12.0 TRAFFIC AND TRANSPORTATION

12.1 INTRODUCTION

This chapter assesses the traffic impact that the proposed transmission cable connection from the existing Belcamp 220kV Substation to the permitted Darndale 110kV Substation will have on the surrounding road network during construction and operation. The proposal includes the provision of a c. 2 km long double circuit 110kV underground cable between the two substations, with a 1.2km section of the underground cable to be located within the road reserve.

In accordance with section 2 of Transport Infrastructure Ireland (TII)'s Traffic and Transport Assessment Guidelines (May 2014), a Traffic and Transport Assessment is recommended when the additional traffic generated by a development results in the traffic to and from the development exceeding 10% of the traffic flow on the adjoining road or 5% of the traffic on the adjoining road where congestion exists or the location is sensitive. The proceeding sections of this chapter will demonstrate that the traffic generation associated with this development lies below these thresholds. Therefore, this report provides a basic assessment of the traffic and transport related matters associated with the proposed development, and does not include a detailed traffic impact assessment of the junctions in the vicinity of the development.

12.2 METHODOLOGY

This chapter has been prepared taking the following documents into account:

- Dublin City Development Plan 2016-2022, Dublin City Council;
- TII Traffic and Transport Assessment Guidelines, 2014;
- Design Manual for Urban Roads and Streets (DMURS), 2013, Department of Transport, Tourism and Sport & Department of Environment, Community and Local Government;
- TII Project Appraisal Guidelines – Unit 5.3: Travel Demand Projections, 2016;
- Chapter 13 of the Environmental Impact Assessment to support planning application for Building B, O' Connor Sutton Cronin Consulting Engineers (sub-consultant input into overall EIS prepared by AWN), December 2016;
- Traffic and Transport Assessment to support planning application for Building A, Aecom, October 2015;
- Chapter 13 of the Environmental Impact Assessment Report to support planning application for Building C, AWN Consulting Ltd, May 2018; and
- Planning Application Details from www.dublincity.ie website relating to Butlers Chocolate Development Applications 2044/15; 3007/16; and 4019/17.

The methodology used to conduct the assessment includes:

1. Establishing baseline conditions – The existing conditions were recorded including existing site location and use, surrounding road network, public transport services, baseline (do-nothing) traffic volumes, and committed development proposals in area;
2. Defining the development – This includes size, use, access arrangements, parking, staffing, trip generation and distribution, etc. for the operational stages of the development. Details relating to the peak construction phase were also defined;
3. Assessing impact of the development – The impact of the operational phase of the development was stated without doing junction analysis;

4. The worst case construction traffic impact was also discussed for the peak construction traffic movements; and
5. Mitigation measures were then proposed to offset any impacts that may result from the develpment.

12.3 RECEIVING ENVIRONMENT

12.3.1 Existing Site Location and Use

The proposed route for the double circuit 110kV underground cable between the two substations is shown in Figure 12.1.

