Policy Wales (2016)

12.3 Planning Policy Wales 2016 sets out the land use planning policies of the Welsh Government and its commitment to sustainable development. Chapter 8: Transport sets out the ways in which the Welsh Government "*aims to extend choice in transport and secure accessibility in a way which supports sustainable development and helps to tackle the causes of climate change*".

12.4 Although the document predominantly focuses on the opportunities for, and integration of sustainable modes of transport, that do not readily apply to a project of this nature, it does refer to the need to consider the environmental impacts of development (8.1.9) and managing traffic, particularly in rural areas whilst achieving reduced traffic speeds and environmental and safety improvements (8.4).

Technical Advice Note (TAN) 18

12.5 TAN 18 (Transport), published in March 2007, sets out the Welsh Government's aim for integration of land use planning and transport in order to achieve a sustainable pattern of development.

12.6 TAN 18 places emphasis on sustainability and the need for sustainable development patterns. Integration is identified as a means of helping Welsh Government achieve its wider sustainable development policy objectives by:

- *"promoting resource and travel efficient settlement patterns;*
- *ensuring new development is located where there is, or will be, good access by public transport, walking and cycling thereby minimising the need for travel and fostering social inclusion;*
- *managing parking provision;*

- *ensuring that new development and major alterations to existing developments include appropriate provision for pedestrians (including those with special access and mobility requirements), cycling, public transport, and traffic management and parking/servicing;*
- *encouraging the location of development near other related uses to encourage multiple- purpose trips;*
- *promotion of cycling and walking;*
- *supporting the provision of high quality, inclusive public transport;*
- *supporting provision of a reliable and efficient freight network;*
- *promoting the location of warehousing and manufacturing developments to facilitate the use of rail and sea transport for freight;*
- *encouraging good quality design of streets that provide a safe public realm and a distinct sense of place; and*
- *ensuring that transport infrastructure or service improvements necessary to serve new development allow existing transport networks to continue to perform their identified functions."*

12.7 The Proposed Project would require a number of new access points to the existing highway network. The requirements for new accesses are set out within section 9.16 of TAN 18, with the visibility standards detailed within Annex B of TAN 18. In accordance with the guidance, speed surveys have been undertaken to inform the visibility requirements in these locations.

12.8 Annex D of TAN 18 focuses specifically on 'Transport Assessment' and emphasises the importance of undertaking early scoping discussions with local authorities.

12.9 Annex D of TAN 18 also makes reference to a 'Transport implementation strategy' forming part of the Transport Assessment. Due to the nature of the Proposed Project, with negligible traffic during the operation and maintenance phases, a Transport implementation strategy' is not considered to be a requirement.

The Wales Spatial Plan

12.10 The overall purpose and principles of the Wales Spatial Plan (2008) are set out below:

- *"Making sure that decisions are taken with regard to their impact beyond the immediate sectoral or administrative boundaries and that the core values of sustainable development govern everything we do;*
- *Setting the context for local and community planning;*
- *Influencing where money is spent by the Welsh Government through an understanding of the roles of and interactions between places; and*
- *Providing a clear evidence base for the public, private and third sectors to develop policy and action."*

Local Planning Policy

12.11 A number of local planning and transport policy documents inform the design and approach to planning in the vicinity of the Proposed Project. The traffic and transport assessment will align with and reflect the Join Local Development Plan (2017); in particular, Topic Paper 15: Transport.

Anglesey and Gwynedd Joint Local Development Plan (2017)

12.12 Porthmadog is identified as a sub-regional centre within Gwynedd. The Joint Local Development Plan for Gwynedd Council (2017) also refers to the importance of the area, as a regional leisure and tourism centre.

12.13 The assessment methodology will reflect Policy PCYFF2 'Development Criteria'. Specific consideration will be given to the capacity of the road network to accommodate the construction traffic demand, and to suitable traffic management measures.

12.14 National Grid acknowledges that the road network should be safeguarded and, if identified as necessary, improved and maintained to appropriate standards.

12.15 Policy TRA1 'Transport Network Developments' has been considered, which refers to network developments including:

- Improvements to existing infrastructure;
- Transfer between transport modes;
- Transport assessments; and
- Transport schemes.

