TECHNICAL APPENDIX 5 – CONSTRUCTION TRAFFIC MANAGEMENT PLAN

22/09/2023

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EXECUTIVE SUMMARY

5.1 This Construction Traffic Management Plan (CTMP) outlines the overall framework for managing the movement of construction and delivery traffic to and from the proposed Coolshamrock Substation, as well as considering the type of traffic it will generate. The traffic assessment for the operational and decommissioning phases is also considered.

5.2 The CTMP considered parts of the guidance which are suitable for this project, namely, to include details of the existing conditions (**Planning Reference 22/586**) and issues relating to the Proposed Development.

5.3 Impacts from the operational phase of the site, consisting of between 20-40 LGVs per year, will be below the threshold for a Traffic Impact Assessment, as stated in the NRAs Traffic and Transport Assessment Guidelines.

5.4 The overall volumes of traffic generated by the Proposed Development during the construction period are considered to be quite low. During the anticipated four-month construction period, a total of 554 HGV deliveries will be made to the Application Site. During the peak construction period there will be an estimated maximum of 20 daily Heavy Goods Vehicles (HGVs) deliveries.

5.5 The new access point is designed in accordance with the Geometric Design of Junctions DN-GEO-030601 and swept path analysis showing the largest construction vehicle entering and exiting the site entrance points which confirms that the design is suitable. As per (**Figure 5.2, Appendix 5A**), to facilitate the new access point, 18m of hedgerow will need to be removed. These remedial works were included as part of the adjacent solar farm application (**Planning Ref: 22/586**).

5.6 The delivery vehicles will travel along the M18, which is located to the southwest of the Application Site. Vehicles will exit the M18 at Junction 11 (Quin) onto the L3148 in a northeast direction for approximately 3.5km, before turning left and immediately left again onto an unnamed road. Vehicles will follow this road for approximately 0.8km before taking a right-hand turn into the site access point.

5.7 The abnormal load route will be from a different direction due to a bridge having a maximum height of 4.11m along the haul route above. Vehicle wills exit the M18 at junction 12 (Ennis) and head in a northeast direction for approximately 3km before taking a right hand turn onto the R469. The R469 will be continued along for approximately 3.5km before taking a right hand turn onto the L3148 and travelled along for approximately 1.8km before taking a right hand turn onto an unnamed road. Vehicles will follow this road for approximately 0.8km before taking a right-hand turn into the site access point.

[1] Transport Infrastructure Ireland, Geometric Design of Junctions (April 2017)

5.8 The County Development Plan states that visibility splays of 160m by 3m are standard for roads with speed limits of 85km/h. However, as outlined above, the speed limit is unlikely to be achieved along this stretch of the road due to the limited visibility and narrow nature of the road. Therefore, it is proposed that a relaxation by one step be made so that the Standard Stopping Distance (SSD) be lowered to 120m in the 'y' direction which is the SSD for a road with an average speed of 70km/h. The visibility splay of 120m by 3m is achievable with the realignment of 31m of hedgerow and the trimming of 55m of hedgerow. Furthermore, the splay dimensions of 120m x 3m and remedial works were included as part of the adjacent solar farm application (**Planning Ref: 22/586**).

5.9 A dedicated person will be appointed for the management of the delivery booking system during the construction stage.

- The Applicant will conduct a pre- and post-construction condition survey 200m either side of the site access point. The Applicant is liable to repair any damage to the public roads attributed to the construction of the Proposed Development. This should be conditioned as part of any planning consent.

5.10 The CTMP sets out a variety of specific mitigation measures that will be implemented during construction that will minimise the impact of the construction traffic on the environment and local communities; the following provides a brief summary of each:

- Limitations on working times and HGV scheduling;
- Site security and signage; and,
- Measures to control emissions of dust and other airborne contaminants.

5.11 This Construction Traffic Management Plan conforms to the policies and objectives of the Clare County Development Plan 2023 – 2029 and the Design Manual for Roads and Bridges published by the National Roads Authority (NRA).

INTRODUCTION

Background

5.12 Neo Environmental Ltd have been commissioned by Renewable Energy Systems (RES) Ltd ("the Applicant") to undertake a Construction Traffic Management Plan ("CTMP") for a Strategic Infrastructure Development ("SID") Application for a new 110kV Substation ("the Proposed Development") to feed into the existing Drumline-Ennis 110kV overhead line (OHL) circuit. The Substation and 110kV loop in infrastructure is situated within the townland of Coolshamroge, Ennis, Co. Clare ("the Application Site"). The Substation is to facilitate the Manusmore Solar Farm (**PA Ref: 20562**), the Manusmore Solar Farm Extension (**PA Ref: 21915**) and the Coolshamrock Solar Farm (**PA Ref: 22586**).

5.13 Please see **Figure 3, Volume 2** for the layout of the Proposed Development.

Development Description

5.14 Coolshamrock and Manusmore Solar Farms will feed into a new 110kV substation. The method of connection to the national grid for the new substation will be a looped connection into the existing Drumline – Ennis 110kV Circuit. 2 No. new OHL end towers will be constructed to facilitate connection to the existing OHL (see **Figure 3 and 11, Volume 2).** The application site will comprise of a 110/33kV substation which consists of 2 No. control buildings, a transformer compound, a high voltage (HV) switchgear compound, a customer MV compound and associated cabling. There is also 2. No underground 110kV cables, a cable access track and 2 No. overhead line towers.

5.15 The control buildings will consist of foundation works, block work, roofing, low voltage electrical fit out, medium voltage switchgear, cladding and building finishing works.

5.16 A power transformer, HV electrical equipment (4bays), lightning protection masts, communication mast, structural steel works, circuit breakers, current transformers, voltage transformers, busbars, surge arresters, cable sealing ends, disconnectors/earth switches, surge arrestors and post insulators will be installed in the Eirgrid HV Substation Compound.

5.17 The Customer MV Compound will consist of 2 No. capacitor banks, 1 No. reactor banks and associated circuit breakers (capacitor and reactor), 1 no. harmonic filter, resistor, pre-insertion resistor and 1 No. auxiliary transformer.

5.18 Palisade and concrete post and rail fencing will be erected around the compound for security/protection.

5.19 The 110kV loop in connection will connect the Drumline-Ennis 110kV overhead line (OHL) circuit to 2. Overhead line towers and 2. No associated 110kV underground cables and into the HV compound infrastructure. There is a cable access which branches from the consent solar tracks (P22568) to provide access to the cables and towers.

Site Description

5.20 The proposed Substation and 110kV loop in infrastructure is located within the townland of Coolshamroge, Ennis, Co. Clare. The proposed site is approximately 7km southeast of Ennis, 4.2km east of Clarecastle and 1.5km west of the smaller settlement Quin.