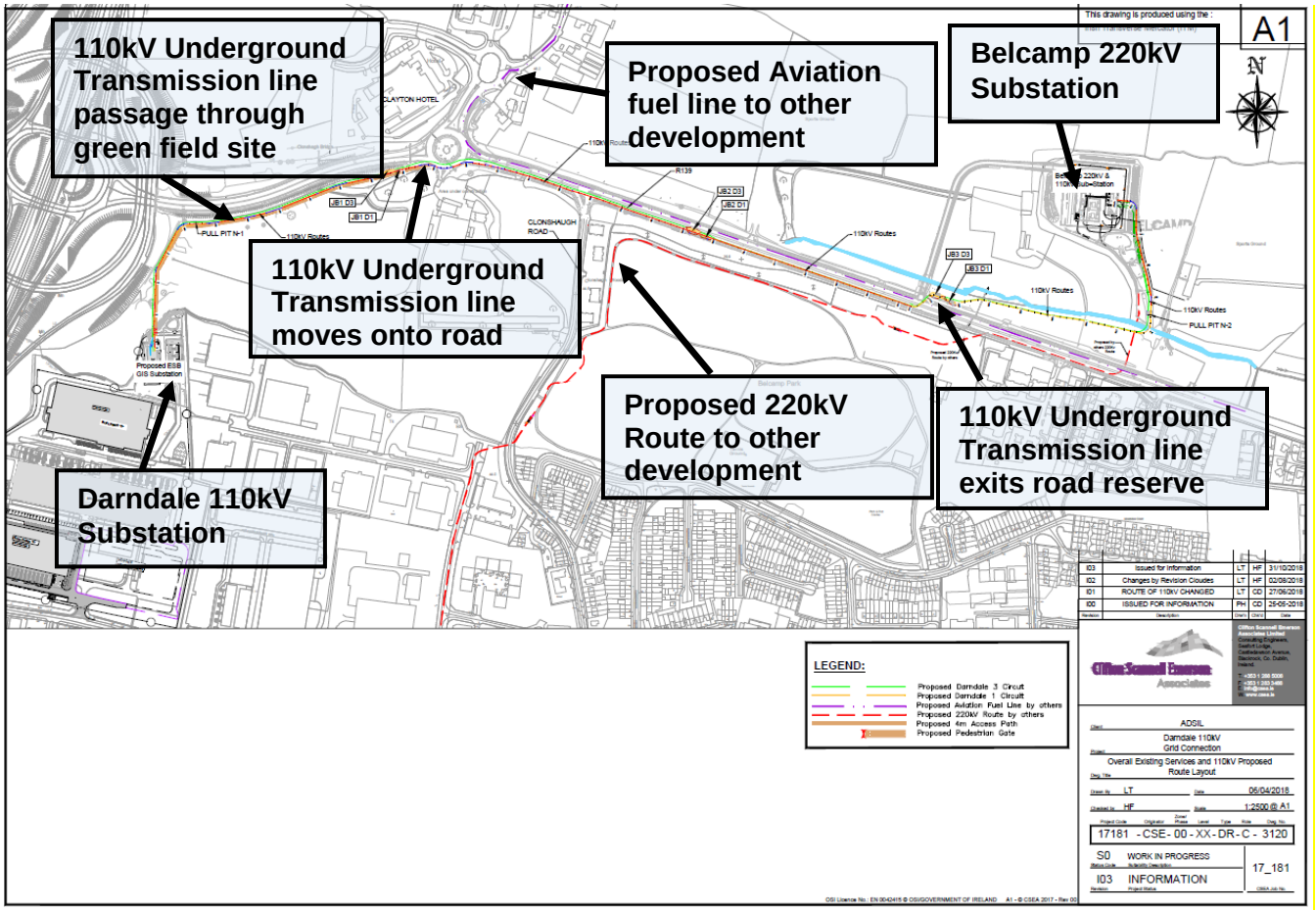

Figure 12.1 Proposed Route of110kV Underground cable

The Darndale 110kV substation (currently being constructed) is located on the northern section of the former Diamond Innovations site (Unit 1C), Clonshaugh Business & Technology Park, and adjacent lands, Dublin 17. Figure 12.2 shows that a number of data storage facilities are associated with the Clonshaugh site including Building A (currently operational), Building B (construction is well advanced) and Building C (permitted August 2018). Figure 12.2 also refers to 'indicative future development' in the south east area of the site. This is referred to as Building D to and planning permission is currently being sought for this building. All of these have been included together with the proposed development in order to consider the worst case scenario traffic impact.

There are currently two accesses to Clonshaugh site, one for construction (on the southern boundary of the site as per the original DIIO access gate) and the main

access and security control gate in the south western corner of the site (See Figure 12.2).

The Business Estate Road is located on the southern boundary of the site and connects the site to the rest of Clonshaugh Business Park, Oscar Traynor Road (R104) and Clonshaugh Road.