12.16 Policy TRA4 'Managing Transport Impacts' sets out expectations for development proposals that would impact the safe and efficient operation of the highway, public transport and other movement networks including pedestrian and cycle routes and Public Rights of Way (PRoW).

North Wales Joint Local Transport Plan Consultation 2015-2020 (2015)

12.17 The Joint Local Transport Plan has been prepared jointly by six North Wales Local Authorities, including Gwynedd Council. The key vision is to 'remove barriers to economic growth, prosperity and well-being by delivering safe, sustainable, affordable and effective transport networks'. Regional priorities include:

- Reducing congestion and journey times;
- Environmentally-friendly and efficient freight movement; and,
- Smart traffic planning and management.

Baseline Environment

12.18 The network of roads within the Area of Search for Permeant and Temporary Works north of the Dwyryd Estuary includes the A487 and A497, with the A487 continuing to the north and west, and the A497 continuing to the south-west. There is also a small network of unclassified local roads which serve the surrounding farms, scattered properties, Snowdonia Business Park and areas such as Portmeirion. Access across the Dwyryd Estuary is provided via Pont Briwet which runs just north of the Area of Search for Permeant and Temporary Works.

12.19 On the southern side of the Dwyryd Estuary, Pont Briwet meets the A496 which provides access to the north and south, as well as access to a network of local roads continuing to the east. Settlements are concentrated along the A496 with local lanes serving hamlets and isolated properties on the lower slopes of the mountain range.

12.20 Railway tracks cross at Minffordd, with the Cambrian Line continuing south of the 4ZC OHL towards the Dwyryd Estuary, before running north up the estuary banks, under the 4ZC OHL and following the route of Pont Briwet over the water. On the east side of the river, the railway track leaves the line of Pont Briwet once over the water at Llandecwyn station and continues south, crossing the OHL again. Minffordd, Penrhyndeudraeth, and Llandecwyn railways

stations are all included within the Area of Search for Permeant and Temporary Works, offering local train services between Pwllhelli to Aberystwyth and Birmingham.

12.21 The Wales Coast Path runs through the Area of Search for Permeant and Temporary Works, approaching Minffordd from the south following the estuary, utilising the new Pont Briwet bridge over the Dwyryd Estuary, and then continuing south on the east side of the estuary. There is a high density of public footpaths and expansive areas of Open Access Land to the south of the estuary, particularly on the lower and upper slopes of the Rhinogau mountain range and around the small settlement of Ynys on the estuary. There is also an area of Open Access Land at Gwaith Powdwr Local Nature Reserve and a number of public footpaths to the north (outside the National Park).

12.22 National Cycle Network (NCN) Route 8 crosses the search area along a minor road to the north of the A487 and A497, and then follows Pont Briwet across the Dwyryd Estuary and the A496.

12.23 Bus service routes within the Area of Search for Permeant and Temporary Works are classed as Connecting Bus Routes to Main Bus Routes such as Services 1, T2 1B and S97. These services provide routes to Caernarfon, Waunfawr, Penygwryd and Aberystwyth and to Railway Stations Blaenau Ffestiniog, Porthmadog and Rheilffordd Eryri Welsh Highland Railway.

12.24 A full review of the current baseline conditions with respect to all transport modes will be included within the traffic and transport assessment.

Baseline Data Collection

12.25 Baseline traffic data was collected in August and September 2016. Automatic Traffic Count (ATC) data, using pneumatic tubes installed over the carriageway, have been used to identify 24-hour, 7 day per week flows, as well as traffic speed information. The ATC data was classified to derive the proportions of Light Goods Vehicles (LGVs) and heavy goods vehicles (HGVs).

12.26 In addition to ATCs, classified turning counts were undertaken at identified key junctions within the Area of Search for Permanent and Temporary Works.

12.27 August and September counts were undertaken to provide baseline data for a 'Neutral' month (i.e. one that is unlikely to feature extraordinary traffic, such as during the school holidays). This is recommended within the DfT's "Guidance for Transport Assessment" and WebTAG M1.2. The August counts provide data relating to traffic during the peak period for tourism within the local area. This will provide a sensitivity test for the assessment.