5.21 The Application Site in which the substation is proposed to be located comprises of 3 fields of relatively flat agricultural land. The Application site lies at an elevation of c. 26-29m AOD and covers a total area of c. 3.78 acres. The approximate Irish Grid Reference points (ITM) of the proposed substation are X 539777 and Y 674345. The proposed substation will be enclosed by palisade fencing measuring. Access to the proposed substation will be from a private lane off an unnamed local road to the south which is the same entrance point as for the Coolshamrock Solar Farm (PA Ref:22586).

Scope of the Assessment

5.22 The purpose of this CTMP report is to provide a framework for managing the movement of traffic to and from the Application Site, and to minimise the impact on the local road network during the construction period of the Proposed Development. The potential impact of traffic during the operation and decommissioning periods are also assessed.

5.23 The CTMP will provide details of:

- Traffic route identification and assessment;
- Swept path analysis; and
- Construction traffic management procedures.

5.24 This report is supported by the following appendices:

- Appendix 5A: Figures
  - Figure 5.1: Proposed Haul Route
  - Figure 5.2: Swept Path Analysis
  - Figure 5.3: Visibility Splay

Statement of Authority

5.25 This Construction Traffic Management Plan has been produced by Michael McGhee and Tom Saddington of Neo Environmental Ltd. Having completed a civil engineering degree in 2012, Michael has worked on over 1.5GW (approximately 50 individual sites) of solar farm Construction Traffic Management Plans across the UK and Ireland, as well as more detailed transport statements for major developments.

5.26 Tom has an undergraduate degree in Bioengineering and graduated with an MSc in Environmental and Energy Engineering in January 2020. He has been working on various technical assessments for numerous solar farms in Ireland and the UK.

LEGISLATION

5.27 The assessment has been collated and considered based on the following legislative and guidance context:

- Spatial Planning and National Roads Guidelines for Planning Authorities[2];
- National Roads Authority, Traffic and Transport Assessment Guidance[3];
- Design Manual for Roads and Bridges[4]; and
- TII Publications, online suite of Standards and Technical publications related to national road and light rail networks in Ireland[5].

Spatial Planning & National Roads Guidelines for Planning Authorities

5.28 The Spatial Planning and National Roads Guidelines for Planning Authorities document ("the Spatial Planning and Roads Guidelines") sets out planning policy considerations in relation to development affecting national primary and secondary roads.

5.29 Section 3.4 of the Spatial Planning and Roads Guidelines 'Traffic and Transport Assessments (TTA)' describes a TTA as *"a methodology used to assess the transport impacts of a proposed development, incorporating any subsequent measures necessary to ensure roads and junctions and other transport infrastructure in the vicinity of the development remain fit for purpose…"*

5.30 The Spatial Planning and Roads Guidelines indicate the following:

- "*The TTA should be written as an impartial assessment of the traffic impacts of the proposed development and it should not be seen to be a "best case" promotion of the development. All impacts, whether positive or negative, should be recorded.*
- *The level of detail included within the TTA should be sufficient to enable the planning authority and those making observations on the proposed development to follow all*

2 Department of Environment, Community and Local Government (2012) Spatial Planning and National Roads Guidelines for Planning Authorities. Available at: http://www.environ.ie/sites/default/files/migrated-files/en/Publications/DevelopmentandHousing/Planning/FileDownLoad%2C29322%2Cen.pdf

3 National Roads Authority (2014) Traffic and Transport Assessment Guidelines. Available at: http://www.tii.ie/tii-library/land-use-planning/Transport-Assessment-GuidelinesMay2014.pdf

4 National Roads Authority, The Design Manual for Roads and Bridges (2013). Found Here: http://www.tiipublications.ie/library/GE-INT-01003-02.pdf

5 Transport Infrastructure Ireland, TII Publications, online suite of Standards and Technical publications related to national road and light rail networks in Ireland, Found here http://www.tiipublications.ie/

stages of the assessment process, to know what assumptions have been made and to arrive at a similar set of results and conclusions.

- *The TTA should assist the developer and local planning authority in deciding if any adverse traffic impact identified is significant enough to require revision of the development proposal or whether the proposed response measures are sufficient to mitigate the impact of the development on the road network to acceptable levels. This is the fundamental test and is often regarded as the main purpose of a Traffic and Transport Assessment as related to road infrastructural considerations."*

5.31 Where proposed developments have the potential to impact upon national and non-national roads, a TTA should be submitted in support of the planning application.

Traffic & Transport Assessment Guidance

5.32 The Traffic and Transport Assessment Guidance produced by the National Roads Authority ("the NRA Guidance") aims to provide a framework to promote an integrated approach to development, which ensures that proposals promote efficient use of investment in transportation infrastructure, reduce travel demand and promote road safety.

5.33 The ("the NRA Guidance") states:

"A Traffic and Transport Assessment is a comprehensive review of all the potential transport impacts of a proposed development or re-development, with an agreed plan to mitigate any adverse consequences.

It is essential that the developer or promoter should provide a full and detailed assessment of how the trips to and from the development might affect the transport network. The assessment should be an impartial description of the impacts of the proposed development and should outline both its positive and negative aspects."

5.34 The trip generation from the operational phase of the Proposed Development will not reach the numbers required to justify a full Traffic & Transport Assessment. As per the NRA Guidance, a TTA is only necessary when traffic to and from the development exceeds 10% of the traffic flow on the adjoining road or 5% where congestion exists or the location is sensitive.

5.35 This CTMP will consider elements of the NRA Guidance which are relevant to this project, namely to include details of the existing conditions and issues relating to the Proposed Development.

Review of County Development Plan Policy

Clare County Development Plan 2023-2029 (CDP)

5.36 The Clare County Development Plan 2023 – 2029 provides a clear direction and focus for development over the development plan period, while setting the scene for ongoing growth in the context of the region and country as a whole.

5.37 Chapter 11 'Physical Infrastructure etc' contains policies in relation to access and movement in the county, with much of the emphasis on promoting sustainable measures for new developments. These policies are not relevant to this type of development as transport during the operational stage will be minimal.