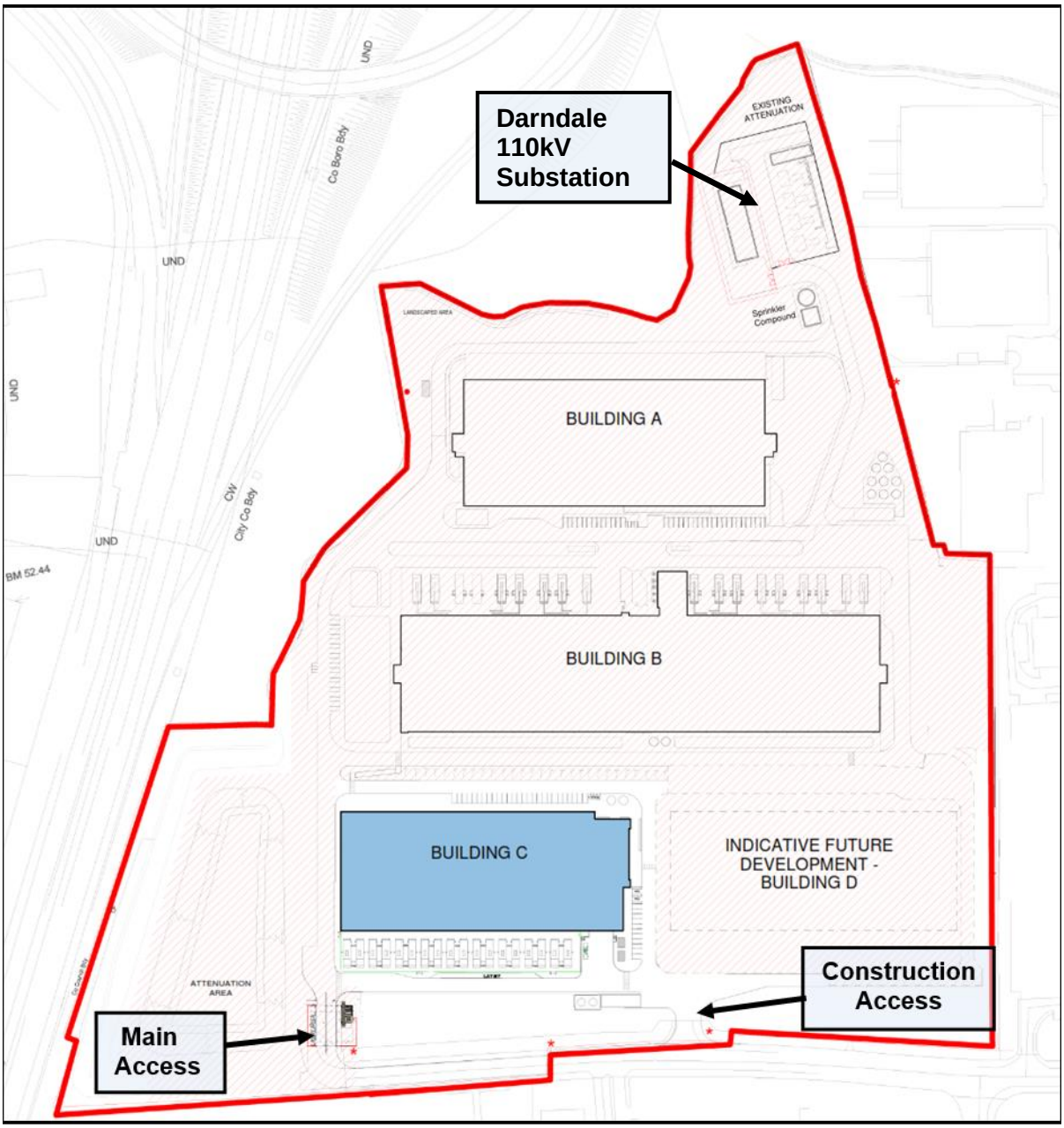

Figure 12.2 Proposed Site Layout showing Darndale 110kV Substation to the north of the site

12.3.2 Existing Road Network

The surrounding road network in the vicinity of the site includes the R139, Clonshaugh Road, the R104, the M50, the Access Road to the Industrial Estate, and the Business Estate Road.

12.3.2.1 R139

The R139 is a Regional Road, located north of Clonshaugh Industrial Estate. It is approximately 4.4 kilometres in length and has a posted speed limit of 60km/hr. It connects to the M1 and M50 (in the vicinity of the study area) at its west end and to the R809 and Hole in the Wall Road in Donaghmede at its east end.

Along the route for the proposed underground cable, the R139 provides two (3 metre) traffic lanes in each direction, with a 3 metre ghost island separating eastbound and westbound lanes between junctions, with this additional space in the

centre of the carriageway used to provide right turning lanes at the approach to junctions.

12.3.2.2 Clonshaugh Road

Clonshaugh Road is approximately 1.7km in length. It forms a T-junction with the R139 at its north end and forms a T-junction with Oscar Traynor Road (R104) at its south end. Approximately 110 metres of cycle lanes are provided on both sides of the road on the approach to Oscar Traynor Road.

Clonshaugh Road provides one traffic lane in each direction (approximately 3.5m lanes in each direction) and has a posted speed limit of 50km/hr.

12.3.2.3 R104

The R104 is a Regional Road, located south of Clonshaugh Industrial Estate. It is approximately 7.3 kilometres in length and has a posted speed limit of 60km/hr. It connects to the R132 in Santry at its west end and to the R105 in Bayside at its east end.

In the vicinity of the site, it is called Oscar Traynor Road east of the Industrial Estate's Access Road and Coolock Lane west of the Industrial Estate's Access Road

Along Oscar Traynor Road, the R104 provides one traffic lane in each direction. Along Coolock Lane, the R104 provides one traffic lane and one time-plated combined bus and cycle lane (07.00-10.00;12-19.00, Monday–Saturday) in each direction along its length.

12.3.2.4 M50

The site of the Darndale 110kV Substation and a section of the route of proposed the underground cable is bounded to the west by the M50 motorway. The M50 is an orbital ring road around Dublin City with interchanges at all radiating National Primary Roads from the M1 to the North and the M11 to the South. In the vicinity of the site, the M50 provides three lanes in each direction, with access to the R104 and M1 via junctions 2 and 3; respectively. It has a posted speed limit of 80km/hr through this area.

12.3.2.5 Industrial Estate's Access Road

The Industrial Estate's Access Road is a private road, approximately 1km in length. It forms a T-junction with The R104 at its south end and is a dead-end at its north end. Security barriers are provided approximately 100 metres from its south end.

In the vicinity of the site including the Darndale 110kV Substation, the Industrial Estate's Access Road provides one lane in each direction (approximately 4m lanes in each direction) and has a posted speed limit of 25km/hr.

The Industrial Estate's Access Road forms a T-junction with the Business Estate Road at a point approximately 680 metres north of its south end.

12.3.2.6 Business Estate Road

The Business Estate Road is a private road, approximately 725 metres in length. It forms a T-junction with the Industrial Estate's Access Road at its east end and connects to the main site access to the Darndale 110kV Substation development at its west end.

In the vicinity of the site, the Industrial Estate's Access Road provides one lane in each direction (approximately 4m lanes in each direction) and has a speed limit of 25km/hr.

12.3.3 Existing Public Transport Services

The site of the Darndale 110kV substation is currently serviced by Dublin Bus, with services 27B and 17A stopping in the vicinity of the site.