12.28 TEMPro growth factors will be applied to these survey flows to replicate growth up to the base year and to the peak construction year. This will ensure that suitable baseline traffic is presented within the assessment.

Potential Effects

12.29 Potential traffic and transport effects include those which are likely to take place during construction, as a result of the movement of HGVs travelling to and from the Proposed Project, for example for removing spoil or transporting materials and/or equipment.

12.30 The peak construction activity in terms of traffic generation is expected to relate to the excavation of aggregate during tunnelling. For the purposes of assessing a realistic 'worst case' scenario in terms of potential traffic effects, it is assumed that aggregate will be transported on road via HGVs. Initial forecasts indicate that there will be in the order of 30 loads per day, (60 two-way HGV movements) undertaken by vehicles with a load carrying capacity of 15m^3. During this period, these activities are also forecast to generate around 40

two-way LGV movements. Tunnelling works are expected to take place for approximately 14 months. Further detail of likely construction traffic associated with all construction elements will be presented in the assessment work. The above figures are provisional and subject to project design evolution.

12.31 Occasional trips will also be made to and from the site by cars and LGVs once the Proposed Project becomes operational. This will mainly be for inspection and maintenance purposes. Any vehicle movements required during the operational phase would have a negligible effect on traffic levels in the area.

12.32 In addition to the environmental effects of construction traffic, temporary road closures or new access points to haul roads, as well as temporary railway line closures could also be required to facilitate construction; however, every effort will be made to avoid temporary closures. There are also several PRoWs, national paths/trails and a national cycle route which pass through the Area of Search for Permeant and Temporary Works and which could be affected by the Proposed Project. Any temporary road/rail closures and impacts to PRoWs will be considered as part of the traffic and transport assessment as well as potential effects on public transport services in the area.

12.33 Construction phase activities, which are expected to take 3-4 years, are set out below and will be considered in the assessment of traffic and transport related environmental effects:

12.34 **Sealing End Compound:** The SEC will require the construction of a permanent road access. Traffic volumes associated with constructing the SEC and its permanent road access will be assessed.

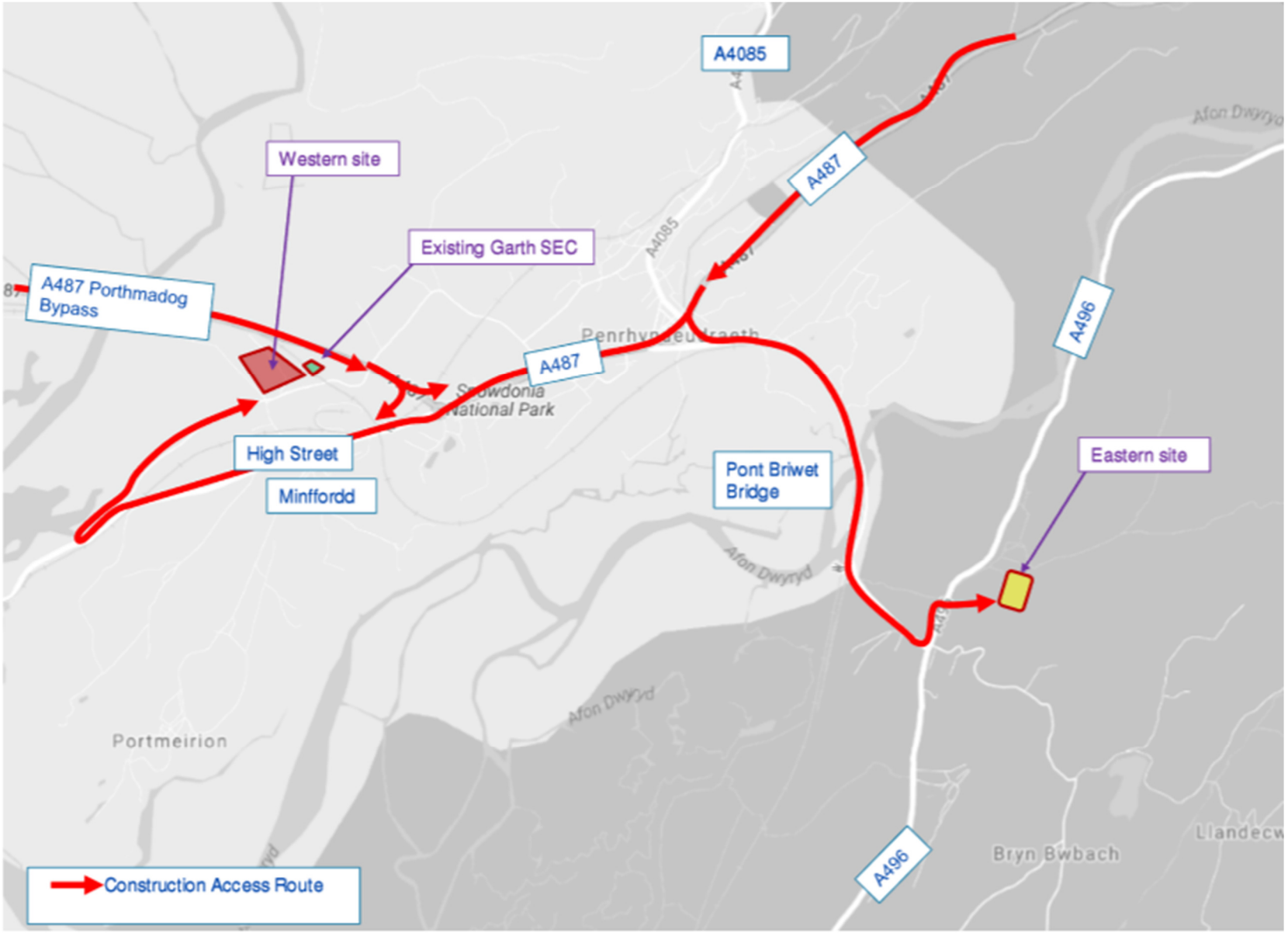
12.35 **Tunnelling:** access will be required for bringing in machinery and material; disposal of spoil would be necessary, either on-site through creation of earth mounding, or off-site, necessitating HGV movements. Following completion, a permanent tunnel head house would remain on either side of the tunnel, which requires permanent road access (jointly with the SEC).

