APPENDIX 7.2

Outline Traffic Management Plan (TMP) (2015)

North-South 400 kV Interconnection Development

Outline Traffic Management Plan (TMP)

May 2015

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REPORT

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North-South 400 kV

Interconnection Development

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1 INTRODUCTION

1.1 INTRODUCTION

This outline Traffic Management Plan (outline TMP) will be a key construction contract document, the implementation of which will reduce possible impacts which may occur during the construction of the proposed development.

The objectives of this outline TMP are to:

- Outline minimum road safety measures to be undertaken at site access / egress locations, during the works and including approaches to such access / egress locations;
- Demonstrate to the developer, contractor and supplier the need to adhere to the relevant guidance documentation for such works; and
- Provide the basis for the preparation of a final TMP by the contractor appointed to carry out the works.

The employer (ESB) shall be responsible for ensuring that the contractor manages the construction activities in accordance with this outline TMP. The contractor will prepare a final TMP which is fully in accordance with the outline TMP.

Objectives and measures are also included for the management, design and construction of the project to control the traffic impacts of construction insofar as it may affect the environment, local residents and the public in the vicinity of the construction works.

In the event An Bord Pleanála (the Board) decides to grant approval for the proposed development, the final TMP will address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned by the Board.

1.2 IMPLEMENTATION

Key to the implementation of the final TMP is the dedication of an on-site construction manager (nominated by the contractor) who will regularly liaise with and update the employer's resident engineer (RE) and associated team on all environmental and construction programming issues relating to the site. All site personnel are charged with following good practice and encouraged to provide feedback and suggestions for improvements. All site personnel are also required to ensure compliance with the requirements of the site's TMP.

1.3 DOCUMENT REVISION(S)

This outline TMP includes a summary of all the information to be included in the final TMP, which will be produced prior to construction by the appointed contractor with the approval of the employer (ESB)

and which will, in addition, include any conditions attached to any planning approval granted for the project.

The final TMP will be subject to ongoing review (throughout the construction phase of the proposed development), through regular auditing and site inspections. This will ensure that the performance of construction activities, including the implementation of mitigation measures, is subject to continuous improvement and ensure that objectives are met.

All of the information required for the final TMP will be highlighted in the specification for the Civil Engineering Works contract. The contractor will be required to include further details and / or confirmation under the following headings:

- Site Access & Egress;
- Traffic Management Signage;
- Routing of Construction Traffic / Road Closures;
- Timings of Material Deliveries to Site;
- Traffic Management Speed Limits;
- Road Cleaning;
- Road Condition;
- Road Closures;
- Implementation of Traffic Management Plan;
- Details of Working Hours and Days;
- Details of Emergency Plan;
- Communication;
- Construction Methodologies; and
- Particular Construction Impacts.

1.4 SCOPE

The objective of this outline TMP is to ensure that the residual impacts to the public road network during the construction phase of the project which have been identified in the application documentation are minimised and that transport related activities are carried out as safely as possible and with the minimum disruption to other road users. The outline TMP has also been prepared for the purpose of identifying appropriate and safe methods of access for construction traffic to the proposed development.

This outline TMP describes the traffic management for the transportation of construction materials, equipment and personnel along the public road network to facilitate the construction of the proposed development. Light vehicles, such as cars and vans, will be used by site operatives travelling to and

from the site. Heavy Construction Vehicles (HCV) will be required to deliver general construction materials, such as concrete, to the site.

This outline TMP remains a live document that will be reviewed by the contractor and expended upon, where necessary, throughout the construction phase of the project, in order to produce a final TMP.

1.5 REPORT FORMAT

As outlined in **Section 2** of this report, the proposed development is located within two study areas comprising the Cavan Monaghan Study Area (CMSA) and the Meath Study Area (MSA). For the purpose of this report, items relating to specific sections of the proposed scheme shall be identified by the abbreviations of CMSA for the Cavan Monaghan Study Area and by MSA for the Meath Study Area.

2 PROJECT DESCRIPTION

2.1 THE PROPOSED DEVELOPMENT

A detailed description of the proposed development is presented in Chapters 6 and 7, **Volume 3B** of the Environmental Impact Statement (EIS). The proposed development is located within the two study areas and comprises the following:

- **Cavan Monaghan Study Area (CMSA)**: The proposed development in the CMSA comprises a single circuit 400 kV overhead transmission circuit supported by 134 towers (Tower 103 to Tower 236) extending generally southwards from a point at the jurisdictional border with Northern Ireland (in the townland of Doohat or Crossreagh, County Armagh, and the townland of Lemgare, County Monaghan) to the townland of Clonturkan, County Cavan for a distance of approximately 46km. It includes lands traversed by the conductor from the jurisdictional border to Tower 103, and from Tower 103 to Tower 236 inclusive and lands traversed by the conductor strung from Tower 236 to Tower 237 (the first tower on the MSA section of the proposed development).[1]

  It also includes an associated temporary construction material storage yard to be located on a site of approximately 1.4ha in the townlands of Monaltyduff and Monaltybane, Carrickmacross, County Monaghan.