- The 27B bus stops 1.6 kilometres from the site along the R104 for most services, with the service stopping at a bus stop located approximately 550 metres from the site along the Business Estate Road three times a day on weekdays. It provides services between Harristown and Eden Quay via Swords Road, Malahide Road, and Fairview, with the first weekday, Saturday and Sunday services departing at 06:30, 06:40 and 08:50; respectively. The last weekday, Saturday and Sunday services depart at 23:30. Buses typically operate on 20 minute intervals Monday-Saturday, with less frequent services provided on Sundays. Buses also operate every 10-15 minutes during peak times on Monday to Friday.
- The 17A bus stops approximately 1.6 kilometres from the site along the R104. It provides services between Kilbarrack and Blanchardstown Centre via Oscar Traynor Road, Coolock Lane, Finglas Village, and Snugborough Road, with the first weekday, Saturday and Sunday services departing at 06:20, 06:30 and 09:00; respectively. The last weekday, Saturday and Sunday services depart at 23:30. .Buses operate on 15 minute intervals during peak periods, with services less frequent during off-peak times and on weekends.

It should be noted that there are currently no bus services operating on the R139.

With respect to future public transport infrastructure, the most relevant project, in terms of proximity to the proposed site, is the proposed bus rapid transit system referred to as Swiftway. It is anticipated that the Clongriffin to Tallaght Bus Rapid Transit (BRT) route will include a stop in Coolock, located adjacent to the R104/Malahide Road junction.

12.3.4 Existing Traffic Volumes

There is currently a TII traffic counter located along the R139, between Clonshaugh Road and the Belcamp 220kV Substation (see Figure 12.3 below). The information obtained from this counter is considered sufficient to conduct the assessment, with no additional counts required along the R139 for the following reasons:

- The counter is located along the on-road section of the underground cable's proposed route and provides traffic information through this area;
- Any works requiring the closure of a traffic lane will be conducted at night;
- Any impacts will generally relate to construction of the underground cable, with virtually no operational traffic required following completion of the works (inspection by 2 personnel typically every 3 years); and
- Any impacts will occur over a short construction period

Traffic Counter data was analysed between 10/04/17 and 10/04/18 to get typical traffic data recorded along the R139 for the year to date.

The Annual Average Daily Traffic (AADT) recorded between these dates was 38,334 vehicles (i.e. 24hr data). Of these vehicles:

- 8532 vehicles were recorded between 7pm and 7am
- 7407 vehicles were recorded between 7pm and 6am
- 2775 vehicles were recorded between 10pm and 6am
- 1482 vehicles were recorded between 12am and 6am;

The data also showed that the am peak hour typically occurred between 07:00 and 08:00, with an average am peak two-way volume of 2945 vehicles recorded on workdays.
The pm peak hour typically occurred between 16:00 and 17:00, with an average pm peak two-way volume of 2964 vehicles recorded on workdays.