12.36 **Removal of the existing VIP subsection:** will require the provision of temporary access points and haul roads, and associated traffic movements, including a crane to dismantle the pylons and vehicles to remove pylon sections. The routing of these HGV movements and potential impacts of temporary access points will also be considered.

12.37 HGV traffic routes and the selection of access locations will be identified to provide the safest and most suitable routes in consultation with National Grid's engineers and stakeholders.

12.38 Site visits have revealed that road geometry, along with topographical and structural constraints along the A496, would potentially render this route as unsuitable for construction traffic. Consequently, the high-level routeing strategy is for the construction traffic to use the A487 and A497 to access the tunnel shafts, SEC and the pylon locations.

Figure 12.1: Overview of the Routing Strategy



12.39 Temporary access tracks would be installed for construction vehicles to travel from the designated access points to the respective working area locations. Temporary access would be required to the site of each pylon, the drive sites as well as the existing and proposed SECs. Existing access points adjoining the public highway would be amended and/or upgraded as required.

12.40 Vehicle movements associated with access to the SEC and tunnel head houses during the operational phase are likely to be negligible.

12.41 Taking the above into account, the traffic and transport assessment will focus on:

- Temporary effects associated with:
    - Creation of new access to serve the SEC / tunnel head house;
    - Construction traffic using the highway network; and
    - Temporary changes to the highway network or PRoW (i.e. closures and/or diversions) during construction.
- Permanent effects associated with:
    - Use of new access to serve the SEC / tunnel head houses during operation by maintenance traffic.

Proposed Assessment Methodology

12.42 The proposed methodology reflects the former Institute of Environmental Assessment (IEA), now the Institute of Environmental Management and Assessment (IEMA), in the form of 'Guidelines for the Environmental Assessment of Road Traffic' (1993) ('the IEMA Guidelines).

12.43 In accordance with the IEMA Guidelines, the following criteria will be considered in the assessment:

- Severance;
- Driver delay;
- Pedestrian and cycle delay;
- Pedestrian and cycle amenity;
- Fear and intimidation;
- Road safety; and
- Hazardous loads.