5.38 The 'Development Management Standards & Guidelines' chapter of the CDP outlines standards and guidelines for access points on public roads. There is no specific guidance on access point design, however it states the following with regards to the entrance sight distance:

"In order to ensure that adequate visibility exists for drivers entering and leaving a dwelling site, it is necessary to create an envelope of visibility on either side of the centre line of the access. This is calculated by defining a setback along the centre line, known as the X distance, from a point on the edge of the hard surfaced roadway for a distance of 2.4metres or in the case of very lightly trafficked roads, a relaxation to 2 metres may be permitted. The Y distance is measured from a point on the near edge of the hard-surfaced roadway to its intersection with the centre line of the access. A line can then be drawn between the outer point of the Y distance to the setback on the X distance, thus producing a triangular envelope of visibility on either side of the access. The Y distance is determined as follows:

Design Speed of Major Road (kph)	120	100	85	70	60	50
"Y" Distance (metres)	295	215	160	120	90	70

It may be necessary to obtain the consent of adjoining landowners in order to achieve sight distances. Further information can be obtained from the National Roads Authority Design Standards for Roads and Bridges"

TRAFFIC ROUTE IDENTIFICATION AND ASSESSMENT

5.39 This delivery route and subsequent CTMP is based upon information provided by the Applicant as well as a thorough review of the local and national roads in the vicinity of the Application Site.

Site Access

5.40 The Application Site will be accessed from one new access point off the unnamed road to the south of the Application Site. There is no speed limit sign near the access point, however local roads generally have a speed limit of 80km/h. It was observed that vehicles were highly unlikely to travel at speeds up to the statutory speed limit of 80km/h near the site access point due to the limited visibility. This section of road is single carriageway and contains no carriageway edge or centre markings whilst it is not lit by public lighting. It is approximately 3m wide and has no pedestrian facilities along this section of road.

5.41 The new access point is designed in accordance with the Geometric Design of Junctions DN-GEO-030606 and swept path analysis showing the largest construction vehicle entering and exiting the site entrance points which confirms that the design is suitable, see **Figure 5.2 of Appendix 5A.** As per the drawing, to facilitate the new access point, 18m of hedgerow will need to be removed, these remedial works were included as part of the adjacent solar farm application (**PA Ref:22586**).

5.42 The CDP states that visibility splays of 160m by 3m are standard for roads with speed limits of 85km/h. However, as outlined above, the speed limit is unlikely to be achieved along this stretch of the road due to the limited visibility and narrow nature of the road. Therefore, it is proposed that a relaxation by one step be made so that the Standard Stopping Distance (SSD) be lowered to 120m in the 'y' direction which is the SSD for a road with an average speed of 70km/h. The visibility splay of 120m by 3m is achievable with the realignment of 31m of hedgerow and the trimming of 55m of hedgerow (See **Figure 5.4 of Appendix 5A**). Furthermore, the splay dimensions of 120m x 3m and remedial works were included as part of the adjacent solar farm application (**PA Ref:22586**).

5.43 The Applicant will conduct a pre and post-construction condition survey in line with Condition 5 of the adjacent solar farm application consent (**PA Ref:22586)**.

Internal Site Tracks

5.44 The access tracks that were included as part of the consented adjacent solar farm application (**PA Ref:22586)** will be used to allow access for the construction, operation, maintenance and decommissioning of the grid substation and associated infrastructure.

[6] Transport Infrastructure Ireland, Geometric Design of Junctions (April 2017)

5.45 A new cable access track will be constructed. Tracks will measure 4m wide with a 3.5m running width, however, this increases at bends. All new tracks will be unpaved and constructed from local stone. Geosynthetic reinforcement or soil stabilisation may be used to reduce the depth of track construction. The surface will be a compacted granular material (crushed rock) up to an approximate thickness of 0.3m, dependent on the ground conditions. Details of the cable access track construction can be found in **Figure 10** of the planning drawings that are submitted alongside this report.

5.46 The access tracks will be left in situ after completion of the construction phase, as they will provide:

- Access for the Proposed Development maintenance and repair works;
- Access for the Landowner; and
- Access for decommissioning of the Proposed Development.

5.47 Once the grid substation is decommissioned, unless required by the landowner and agreed with the council, all new access tracks will be removed.

Proposed Haul Route

5.48 The proposed haul route has been identified by considering the ability of the route to physically accommodate the required vehicles, in addition to the sensitivity of the route to potential disruption by the movements of traffic to and from the site.

5.49 The delivery vehicles will travel along the M18, which is located to the southwest of the Application Site. Vehicles will exit the M18 at Junction 11 (Quin) onto the L3148 in a northeast direction for approximately 3.5km, before turning left and immediately left again onto an unnamed road. Vehicles will follow this road for approximately 0.8km before taking a right-hand turn into the site access point.

5.50 The above haul route was included as part of the adjacent solar farm application (**PA Ref:22586**).

5.51 The abnormal load route will be from a different direction due to a bridge having a maximum height of 4.11m along the haul route above. Vehicles will exit the M18 at junction 12 (Ennis) and head in a northeast direction for approximately 3km before taking a right hand turn onto the R469. The R469 will be continued along for approximately 3.5km before taking a right hand turn onto the L3148 and travelled along for approximately 1.8km before taking a right hand turn onto an unnamed road. Vehicles will follow this road for approximately 0.8km before taking a right-hand turn into the site access point.

5.52 A map showing the proposed local access routes are presented in **Figure 5.1 of Appendix 5A**.

5.53 Autotrack analysis was carried out at a junction on the haul route for a transformer transport vehicle representing the largest vehicle that will be used to access the Application Site for the Proposed Development **(Figure 5.2: Appendix 5A).**

Route Assessment

5.54 This route assessment was conducted as a desk-based exercise. Where required, swept path analysis has been conducted using Autotrack software to model the movement of the most onerous load to determine what actions are required to address any issues identified.

5.55 As per the specifications provided, the most onerous loads for the purpose of the swept path is the delivery of the grid transformer. As part of the swept path analysis, the following vehicle was used:

- Transformer transport Vehicle of 16.5m in total length.

5.56 The exact dimensions of this vehicle and turning details can be found on the drawing in **Figure 5.2 of Appendix 5A.**

5.57 The analysis was conducted using Ordnance Survey Ireland (OSI) mapping data and a topographical survey.

5.58 No allowances have been made for the provision of independent driver-operated rear steering. The approved haulage operator for the project will confirm final vehicle types before construction begins.

5.59 As the Proposed Development will require an abnormal load, a separate abnormal load route has been proposed on **Figure 5.1: Appendix 5A**. This route has been chosen as there are no bridges, culverts or other structures that could be at risk of buckling under an abnormal load vehicle.

5.60 All traffic management and safety implications will be considered by suitably qualified and experienced personnel when arranging the transit of the loads and can be agreed through a suitably worded condition following planning approval. This transformer delivery is the only delivery associated with the Proposed Development which will be classed as an abnormal vehicle and all necessary permits will be agreed prior to the construction phase.