  Details of the proposed development route, including proposed access locations, are detailed on Figures PE687-D141-139-001 to PE687-D141-139-015 contained in the Environmental Impact Statement Volume 3B.

- **Meath Study Area (MSA)**: The proposed development in the MSA comprises a new single circuit 400 kV overhead transmission circuit supported by 165 new towers (Tower 237 to Tower 401) extending for a distance of approximately 54.5km from Tower 237 in the townland of Clonturkan, County Cavan to Tower 402 (an existing double circuit tower on the Oldstreet to Woodland 400 kV transmission line) in the townland of Bogganstown (ED Culmullin), County Meath.

  It includes the addition of a new 400 kV circuit for some 2.85km along the currently unused (northern) side of the existing double circuit 400 kV overhead transmission line (the Oldstreet to Woodland 400 kV transmission line) extending eastwards from Tower 402 in the townland of Bogganstown (ED Culmullin), County Meath to Tower 410 and the Woodland 400kV Substation in the townland of Woodland, County Meath.

[1] Between Tower 106 and Tower 107 the proposed transmission line crosses the jurisdictional border with Northern Ireland at two points - from the townland of Lemgare, County Monaghan into the townland of Crossbane, County Armagh and back into the townland of Lemgare, County Monaghan. This results in a section of the span between Tower 106 and Tower 107 oversailing Northern Ireland. The oversail section forms part of the SONI proposal.

It also includes an extension to and works within the existing ESB Woodland 400kV Substation, in the townland of Woodland, County Meath.

Details of the proposed development, including proposed access locations, are detailed on Figure 6244-VOL 3B-Figure 16 to Figure 6244-VOL 3B-Figure 34 contained in the Environmental Impact Statement Volume 3B.

2.2 CONSTRUCTION PERIOD & STAGES

2.2.1 Construction Period

The construction period for the proposed linear development is anticipated to be approximately three years from the commencement of the site works.

2.2.2 Overview of Overhead Line Construction Stages

Section 7.3.4 of Volume 3B of the EIS notes that the construction period for the proposed linear development is anticipated to be approximately three years from the commencement of the site works. However construction at any one tower location is of short duration as works at each tower location take place in a series of different stages based on the estimated durations outlined below.

The construction of the OHL will be undertaken in five general stages, according to the following sequence, on a rolling programme of estimated durations:

- Stage 1 – Preparatory Tower Location Site Work (1 – 7 days);
- Stage 2 – Tower Foundations; standard installation (3 – 6 days); pilling installation (5 - 10 days);
- Stage 3 – Tower Assembly and Erection and Preliminary Land Reinstatement (3 – 4 days);
- Stage 4 – Conductor / Insulator Installation (7 days ; and
- Stage 5 – Final Reinstatement of Land (1 – 5 days).

Typically, Stages 1, 2 and 3 are carried out as part of one contract, and when completed, lands around the construction site are reinstated. Stages 4 and 5 can only be carried out when Stages 1, 2 and 3 are completed.

On a project of this linear distance, there is likely to be an interval of up to 12 months between the completion of Stages 1, 2 and 3 and commencement of Stages 4 and 5. Lands will be reinstated so that they can continue to be used for agricultural activities during this interval.

Therefore, having regard to the estimated durations detailed previously for each individual stage, it is estimated that Stages 1, 2 and 3 could cumulatively take 7 – 17 days for standard installation or 9 – 21

days for pilling installations. Lands will be preliminarily reinstated and contractors will return approximately 12 months later for 8 – 12 days to complete the works and final land reinstatement.

Therefore, the cumulative time required at any one site over the 3 year construction period of the project is estimated at 15 – 29 days for standard installation or 17 – 33 days for pilling installations.

2.2.3 Overview of proposed Line Crossings

For further details on the crossing of other transmission lines please refer to line crossings report. These works will be undertaken by ESB and the final traffic management plan shall be updated to take account of the scale, nature and timing of these works. It is envisaged that these works will be undertaken in advance of the Overhead Power Line works.

3 ENVISAGED CONSTRUCTION TRAFFIC GENERATION

Generated traffic resulting from the construction stage of the project has been calculated for the period which has the greatest impact, otherwise referred to as the "worst case" scenario. Traffic generation was calculated based upon similar construction activities which would have taken place in previous years on comparable transmission line projects. Staffing Levels, Material Deliveries and envisaged plant requirements, and the associated access and traffic and transport impacts, were calculated based on similar project activities.