12.44 The assessment will therefore consider the below potential effects:

Severance

12.45 According to the IEMA Guidelines, severance is described as the perceived division that can occur between communities when it becomes separated by a major traffic artery. It may also result from the difficulty of crossing a heavily trafficked road or physical barrier created by the road itself.

Driver Delay

12.46 Driver delay as a result of a change in volume and composition of traffic will be considered within the traffic and transport assessment.

Pedestrian and Cycle Delay

12.47 The IEMA Guidelines outline pedestrian and cycle delay as a result of a change in volume, composition or speed of traffic which may affect the ability of pedestrians to cross roads.

12.48 Any impacts on pedestrian and cycle delay will be considered within the traffic and transport assessment.

Pedestrian and Cycle Amenity

12.49 The IEMA Guidelines suggest that pedestrian amenity can be broadly defined as the 'relative pleasantness of a journey', and is considered to be affected by traffic flow, traffic composition and pavement width / separation from traffic.

Fear and Intimidation

12.50 Traffic may impact on pedestrians through fear and intimidation. This is dependent on the volume of traffic, its HGV composition, its proximity to people or lack of protection caused by factors such as narrow pavement widths. As discussed in the IEMA Guidelines, there are no commonly agreed thresholds for estimating levels of danger, or fear and intimidation, from known traffic and physical conditions; therefore, there is a need for professional judgement to be exercised.

Road Safety

12.51 A review of collision data near to the site will be undertaken as part of the transport analysis. This will consider STATS19 data over the most recent five-year period to identify any clustering of collisions, paying particular regard to those involving serious or fatal casualties or vulnerable road users.

Hazardous Loads

12.52 The assessment would consider the potential effects of potential hazardous loads (i.e. abnormal loads or large vehicles) along the routes to the relevant construction sites.

12.53 Any proposed hazardous loads (and proposed routes) would be discussed and agreed with relevant parties, including the police and local and strategic highways authorities, to ensure the movements can be managed appropriately. No Hazardous Loads are currently anticipated to be required in the construction of the Proposed Project.

Sensitivity

12.54 It is proposed that the traffic and transport assessment will adopt a link-based approach to the assessment of potential environmental effects arising from construction traffic. Links assigned as construction routes will be considered within the assessment.

12.55 Within the IEMA guidelines the following groups of people and locations are identified as being susceptible to changes in traffic conditions:

- People at home;
- People at work;
- Children, elderly, and disabled persons,
- Sensitive locations such as hospitals, churches, schools, historical buildings;
- Pedestrians;

- Cyclists;
- Open recreational spaces;
- Sites of ecological/nature conservation value; and
- Sites of tourist/ visitor attraction.

12.56 Each of these parties' exposure to changes in traffic volumes arises from their proximity to a construction traffic route. The assessment will consider the effect on these users by location, with links being assigned an overall sensitivity based upon the presence of 'Built Environment Indicators' along the link. For example, a construction route away from residential dwellings, with no footpaths, cycle route, or commercial or leisure facilities would be considered to have a low sensitivity to additional construction traffic.

12.57 Table 12.1 considers affected parties and built environment indicators and describes the rationale behind assigning overall highway link sensitivity to individual links.

12.58 An initial review has been undertaken of all construction traffic routes and each link, or section of link has been assigned an overall level of sensitivity based on the character and the presence of certain built environment indicators along the link. Based on this initial review there are no links categorised as highly sensitive. Most links within the study area are very low or low sensitivity.

Table 12.1: Categorising the Overall Sensitivity of a Highway Link

Affected Party	Built Environment Indicator along Highway Link	Highway Link Sensitivity to Changes in Traffic Flow
People at home	Residential Properties	**Medium**: Where there are a number of properties with direct frontage to the highway link being used as a construction route. **Low**: Where there are few properties with direct frontage to the highway link being used as a construction traffic route.
People in workplaces	Offices, industrial units, employment uses	**Low**
Sensitive groups (children, elderly and disabled)	Schools, play areas, care/retirement homes, disabled parking bays	**High:** Where there are multiple indicators of sensitive groups with direct frontage onto the highway link being used as a construction traffic route **Medium:** Where one indicator of sensitive groups is present with direct frontage onto the highway link being used as a construction traffic route **Low:** Where no indicator of sensitive groups are present