5.61 **Table 5-1** provides a brief commentary of the route analysis at specific points on the haul routes. These points can also be viewed on **Figure 5.2 of Appendix 5A.**

Table 5 - 1: Route Analysis

Ref	Manoeuvre Required	Analysis	Required Action	Swept Path Drawings
1	Vehicles will need to take a right-hand turn from the unnamed road into the site access point.	The new access point has been designed so that the largest construction vehicles can access the site.	18m of hedgerow removed as well as soil strip and land clearing for new access.	Figure 5.2 of Appendix 5A
2	Vehicles will need to take a left-hand turn and another left-hand turn at Ballyhannon South junction onto the unnamed road which the Application Site is accessed from.	The existing junction layout is sufficient for HGVs to manoeuvre onto the unnamed road at the Ballyhannon South junction.	N/A	Figure 5.3 of Appendix 5A

Summary of Enabling Works

5.62 As the proposal includes one new access point (see **Figure 5.2 of Appendix 5A**), enabling work will be required for access into the Application Site. This will include top soil stripping and land clearing as well as the removal of 18m of hedgerow. Design details of the access track can be found in **Figure 5 of Volume 2**.

5.63 To enable the required visibility at the site access, the following will be required:

- 55m of hedgerow trimming and 31m of realignment (in addition to the 18m of hedgerow removal to facilitate the new access tracks).

5.64 All work required for the access point was included as part of the adjacent solar farm application (**PA Ref:22586**).

CONSTRUCTION TRAFFIC MANAGEMENT

Construction Programme

5.65 Construction of the Proposed Development is anticipated to occur over a four-month period. During this period, there will be a combination of HGVs (for the component and material deliveries) and cars/vans (for construction staff) on site. HGV movements are expected to be the most intense during the first few weeks of construction, reducing in numbers towards the final weeks. Car/van movements are expected to be constant throughout.

5.66 Table 5-2 shows the estimated amount of deliveries and movements for the main infrastructure.

Table 5 - 2: Estimates HGV Deliveries for construction equipment and infrastructure

TRANSPORT	ESTIMATED NUMBER OF VEHICLES	MOVEMENTS
Delivery of Substation Materials	35	70
Delivery of Cables	5	10
Delivery of Plant Equipment	5	10
Delivery of Gravel Hard Core Material	504	1008
Delivery of Fencing	5	10
Total	**554**	**1108**

5.67 More visits may be required due to site conditions, weather restrictions, etc., and therefore, these numbers should be treated as a guideline for planning purposes only. In total, the construction of the grid substation is expected to give rise to 554 HGV deliveries over the four-month construction period. A daily maximum of approximately 20 HGV deliveries (40 HGV movements) is expected.

5.68 The expected HGV volumes are based on best estimates of trips generated for similar sized substations and will be subject to amendments based on local conditions and contractor working practices.

5.69 The construction of the Proposed Development and consented solar farm (PA: 22586) will not be done concurrently. Rather it is likely that the construction period across the proposals outlined previously will be slightly extended to ensure that the number of HGV deliveries per day remain the same.

Delivery Booking System

5.70 On a weekly basis, the Site Manager will evaluate details of the daily profile of deliveries proposed for the upcoming week. Through discussions with hauliers, the Site Manager will ensure that the deliveries are spread out across the week and across the day to minimise any potential disruption.

5.71 Deliveries will be checked against the weekly delivery schedule. This will be overseen by the Site Manager to ensure that construction deliveries are managed in an efficient manner, with minimal disruption and delays.

5.72 It is proposed that temporary signage would be used to highlight the entrance to the site and to direct construction traffic to the site from the unnamed road to the south of the Application Site. The Applicant will provide a banksperson to assist with the manoeuvring of delivery vehicles to and from the site, as well as internal site movements.

5.73 Hauliers will be required to contact the Site Manager to give an indicative delivery time, to ensure that the delivery space and a banksperson are ready for their arrival on site.

5.74 To avoid any vehicles waiting, sufficient time will be provided between deliveries to allow for any delays (such as loading/unloading taking longer than expected).

5.75 Deliveries will be managed and scheduled to ensure that no vehicles would have to wait on the surrounding road network.

Timing Restrictions

5.76 All traffic movements will be carried out between the hours of 08.00 to 19.00 on Monday to Friday and 08.00 to 16.00 on Saturdays. Outside of these times works are limited to:

- Decommissioning and testing; and
- Works required in an emergency where there is the potential of harm or damage to personnel, plant, equipment, or the environment, provided the developer retrospectively notifies Clare County Council of such works within 24 hours of their occurrence.

5.77 Deliveries will also be scheduled to avoid peak times where relevant, e.g. avoiding rush hours and after school pick up times.

Temporary Site Construction Compound

5.78 One temporary construction compound will be required which is within the adjoining solar farm. The proposed location is shown on the submitted planning drawings for the adjacent

solar farm application (PA Ref:22586) and consists of a rectangular area measuring 50m by 60m. The compound will contain the following:

- Temporary site facilities (Port-a-Cabin type) to be used for site office and welfare facilities, including welfare facilities with provision for sealed waste storage and removal;
- Container storage unit(s) for tools and equipment storage;
- Container storage unit(s) for components and materials;
- Refuelling compound for construction vehicles and machinery;
- Chemical toilets;
- Adequate parking area for cars, construction vehicles and machinery;
- Designated skips for construction waste; and
- Wheel washing facility.

Construction Parking

5.79 It is forecast that there will be approximately 20 staff across the site at any one time during the construction period. This will vary subject to the overall programme of works. It is likely that there will be a degree of vehicle sharing by staff and therefore, less than 20 staff vehicles (estimated maximum at 10 per day at peak construction periods) are expected to arrive on site each day. Labour vehicle sharing will be actively encouraged to reduce vehicular movements.

5.80 Upon entrance/exit to and from the Application Site, workers' vehicles will report directly to the area of hard standing at the temporary site construction compound. There will be sufficient space for parking and turning. Site opening and closing will be outside of morning and evening peak traffic times, minimising local traffic disruption during busy periods.

5.81 No parking will be allowed for construction workers on the public road network in the vicinity of the Application Site. A number of additional unscheduled visits may be required throughout the construction period for site inspections and due to unforeseen circumstances, which is accounted for in the existing car parking plans.

Turning Facilities

5.82 The construction compound has been designed to provide adequate space for vehicle manoeuvring and turning, and all HGV deliveries will report here for unloading. The turning

areas will ensure that all vehicles will ingress and egress in a forward gear to maintain safety on the public highway.

Site Security

5.83 For security and safety purposes, the Proposed Development will be closed to the general public via security palisade fencing and a locked gate. The security palisade fence installed around the perimeter of the substation will be erected at the start of the construction programme and will remain for the duration of the operation.