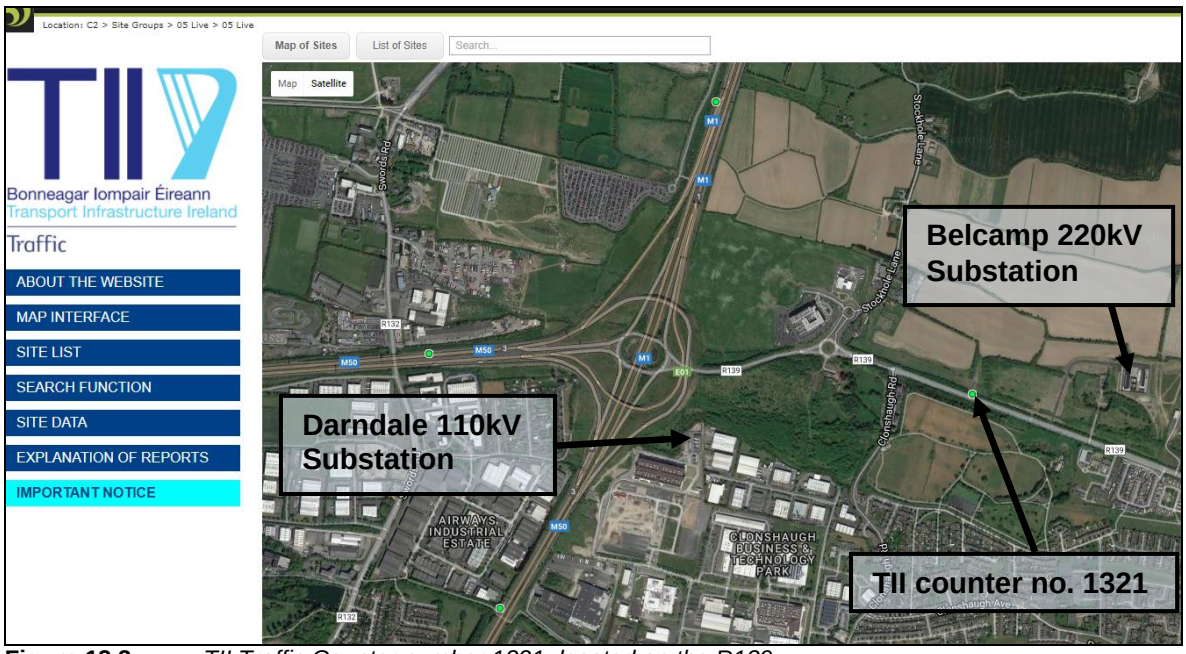

Figure 12.3 *TII Traffic Counter number 1321, located on the R139*

12.3.5 Proposed Future Development in the Area

Surrounding Development
There are a number of developments in the area surrounding the site that have recently had planning permission approved. Table 3.1, provided in Chapter 3 of this EIA Report, provides details on relevant planning applications that have been approved in the Dublin City Council Local Government Area. While this table provides details on many development applications, given the fact that the operational phase of the current underground cable development will add negligible trip generation (circa one return vehicular trip every 3 years) to the area, the trip generations associated with these developments are of minor significance for the purpose of this chapter.

12.4 CHARACTERISTICS OF THE DEVELOPMENT

12.4.1 General Description and Use

It is proposed to provide an underground cable from the permitted 110kV Darndale Substation (currently under construction) to the existing Belcamp 110kV and 220kV Substation located c.1.5 km to the north-east of the site (as the crow flies).

Travelling away from the approved Darndale 110kV substation (currently under construction), the underground cable follows the periphery of the green field site, initially north for a distance of approximately 180m, before realigning east for a further distance of approximately 430m. From here it enters the road reserve on the west side of the roundabout adjacent to the Clayton Hotel, . The proposed route then

turns eastwards and runs along the M50/R139 before entering the Belcamp Substation site from the south.

The design of the underground cable is currently at an early stage but it is proposed that it will comprise a double 110kV circuit installed underground in HDPE ducting. The 110kV cables will be a standard XLPE (cross-linked polyethylene) copper cable.

The installation of the HDPE ducting will require the excavation of one or two trenches along the route; one trench for Circuit Belcamp 1 and one trench for Circuit Belcamp 2. The trench will typically run parallel to each other along the length of the route, the separation of the 2 circuits will vary from 500mm to c. 3m depending on the existing ground conditions and existing underground services. For the purposes of this assessment, reference to the 'grid connection route' includes both trenches.

The optimum depth of excavation required to facilitate installation of the ducting is 2m below ground level (bgl) and the optimum width of each trench is 1m, however this may vary depending on ground conditions and existing services and will be further assessed during the planning process for construction of this underground cable.

A route selection assessment has been carried out to determine the most appropriate route for installation of the underground cable. This included an engineering feasibility study, financial feasibility study and a high-level environmental appraisal of the route options. The route options considered are presented in Figure 16.1 in Chapter 16 i.e. Cumulative Impact Assessment. It has been determined that the most appropriate route is from the 110kV Substation on site towards the north to the boundary with the M50 via neighbouring 3rd party lands (Referred to as Route Option 2). The overall route is c. 2 km long and construction of the underground cable is expected to last for c. 19 weeks.

Once constructed, the underground cable will not require any staff to operate it. Instead, two ESB maintenance staff will carry out a routine inspection of the asset one year after completion and once every three years thereafter.

12.4.2 Trip Generation

Following completion of the 110kV underground cable, vehicular trips typically in the order of one return light vehicle trip every 3 years (apart from the initial single return LV trip taken to inspect the asset one year after completion) will be required for maintenance.

12.4.3 Modal Choice

For the purpose of this report, a worst-case scenario has been assumed for traffic generation by assuming all trips to the site are by private car or HGV.

12.4.4 Trip Distribution

It has been assumed that all trips to the site will be new trips (i.e. trips that would not appear on the road network without the development). This represents the worst case scenario for trip generation.

12.4.5 Trip Assignment

During construction of the western off-road section of the 110kV underground cable, construction traffic will access the site (green fields) via the Collen site compound.

The Collen site compound will be located on the south east area of the overall site also containing the 110kV Darndale substation, with access via the construction site access shown in Figure 12.2. It is expected that the origins and destinations of traffic to/from the site compound will continue to match the distribution of traffic currently accessing Clonshaugh Industrial Estate.

During construction of the on-road and eastern off-road section (in the vicinity of the Belcamp 200kV Substation) of the 110kV underground cable, construction traffic will access the site via the R139. It is assumed that construction vehicles will match the distribution of traffic currently travelling on this road.

It is assumed that all operational/maintenance vehicles will travel to and from the site via similar routes discussed above in relation to construction traffic, with no need to stop at the Collen site compound en route to inspect the western off-road section of the underground cable.

12.4.6 Parking

12.4.6.1 Car parking provision

Following completion of the 110kV underground cable, it is anticipated that two staff will travel to the site in one vehicle one year after completion to inspect the asset and once every three years thereafter. Therefore, no car parking is proposed for the operational phase of development.

12.4.6.2 Cycle parking provision

Following completion of the 110kV underground cable, it is anticipated that two staff will travel to the site in one vehicle one year after completion to inspect the asset and once every three years thereafter. Therefore, no cycle parking is proposed for the operational phase of development.