Automatic Traffic Counts were carried out to ascertain the typical existing traffic volumes currently using the roads which will be potentially impacted by the construction of the proposed development. Details of the Automatic Traffic Counts are detailed in Appendix 13.2, **Volume 3C Appendices** of the Environmental Impact Statement (EIS) for the Cavan Monaghan Study Area (CMSA) and Appendix 13.2, **Volume 3D Appendices** of the EIS for the Meath Study Area (MSA).

Details of the Average Annual Daily Traffic (AADT) for the envisaged roads impacted for the scheme are detailed in the EIS for the relevant sections of the scheme as detailed below:

- CMSA – Tables 13.1 to 13.3 – **Volume 3C** of EIS – CMSA; and
- MSA – Tables 13.1 to 13.3 – **Volume 3D** of EIS - MSA.

Detailed breakdowns of the volumes of traffic expected to be generated by the construction of the proposed development are presented in Appendix 13.3, **Volume 3C Appendices** of the EIS (CMSA) and Appendix 13.3, **Volume 3D Appendices** of the EIS (MSA).

3.1 TRAFFIC GENERATION AT PROPOSED TOWER LOCATIONS

The expected traffic generated at each type of tower along the proposed scheme are summarised in **Table 3.1**.

Tower Type	CMSA Movements Generated				MSA Movements Generated			
	Best Case LGV	Best Case HGV	Worst Case LGV	Worst Case HGV	Best Case LGV	Best Case HGV	Worst Case LGV	Worst Case HGV
Intermediate Tower	108	46	108	56	108	46	108	56
Transposition Tower[2]	108	46	108	56	108	46	108	56
Angle Tower	122	142	122	218	122	142	122	218

Table 3-1: Tower Traffic Generation Summary

[2] The traffic generation associated with the construction of a transposition intermediate tower is deemed to be of similar scale to a single circuit intermediate tower. As such, the traffic generation values listed for intermediate towers can be deemed to apply to both single circuit and transposition intermediate structures.

3.2 TRAFFIC GENERATION FROM PROPOSED MATERIAL DELIVERIES / TEMPORARY CONSTRUCTION MATERIAL STORAGE YARD

The construction of the Temporary Construction Material Storage Yard has the potential to generate traffic associated with the construction of the yard. The envisaged traffic generated during the construction of the yard will equate to 45 no. vehicular movements to and from the proposed site per day. It is considered that there will not be any likely significant effects as a result of the construction of the yard when compared to the operational traffic volumes during the construction of the proposed line route.

The majority of traffic generated delivering materials during the project are envisaged to occur during the following construction elements:

- Laying of access tracks (as described in Section 7.3.4.1.3 of **Volume 3B** of EIS);and
- Concrete & steel deliveries to site during tower construction works.

Materials such as steel and concrete required in the construction of the proposed development are likely to be sourced from manufacturers that are not situated within the immediate vicinity of the proposed development[3]. Accordingly, a temporary construction material storage yard will be located at a site to the south-east of Carrickmacross, in the townlands of Monaltyduff and Monaltybane and will be the source destination from which construction traffic, particularly for steel deliveries, will be generated.

Vehicles will access the road network from the temporary construction material storage yard via the L4700 onto the N2 before turning north towards Carrickmacross or south towards Ardee, depending on the destination of the materials being delivered. Construction traffic will then proceed to its destination via combinations of the local, regional and national road network as detailed in Tables 13.1 to 13.3 of **Volume 3C** of the EIS (CMSA) and Tables 13.1 to 13.3 of **Volume 3D** of the EIS (MSA). It is envisaged that a total of 378 no. vehicular traffic movements between the temporary construction material storage yard and construction site location will be undertaken on a daily basis. The use of local roads will be minimised as much as possible, particularly to avoid / minimise the encountering of narrow road widths, poor visibility and unsuitable bearing capacities. Details of the proposed haul routes are detailed in **Section 4.3** of this outline TMP. Arrivals and departures to the proposed temporary construction material storage yard are to be carried out in as few vehicle movements as possible in order to minimise potential impacts on the road network.

[3] Section 13.3, Paragraph 34 of Volume 3C – CMSA of the EIS.

3.3 WOODLAND 400KV SUBSTATION

The construction of an extension to the existing Woodland 400kV Substation will result in approximately 30 vehicle movements per day during the peak period, as detailed in Section 13.5.2.2 of **Volume 3D** of the EIS (MSA). Arrivals and departures to the sites are to be carried out in as few vehicle movements as possible to minimise parking requirements and potential impacts on the road network.