5.84 Access to the construction site during construction hours will be controlled by personnel located at the entrance of the adjacent solar farm. All visitors will sign in and out with security. Visitors to the site will be given a Health and Safety site induction, provided with Personal Protective Equipment, and will remain with an appropriately trained escort at all times.

Operational Period

5.85 The operational phase of the substation is anticipated to have negligible trip generation potential with approximately 20-40 Light Goods Vehicles (LGVs) expected every year for scheduled maintenance checks, with additional visits required to attend to remedial issues when necessary. The operational access point will use the same entrance to the site as during the construction period.

Decommissioning Period

5.86 The number of HGVs required for the decommissioning period will be slightly higher than the construction phase due to the materials not being as neatly packed as when shipped from factory conditions. Whilst the construction phase has a total of approximately 1108 movements, the decommissioning phase will have a total of circa 1219 movements (estimate includes a 10% increase on the construction stage). This increase is not considered to be significant.

MITIGATION

5.87 The impact of the Proposed Development has been identified as temporary in nature and associated with short construction and decommissioning stages only. It is still important that any impact is minimised as far as possible and, in light of this, the following mitigation measures have been considered:

- A dedicated person will be appointed for the management of the delivery booking system during the construction stage. It will also be this person's duty to make sure haulage companies use the chosen haul route (See **Figure 5.1 of Appendix 5A**), without fail.
- The Applicant will conduct a pre- and post-construction condition survey in line with Condition 5 of the adjacent solar farm application consent (**PA Ref:22586)**..
- Traffic movements will be limited to 08:00 - 19:00 on Monday to Friday and 08:00 – 16:00 on Saturdays, unless otherwise agreed in writing with Clare County Council. Deliveries will be scheduled to avoid morning and evening peak hours. This will avoid HGV traffic arriving during the morning peak hours, creating conflict with local residents' commute or school run. Construction personnel will be encouraged to car-pool, or to travel to site in minibuses.
- During the construction phase, clear construction warning signs will be placed on the local access road from which the site is accessed, on both approaches to the access points in accordance with Chapter 8 of the Traffic Signs Manual. The Site Entrance will also be appropriately signed. Access to the construction site will be controlled by onsite personnel and all visitors will be asked to sign in and out of the site by security/site personnel. Site visitors will receive a suitable Health and Safety site induction and Personal Protective Equipment ("PPE") will be worn.
- To control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following mitigation measures will also be implemented:
  - Wheel washing equipment will be available and used onsite within the construction compound, as required, to prevent the transfer of dirt and stones onto the public highway. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site;

- Wheel washing facilities should consist of a water bowser with pressure washer.
- The bowser will contain water only and no other additives.
- Run-off from this activity will be directed to the drainage situated on the lower boundary of the construction compound.

– As outlined in Condition 5 of the adjacent solar farm application consent (PA Ref:22586), suction road sweepers will be sued to keep the L4172 and L3148 clean during construction stage. Details of which will be finalised post-consent through a suitably worded condition.

– Damping down site roads to minimise dust emissions;

– Any soil stockpiles will be covered when left for extended periods of time;

– Drivers will adopt driving practices that minimise dust generation including a 20km/h internal access road speed limit; and,

– Any dust generating activities will be avoided or minimised, wherever practical, during windy conditions.

- Once construction of the Proposed Development is completed, all portacabins, machinery and equipment will be removed and the temporary hard standing excavated and the area reinitiated to its original condition.

SUMMARY

5.88 This CTMP outlined the overall framework for managing the movement of construction and delivery traffic to and from the Proposed Development, as well as considering the type of traffic it will generate. The traffic assessment for the operational and decommissioning phases were also considered.

5.89 The CTMP considered parts of the guidance which are suitable for this project, namely, to include details of the existing conditions (Planning Reference 22/586) and issues relating to the Proposed Development.

5.90 Impacts from the operational phase of the site, consisting of between 20-40 LGVs per year, will be below the threshold for a Traffic Impact Assessment, as stated in the NRAs Traffic and Transport Assessment Guidelines.

5.91 The overall volumes of traffic generated by the Proposed Development during the construction period are considered to be quite low. During the anticipated four-month construction period, a total of 554 HGV deliveries will be made to the Application Site. During the peak construction period there will be an estimated maximum of 20 daily Heavy Goods Vehicles (HGVs) deliveries.

5.92 The new access point is designed in accordance with the Geometric Design of Junctions DN-GEO-030607 and swept path analysis showing the largest construction vehicle entering and exiting the site entrance points which confirms that the design is suitable. To facilitate the new access point, 18m of hedgerow will need to be removed. These remedial works were included as part of the adjacent solar farm application (Planning Ref: 22/586).

5.93 The delivery vehicles will travel along the M18, which is located to the southwest of the Application Site. Vehicles will exit the M18 at Junction 11 (Quin) onto the L3148 in a northeast direction for approximately 3.5km, before turning left and immediately left again onto an unnamed road. Vehicles will follow this road for approximately 0.8km before taking a right-hand turn into the site access point.

5.94 The abnormal load route will be from a different direction due to a bridge having a maximum height of 4.11m along the haul route above. Vehicle wills exit the M18 at junction 12 (Ennis) and head in a northeast direction for approximately 3km before taking a right hand turn onto the R469. The R469 will be continued along for approximately 3.5km before taking a right hand turn onto the L3148 and travelled along for approximately 1.8km before taking a right hand turn onto an unnamed road. Vehicles will follow this road for approximately 0.8km before taking a right-hand turn into the site access point.

5.95 The County Development Plan states that visibility splays of 160m by 3m are standard for roads with speed limits of 85km/h. However, as outlined above, the speed limit is unlikely to

[7] Transport Infrastructure Ireland, Geometric Design of Junctions (April 2017)

be achieved along this stretch of the road due to the limited visibility and narrow nature of the road. Therefore, it is proposed that a relaxation by one step be made so that the Standard Stopping Distance (SSD) be lowered to 120m in the 'y' direction which is the SSD for a road with an average speed of 70km/h. The visibility splay of 120m by 3m is achievable with the realignment of 31m of hedgerow and the trimming of 55m of hedgerow. Furthermore, the splay dimensions of 120m x 3m and remedial works were included as part of the adjacent solar farm application (Planning Ref: 22/586).

5.96 A dedicated person will be appointed for the management of the delivery booking system during the construction stage.

- The Applicant will conduct a pre- and post-construction condition survey in line with Condition 5 of the adjacent solar farm application consent (PA Ref:22586)..