Affected Party	Built Environment Indicator along Highway Link	Highway Link Sensitivity to Changes in Traffic Flow
Sensitive locations (Hospitals, places of worship, schools historic buildings)	Hospitals, places of worship, schools, historic buildings	**High:** Where there are multiple indicators of sensitive locations **Medium:** Where one indicator of a sensitive location is present **Low:** Where no indicator of sensitive locations are present
People walking	Footways, PRoW, crossings	**Medium:** Indicators present on highway link **Low:** Indicators not present on highway link
People cycling	On/off-road designated cycle routes	**Medium:** On-road designated cycle routes present along highway link **Low:** Off-road designated cycle routes present along highway link
Open spaces, recreational sites, shopping areas	Parks, play areas, shops, community centres	**High:** Where there are multiple instances or indicators likely to be used by sensitive groups (i.e. children) **Medium:** Where one indicator is present that is likely to be used by sensitive groups (i.e. children) **Low:** Indicators that are unlikely to be used by sensitive groups
Road users	Roads, junctions, road classification, baseline traffic volumes, signage.	Determined by the presence of other affected parties in this table

Magnitude

12.59 The magnitude of any potential effects will be determined by the associated percentage increase in traffic arising from the forecast construction traffic on each link. This assessment will identify any requirement for mitigation measures and present any residual effects arising from the Proposed Project.

12.60 The IEMA guidelines indicate that highway links subject to traffic flow increases of more than 30%, or 10% if affecting a sensitive area, need to be assessed. Increase in traffic flows of less than 10% are generally accepted as having no discernible environmental effects as daily variance in traffic flows can be of equal magnitude. Notwithstanding that, the assessment will consider any route identified as a construction route, irrespective of whether the 10% threshold is met.

12.61 There is a need to consider other guidance in order to inform the assessment of the magnitude of effects, particularly in regard to the assessment of Highway Safety and Severance. In the case of Highway Safety, it is proposed to use WebTAG Databook March 2017, COBALT which references the method outlined in the Cost Benefit Analysis (COBA) Manual Volume 13 (2006). This method assesses the existing collision record against predicted rates by type of road and traffic flows. Severance would be assessed against thresholds of magnitude taken from Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 8. The proposed magnitude criteria are presented in Table 12.2.

Table 12.2: Magnitude of Effect Criteria

Effect	Very Low	Low	Medium	High
Severance	Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between %-39%).	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%).	Increase in total traffic flows or HGV flows of 90% and above.
Pedestrian Delay	Total traffic flows under 1,400 per hour.	Where traffic flows exceed 1,400 vehicles per hour the severity of the impact will be determined on a case-by-case basis based on receptor sensitivity.		
Pedestrian Amenity	Increase in total traffic flows of 49% or under.	Increase in total traffic flows of 50-69%.	Increase in total traffic flows of 70%-99%.	Increase in total traffic flows of 100% or above.
Fear and Intimidation	Increase in total traffic flows or HGV flows of 29% or under (or increase in HGV flows under 10%).	Increase in total traffic flows of 30-59% (or increase in HGV flows of between 10%-39%.	Increase in total traffic flows of 60%-89% (or increase in HGV flows between 40%-89%)	Increase in total traffic flows or HGV flows of 90% and above.
Driver Delay	Increase in total traffic flow of less than 29%.	Increase in total traffic flow of between 30% and 59%.	Increase in total traffic flow of between 60% and 89%.	Increase in traffic flow of 90% and above.
Highway Safety	Increase in total traffic flows of 30% or under (or increase in HGV flows under 10%).	All links estimated to experience increases in HGV flows above 10% are analysed further on a case by case basis.		

Duration

12.62 Table 12.2 above sets out the magnitude thresholds for the respective environmental effects considered in this chapter. All effects have a magnitude that would not, initially, consider the duration over which an effect is likely to be experienced.

12.63 Duration is considered when assessing the overall significance of residual effects, noting that the DMRB Volume 11 Section 2 Part 5 states in Paragraph 1.47: '*Recognition should be made that permanent impacts will be more significant than those of a temporary nature. For example, the impact may only occur during a single phase of the project construction and may be temporary. Alternatively, the impact may be long-term or irreversible and hence permanent. It is, therefore, important that the assessment distinguishes between permanent and temporary impacts'*.