12.4.7 Pedestrian Facilities

No access will be required by pedestrians to the underground cable following completion of the works, apart from two ESB staff, who may walk sections of the route while carrying out testing of the infrastructure, typically once every 3 years. Therefore, no pedestrian facilities are proposed as part of this development.

12.5 POTENTIAL IMPACTS OF THE DEVELOPMENT

12.5.1 Impact Analysis – Operational Phase

One return light vehicle trip will be generated once every three years by ESB staff for maintenance purposes, apart from the initial inspection which will be carried out after one year, generating a return light vehicle trip to and from the site.

Two-way am and pm peak hour workday flows are currently in the order of 2945 and 2964 vehicles; respectively; on the R139.

This demonstrates that the traffic impact of the operational phase of the development is ***long-term***, ***neutral*** and ***imperceptible***, with the development operational traffic volumes substantially below the thresholds stated in the TII Guidelines for Traffic and Transport Assessments, 2014 for junction analysis.

12.5.2 Environmental Impact

As stated above, the proposed development will not generate a significant volume of additional vehicular traffic during construction (see Section 12.5.3 below) or operation. The level of increase is not likely to have any adverse transport-related environmental effects in terms of noise, air quality, vibrations, etc. The impact of the construction period will be ***short-term***, ***negative*** and ***not significant*** in nature.

12.5.2.1 Road Safety

Collision Data

Table 12.9 shows collision data recorded within the study area for the 5 most recent years of available data. The study area includes a 1.7km section of the R139 from its junction with the M1 to the point where the proposed underground cable crosses the R139 to enter to access the Belcamp Substation, the Clonshaugh road, and a 270 metre section of the R104 between the Clonshaugh Business and Technology Park and the Clonshaugh Road.

All accident records taken between 2010 and 2014 within the study area defined above have been included in our assessment (see Figure 12.4, for area captured in analysis). Collision data was sourced from the RSA Irish Road Collision database (http://www.rsa.ie/RSA/Road-Safety/Our-Research/Collision-Statistics/Ireland-Road-Collisions/).

A total of 14 accidents were recorded in the study area. Twelve of these accidents were minor in severity and two were serious. No fatalities were recorded.

The most common accident type recorded (50% of total) was a pedestrian related collision. 14% of accidents were rear end type collisions, 14% were head-on conflicts, 7% were angle; right turn and a further 7% were classed as ‘other’.

The two highlighted data entries relate to accidents recorded at the junction of the R104 and the access road to the Clonshaugh Business and Techology Park.

Both of these collisions were minor in severity. The first accident recorded involved a collision between two cars, and is a rear-end/straight type accident. It was recorded on a Tuesday between the hours of 16:00 and 19:00 in 2010 and one casulty resulted from the collision. The second accident recorded involved a collision between a car and a pedestrian, and is a pedestrian type accident. It was recorded on a Thursday between the hours of 10:00 and 16:00 in 2011 and one casulty resulted from the collision.

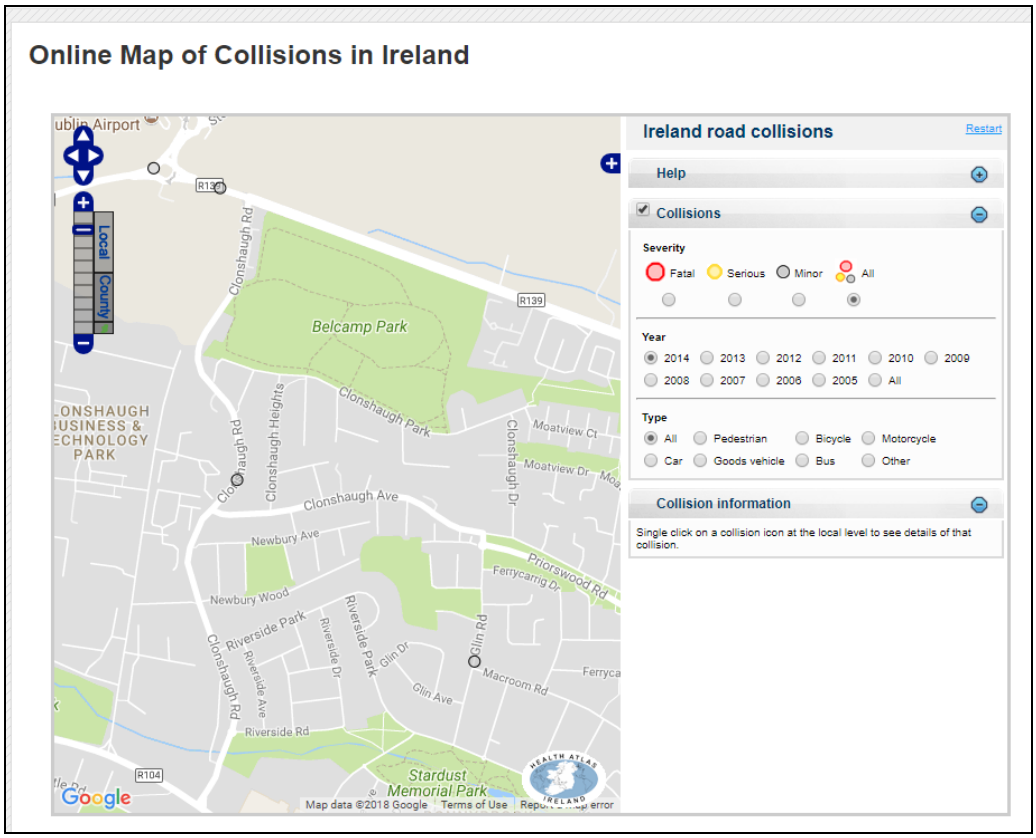

Figure 12.4 RSA Collision Map showing extent of the study area captured in data for analysis