5.97 The CTMP sets out a variety of specific mitigation measures that will be implemented during construction that will minimise the impact of the construction traffic on the environment and local communities; the following provides a brief summary of each:

- Limitations on working times and HGV scheduling;
- Site security and signage; and,
- Measures to control emissions of dust and other airborne contaminants.

5.98 This Construction Traffic Management Plan conforms to the policies and objectives of the Clare County Development Plan 2023 – 2029, and the Design Manual for Roads and Bridges published by the National Roads Authority (NRA).

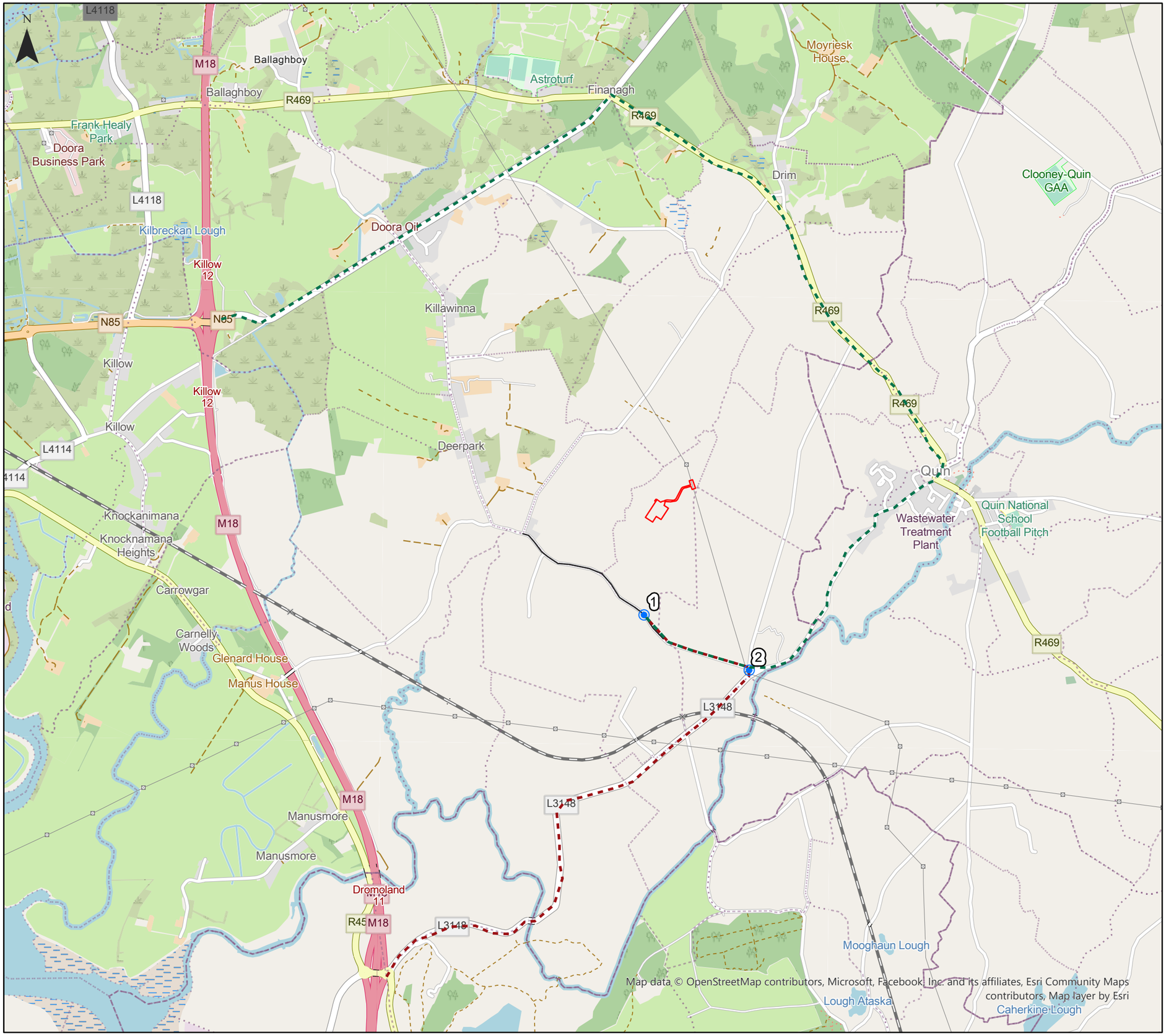
APPENDICES

Appendix 5A - Figures

- Figure 5.1: Proposed Haul Route
- Figure 5.2: Swept Path Analysis 1
- Figure 5.3: Swept Path Analysis 2
- Figure 5.4: Visibility Splay