12.64 All the traffic and transport effects associated with the Proposed Project would be temporary effects. Following the calculated assessment, residual effects will be reported considering professional judgement on the duration over which effects are likely to be experienced, in addition to other link specific factors.

Significance of Effects

12.65 The matrix below (Table 12.3) depicts how the significance of effects would be determined.

Table 12.3: Significance of Effects

Sensitivity of Link	Magnitude			
	High	Medium	Low	Very Low
High	Major– **Significant**	Major– **Significant**	Moderate– **Significant**	Minor– **Not Significant**
Medium	Major– **Significant**	Moderate– **Significant**	Minor– **Not Significant**	Negligible – **Not Significant**
Low	Moderate– **Significant**	Minor– **Not Significant**	Negligible – **Not Significant**	Negligible – **Not Significant**
Very Low	Minor– **Not Significant**	Negligible – **Not Significant**	Negligible – **Not Significant**	Negligible – **Not Significant**

Presentation of Results

12.66 In addition to the presentation of the potential effects of construction traffic on the IEMA criteria listed above, it is considered that it will be necessary to consider the potential effects of the construction phase traffic on the safe operation of the highway network within the Area of Search for Permanent and Temporary Works.

12.67 Whilst it is not proposed to produce a separate Transport Assessment, it is proposed to include technical appendices to the Environmental Assessment Report to address, amongst others, the requirement for any modelling of junctions (where required), proposed traffic assignment methodology and/or detailed analysis of collision history within the local highway network. The exact requirements are subject to further scoping discussions with the relevant highway authorities.

Proposed Mitigation Measures

12.68 Management and mitigation measures to limit the impact on the local highway network will be developed as appropriate. Mitigation will be included in a Construction Traffic Management Plan (CTMP). It is anticipated that measures may include:

- Recommended routes to/from the site for HGVs;
- Vehicle movements distributed throughout the day;
- Temporary signage providing warnings of site traffic / site accesses;
- Traffic marshalling;
- Vehicle debris control to ensure the cleanliness of the public highway; and
- Measures will also be proposed to manage any impact on the public footpaths, national trails and national cycle route which may be affected by the Proposed Project.

Issues to be Scoped Out

12.69 It is not envisaged that an assessment of parking will be undertaken. Parking will be provided within site working areas to ensure that there are no issues with inconsiderate parking impacting on local roads and residents.

12.70 It is not envisaged that a separate Transport Assessment will be undertaken. Rather, assessment outside of the typical scope of the traffic assessment will be dealt with within technical appendices as required by the highway authorities. It is expected that these separate technical appendices may include; junction modelling (where required), detailed accident analysis, and a proposed construction traffic assignment methodology.

12.71 Vehicle movements associated with access to the SEC and tunnel head houses during the operational phase are likely to be negligible and therefore are proposed to be scoped out of the assessment.

12.72 Underground cables have a life expectancy of approximately 40 years. After this time the cables would require replacing. It is expected that the decommissioning activities would be less intensive than the construction phase activities. One of the main reasons for this is that the removal of spoil material represents a significant construction traffic generator. The decommissioning phase would not require the transportation of aggregate material and this is therefore expected to significantly reduce associated HGV movements. It is therefore proposed to scope out the decommissioning phase from the traffic and transport assessment.

Overview of the Likely Significance of Effect

12.73 Given that there are no highly sensitive links within the Area of Search for Permanent and Temporary Works, and all construction traffic will lead to temporary effects rather than permanent ones, it is not considered likely that significant traffic effects will be realised as a result of the construction of the Proposed Project for almost all of the links. There are three links categorised as having a medium sensitivity to changes in traffic flow. One of these links is the A497 between the Minffordd Roundabout and the unclassified road proposed to serve the western tunnel head house; a link with a number of residential dwellings directly fronting the carriageway. This link may experience increased levels of traffic and HGV movements during the construction period, particularly during tunnelling works. However, the assessment of effects will consider other factors such as the specific characteristics of the link, the duration over which effects may be realised and any proposed mitigation, before a final residual effect is reported which is not currently anticipated to be significant.