Location	Severity	Road User(s)	Accident Type	No. Casualties	Year	Day	Time	Speed
Oscar Traynor Rd/ R104 – at industrial estate access road, where left slip from access road merges onto R104	Minor	Car	Rear End/ Straight	1	2010	Tues	4-7pm	50km/hr
Oscar Traynor Rd/ R104 -30m west of Clonshaugh road	Serious	Bus/Pedestrian	pedestrian	1	2010	Sun	7-11pm	50km/hr
Oscar Traynor Rd/ R104-junction with Clonshaugh road	Minor	Car	Angle, right turn	1	2010	Wed	7-11pm	50km/hr
Oscar Traynor Rd/ R104-junction with Clonshaugh road	Minor	Car/Pedestrian	Pedestrian	1	2010	Tues	10-4pm	60km/hr
Coolock Lane/Oscar Traynor Rd (R104) – at junction with industrial access road	Minor	Car	Pedestrian	1	2011	Thurs	10-4pm	60km/hr
North approach (on Stockhole Lane) to roundabout of R139 and Stockhole Lane	Minor	Bus	Single Vehicle Only	3	2012	Sat	7-11pm	50km/hr
Clonshaugh Rd -40m south of the R139	Serious	Car	other	6	2012	Sun	7-11pm	50km/hr
R104-west approach to its junction with Clonshaugh Rd	Minor	car	pedestrian	1	2012	Tues	10-4pm	50km/hr
R139 – 30m east of Clonshaugh Rd junction	Minor	Bus	Pedestrian	1	2013	Sat	11-3am	50km/hr
Oscar Traynor Rd (R104)/ Clonshaugh Rd Junction	Minor	Car	Head-on conflict	1	2013	Tues	7-11pm	50km/hr
Oscar Traynor Rd (R104)/ Clonshaugh Rd junction	Minor	Bus	Pedestrian	1	2013	Sat	11-3am	50km/hr
West approach (on the R139) to roundabout of R139 and Stockhole Lane	Minor	Car	Head-on conflict	1	2014	Tues	7-10am	60km/hr
R139 - 80m west of Clonshaugh Road	Minor	Goods Vehicle	Pedestrian	1	2014	Tues	7-10am	60km/hr
Clonshaugh Rd -750m south of the R139	Minor	Bus/car	Rear-end/Straight	4	2014	Mon	11-3am	60 km/hr

Table 12.1 Accident Data for Study Area

12.5.3 Construction Traffic

It is likely that the proposed provision of the 110kV underground cable between the existing Belcamp 220kV Substation and the permitted Darndale 110kV Substation (currently being constructed) will take place over a period of approximately 19 weeks. It is estimated that the civil works will take approximately 9 weeks, with a further 10 weeks estimated for cable installation, jointing and testing. In general, the impact of the construction period would be short-term in nature.

Construction traffic would consist of the following:

- Private vehicles belonging to site construction staff and professional staff; and
- Excavation plant and dumper trucks used for site development works.

Construction traffic has been estimated based on contractor experience of similar underground cable installation works, taking into account the proportion of the underground cable to be installed off-road and the proportion of the underground cable to be installed along the R139 carriageway.

The off-road section of the underground cable (approximately 900m in length) will be installed between the hours of 8am and 6pm. During installation, staff will arrive on site at approximately 7am and take circa 1 hour to mobilise before commencing works.

The on-road section of the route extends 1.2km along the R139 beneath the nearside westbound lane. This would require closure of the nearside westbound lane (staged to include approximately 100m sections at a time) to facilitate the works. The 15 metre section of the underground cable that crosses the carriageway just south of the Belcamp 220kV Substation will require the staged closure of two westbound lanes and two eastbound lanes for short periods to facilitate the works. Traffic management measures will be put in place such that one lane will remain open in each direction during this element of work.

All works requiring the closure of one or more traffic lanes will be carried out at night, between the hours of 7pm and 6am.

In general, the civil works element of work will require a higher number of staff and construction vehicles compared to the cable installation, jointing and testing. The following construction data has been used to estimate peak daily construction traffic:

- Average construction staff: 10-16;
- Peak construction staff (peak staff levels during Civil Works): 30;
- Peak cars/day: 2
- Peak HGVs/day: 4; and
- Peak LGVs/ day: 2.