Appendix 5A

Coolshamrock SID
Proposed Haul Route
Figure 5.1



0 0.75 1.5 3 Kilometers

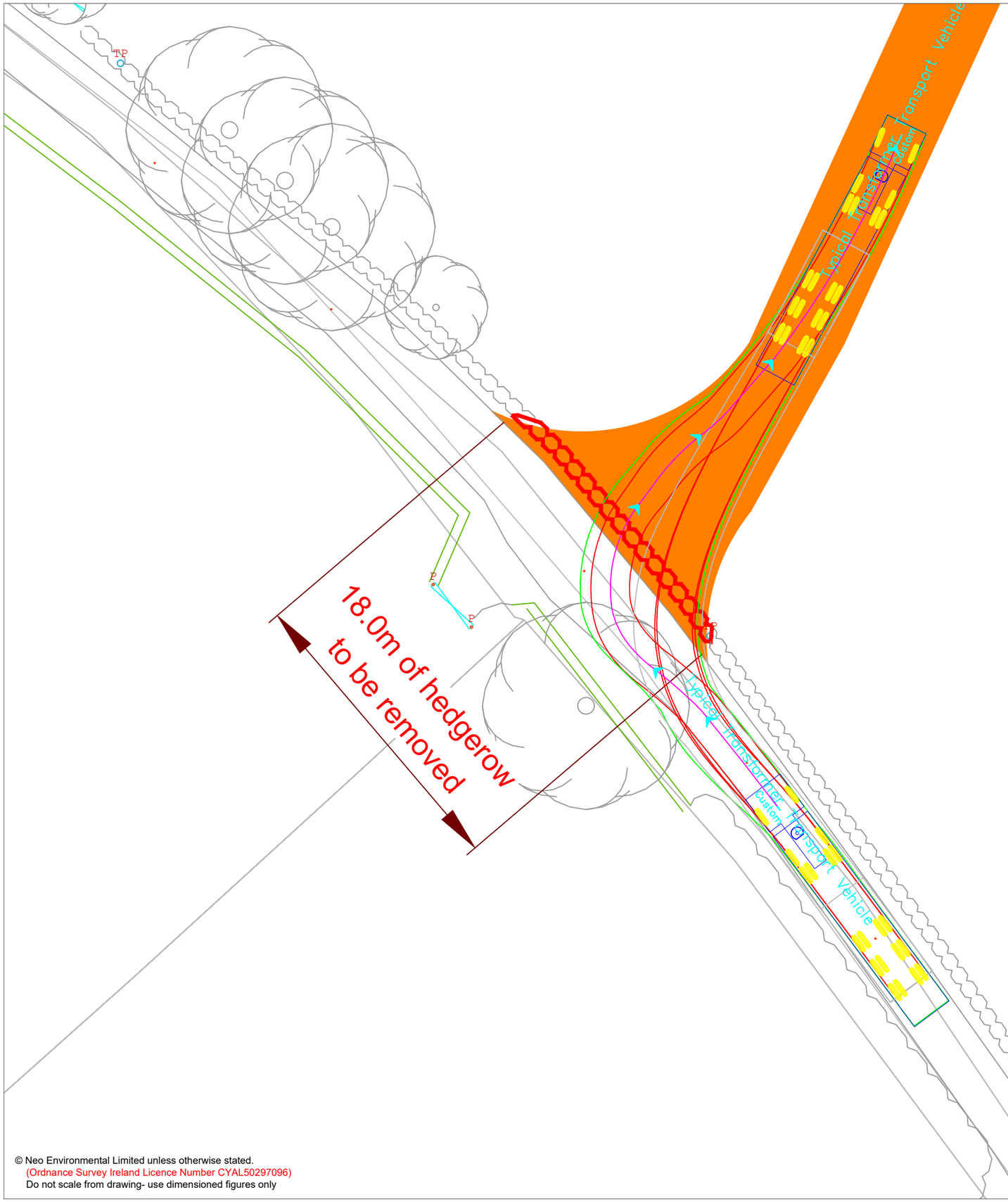
Key

- Development Boundary
- Proposed Haul Route
- Proposed Abnormal Load Route
- Route Analysis
- Condition Survey Extents

Neo Office Address:
Johnstown Business Centre, Johnstown House, Naas, Co. Kildare

Date: 02/10/2023
Drawn By: Tom Saddington
Scale (A3): 1:25,000
Drawing No: NEO00848/014I/B

neo ENVIRONMENTAL



Key

- Wheel Swept Path
- Vehicle Overhang Swept Path
- Vehicle Centre Line
- Vehicle
- Hedgerow to be removed

Notes:

- Simulated Speed - 8kph
- Actual vehicle dimensions may vary. Route should be assessed by haulier with regard to the vehicle combinations prior to transport.
- No allowances made for rear steering.
- Does not show load.

Disclaimer:

- This drawing is copyright and must not be copied in part or in whole unless agreed in writing by Neo Environmental Ltd.
- All dimensions are to be checked by the contractor prior to the commencement of work. Any discrepancy should be reported immediately to Neo Environmental Ltd.
- All work to be carried out in accordance with local authority, statutory authority and health & safety requirements.

Transformer Transport Vehicle

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 50.0
Tractor Track	: 2.45	Articulating Angle	: 70.0
Trailer Track	: 2.20		

Ver.	Date	Comments
B	02/10/2023	
A	18/01/2023	

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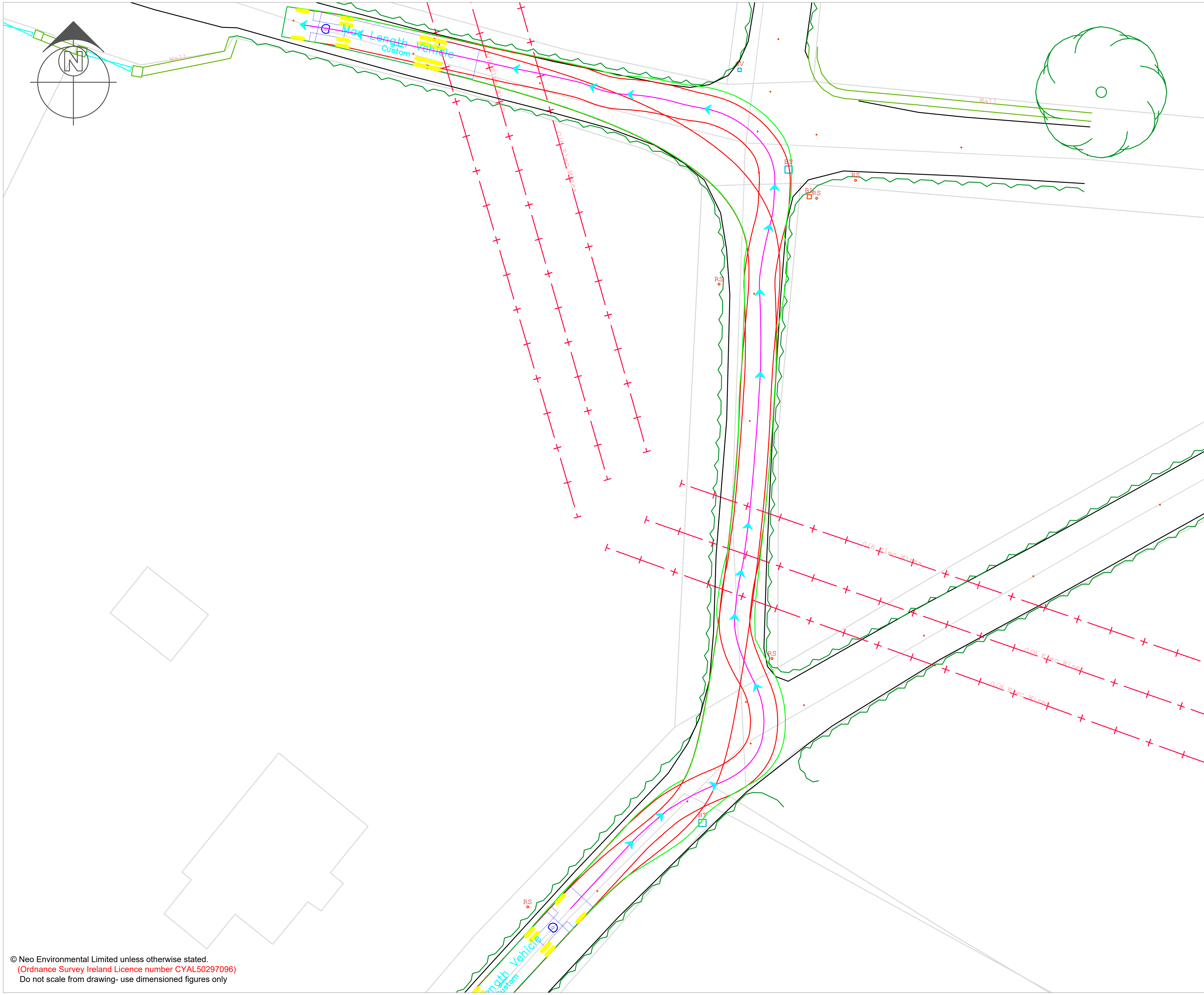
Project: Coolshamrock SID
Client: RES

Drawing: Swept Path Analysis

Project No.: NEO00848
Drawing No.: NEO00848_010I_A Figure 5.2

Drawn: JM **Checked:** MM **Approved:** PN

Scale: 1:250 @ A3 **Revision:** B
Date: 02 October 2023



Do not scale from drawing- use dimensioned figures only

Key

- Wheel Swept Path
- Vehicle Overhang Swept Path
- Vehicle Centre Line
- Vehicle

Notes:

- Simulated Speed - 8kph
- Actual vehicle dimensions may vary. Route should be assessed by haulier with regard to the vehicle combinations prior to transport.
- No allowances made for rear steering.
- Does not show load.

Disclaimer:

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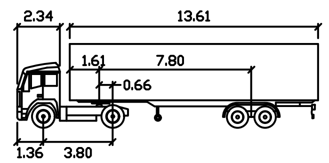

Max Length Vehicle

	meters		
Tractor Width	: 2.55	Lock to Lock Time	: 6.0
Trailer Width	: 2.55	Steering Angle	: 50.0
Tractor Track	: 2.55	Articulating Angle	: 70.0
Trailer Track	: 2.55		

Ver.	Date	Comments
A	02/10/2023	

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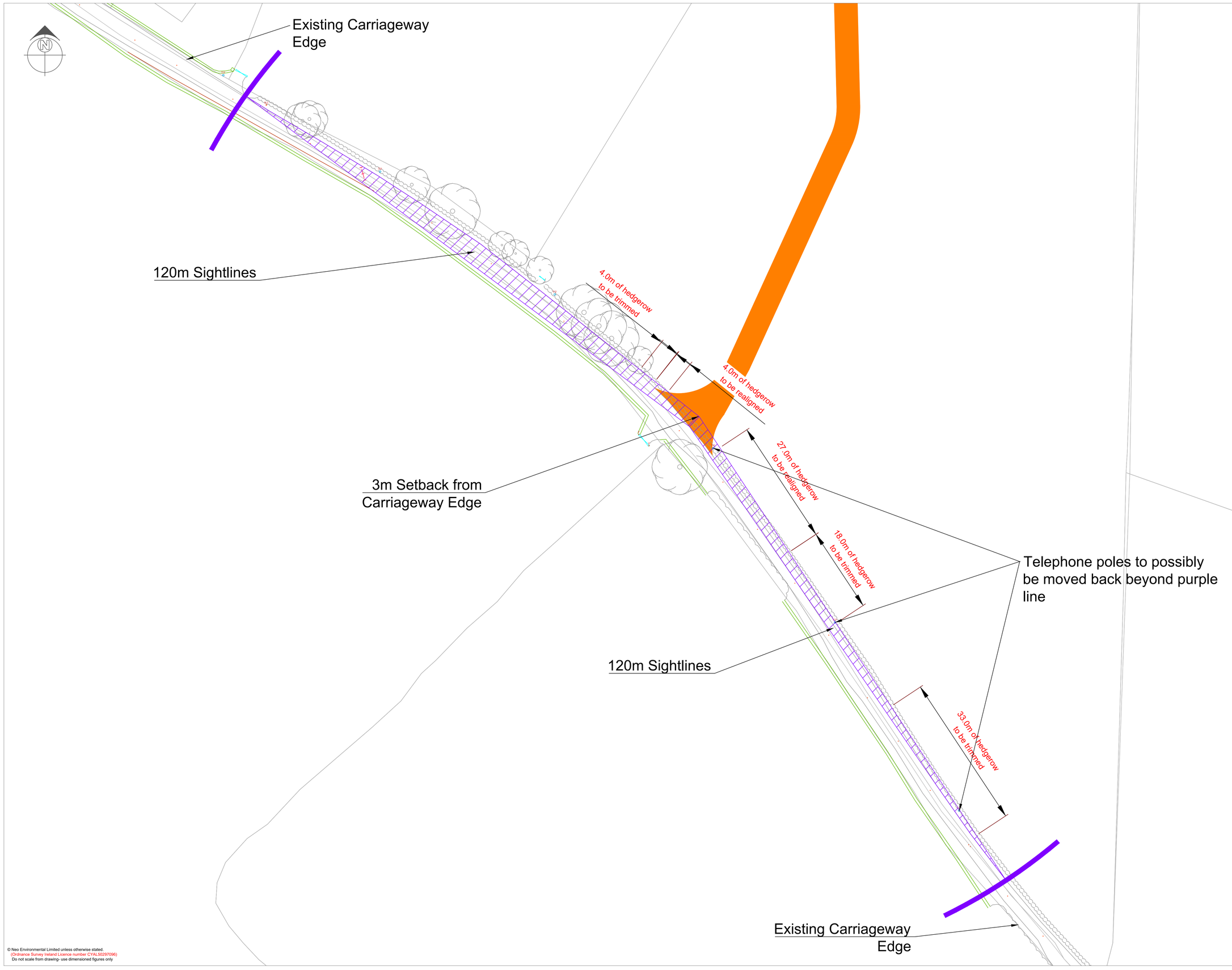
Project: Coolshamrock SID
Client: RES

Drawing: Swept Path Analysis

Project No.: NEO00848
Drawing No.: NEO00848_037I_A Figure 5.3

Drawn: JM **Checked:** MM **Approved:** PN

Scale: 1:300 @ A3 **Revision:** A
Date: 02 October 2023



Key

Visibility Splay

OSi Sheet Numbers:

4381-A
4381-C
4381-D
4381-B
4382-A
4382-C
4323
4324
4381
4382

Drawn By: Jamie McGhee
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Ver.	Date	Comments
B	02/10/2023	
A	18/01/2023	

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Ballymena Office: T:0282 565 0413 E: info@neo-environmental.co.uk

Project: Coolshamrock SID
Client: RES
Drawing: Visibility Splay

Project No.: NEO00848
Drawing No. : NEO00848_011I_A Figure 5.4
Drawn: JM **Checked:** MM **Approved:** PN
Scale: 1:375 @ A1 **Revision:** B
Date: 02 October 2023

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