According to traffic data recorded at TII traffic counter number 1321 (located on the R139 between the Clonshaugh Road and the Belcamp 220kV substation), the two-way AADT recorded between 10/04/17 and 10/04/18 is 38,334 vehicles. However, the R139 recorded two-way flows of 7,407 vehicles during the 11 hour period between 7pm and 6am proposed to carry out the works.

In accordance with V5, S1, Part 3 TA/79/99 of Chapter 3 – Determination of Urban Road Capacity of the DMRB, the R139 can be categorised as a UAP1 ~=14.6m. Table 2 of this document suggests that the R139 can facilitate 5083 vehicles per hour (3050 in the busiest direction of travel and 2033 vehicles in the opposite direction, assuming a 60/40 directional split).

Closing the nearside westbound lane would reduce the capacity of westbound traffic from 3050 vehicles per hour to 1320 vehicles per hour. Traffic travelling eastbound would continue to operate as normal and these lanes would retain their existing capacity.

As mentioned previously, Traffic Counter data was analysed between 10/04/17 and 10/04/18 to get typical traffic data recorded along the R139 in the vicinity of the on-road section of the underground cable route for the year to date.

During this period, 7,407 vehicles were recorded on average during the 11 hour period between 7pm and 6am (proposed construction hours for the underground cable). During this 11 hour period, 3761 vehicles were recorded travelling eastbound and 3635 vehicles were recorded travelling westbound.

7pm to 8pm was found to be the busiest construction working hour within the 11 hour period (i.e. worst case scenario for the lane closure), with 1987 two-way vehicles travelling on the R139. Westbound traffic accounted for 927 of these vehicles. As mentioned previously, the closure of the nearside westbound lane would reduce the capacity of westbound traffic from 3050 vehicles per hour to 1320 vehicles per hour. Thus, the single westbound lane remaining would be able to accommodate the busiest traffic hour within the 11 hour construction period, with 30% spare capacity.

The element of work which would result in the the most significant reduction in capacity on the R139 is the installation of the 15 metre section of the underground cable that crosses the carriageway just south of the Belcamp 220kV Substation. This element of work will require the two-part staged closure of the carriageway and will be managed such that at least two lanes will remain open at any given time, with one lane open in each direction.

In accordance with V5, S1, Part 3 TA/79/99 of Chapter 3 – Determination of Urban Road Capacity of the DMRB, an hourly capacity of 2200 vehicles could be accommodated with a 6.75 metre wide carriageway with one lane in each direction. Therefore the 1987 vehicles travelling on the R139 during the busiest hour of the construction period could be accommodated if the number of lanes on the R139 was reduced to two, with 9.7% spare capacity.

Therefore the overall impact of the construction phase is considered ***temporary negative*** and ***not significant.***

12.5.4 Do Nothing Scenario

The do nothing scenario would have no impact on traffic or transportation in the area.

12.6 REMEDIAL AND MITIGATION MEASURES

12.6.1 Construction Phase

The following measures will be put in place during the construction works:

- The contractor will be required to provide wheel cleaning facilities, and regular cleaning of the main access road;

- Temporary car parking facilities for the construction workforce (10 spaces) will be provided within the site and the surface of the car park will be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining roads;
- Monitoring and control of construction traffic will be ongoing during construction works. Construction traffic will minimise movements during peak hours, with all works requiring access to the R139 carriageway to be conducted between the hours of 7pm to 6am; and
- Construction Traffic routes minimising traffic impact on surrounding residential development will be used by construction vehicles.

12.6.2 Operational Phase

The potential traffic impact of the development was found to be long-term, neutral and imperceptible, with the development operational traffic volumes significantly below the thresholds stated in the TII Guidelines for Traffic and Transport Assessments, 2014 for junction analysis. Therefore, no junction modifications are recommended on the public road to facilitate the proposed development.

12.7 PREDICTED IMPACTS OF THE DEVELOPMENT

Mitigation measures (discussed in Section 12.6) will be put in place to offset any potential traffic impacts of the development. Therefore, the predicted impact of the development will be ***temporary***, ***negative*** and ***not significant*** for the construction phase and ***long-term, neutral*** and ***imperceptible*** for the operational phase.

12.8 RESIDUAL IMPACTS

The residual traffic impacts of the development will be neutral and imperceptible.
The cumulative impact assessment is addressed in Chapter 15 of this EIA Report.

Interactions are addressed in Chapter 16 of this EIA Report.

12.9 REFERENCES

- Dublin City Development Plan 2016-2022, Dublin City Council;
- TII Traffic and Transport Assessment Guidelines, 2014;
- Design Manual for Urban Roads and Streets (DMURS), 2013, Department of Transport, Tourism and Sport & Department of Environment, Community and Local Government;
- TII Project Appraisal Guidelines – Unit 5.3: Travel Demand Projections, 2016;
- Chapter 13 of the Environmental Impact Assessment to support planning application for Building B, O' Connor Sutton Cronin Consulting Engineers (sub consultant input into overall application provided by AWN), December 2016;
- Traffic and Transport Assessment to support planning application for Building A, Aecom, October 2015; and
- DMRB Volume 5, Section 1, Part 3 TA/79/99 – Traffic Capacity of Urban Roads.