3.4 STAFFING LEVELS

At the peak of construction, it is anticipated that there will be a requirement for 15 construction workers to facilitate the stringing of conductors along the route of the proposed development. It has been assumed in the appraisal of the proposed development, and construction methodology, that seven construction teams will be employed to work on different sections of the scheme. It is envisaged that three teams will work in the CMSA and the remaining four teams will work in the MSA[4].

This results in a total of seven site locations running concurrently. Arrivals and departures to the sites are to be carried out in as few vehicle movements as possible to minimise parking requirements and potential impacts on the local road network.

Details of the proposed work crew sizes, work durations for each stage of construction and each work task are detailed in **Table 3.2**.

[4] Section 13.5.2.2, Paragraph 56 of Volume 3C - CMSA of the EIS.

Task	Temporary Construction Material Storage Yard (Pre-Construction)	Preparatory Site Work (Stage 1)	Foundation Installation (Stage 2)	Tower Assembly & Erection – Derrick Pole (Stage 3)	Tower Assembly & Erection – Mobile Crane (Stage 3)	Conductor Stringing (Stage 4)	Reinstatement of Land (Stage 5)
Construction Works	13 Weeks	1 – 7 Days	-	-	-	-	-
Site Clearance	-	1 – 7 Days	-	-	-	-	-
Angle Tower	-	-	3 – 6 Days	3 – 4 Days	3 – 4 Days	-	-
Intermediate Tower	-	-	3 – 6 Days	3 – 4 Days	3 – 4 Days	-	-
Piled / Rock Anchor Foundation	-	-	5 – 10 Days	-	-	-	-
Conductor Stringing	-	-	-	-	-	7 Days (Between Angle Masts)	-
Reinstatement	-	-	-	-	-	-	1 – 5 Days
Crew Size	14 Workers	3 Workers	4 – 6 Workers	7 Workers	7 Workers	15 Workers	3 Workers

Table 3-2: Envisaged Staffing Levels

Staff shall access each site location via a vehicle pooling system to be put in operation between the Temporary Material Storage yard and each of the site locations. Such measures shall be adopted in order to reduce traffic levels on the local road networks. Parking of staff vehicles at each site location will not be permitted.

3.5 ENVISAGED CONSTRUCTION EQUIPMENT

Construction equipment and vehicles required for each construction element / operation will be delivered to site by appropriate vehicles. Details of proposed construction equipment and vehicles are detailed in **Table 3.3**. Specific equipment and vehicles which are deemed to be required for the project by the principal contactor, suppliers and staff are to be confirmed and outlined in the contractors final TMP.

	Temporary Construction Material Storage Yard (Pre-Construction)	Preparatory Site Work (Stage 1)	Foundation Installation (Stage 2)	Tower Assembly & Erection – Derrick Pole (Stage 3)	Tower Assembly & Erection – Mobile Crane (Stage 3)	Conductor Stringing (Stage 4)	Reinstatement of Land (Stage 5)	Substation Works
Construction Vehicles	Excavator	Tractor & Low Loader (For Delivery of Excavator and Dumper)	Concrete Vibrator	Derrick Pole	All Terrain Mobile Crane	Puller – Tensioner	Tractor & Low Loader	Mobile Crane
	Dumper Truck	Excavator	Water Pump	Teleporter	Tractor & Trailer	Teleporter	Excavator and bulldozer	Pulling & Tension devices for overhead conductors
	Bulldozer	Dumper	Wheeled Dumper / Tracked Dumper	Tractor & Trailer	Teleporter	Drum Stands		Excavator
	Road Sweeper		360º Tracked Excavator (13 tonne / 22 tonne)	Tractor & Low Loader x 2 (For Delivery of Teleporter & Derrick Pole)	Tractor & Low Loader (For Delivery of Teleporter)	Drum Carriers		Dumper Truck
			Road Sweeper			Stringing Wheels		Bulldozer
						Conductor Drums		
						Compressor & Head		
						Road Sweeper		
						Tractor & Low Loader - (For Delivery of Puller – Tensioner, Teleporter, Drum Stands, Drum Carriers, Stringing Wheels and Compressor & Heads)		
Delivery Vehicles	Concrete Truck Hiab Lorry	Stone Delivery Truck	Concrete Truck	Hiab Lorry	Hiab Lorry	-		Concrete Truck
Staff / Site Vehicles	4 X 4 Vehicle	4 X 4 Vehicle	4 X 4 Vehicle	4 X 4 Vehicle	4 X 4 Vehicle	4 X 4 Vehicle	4 X 4 Vehicle	-
	Transit Van	Transit Van	Transit Van	Transit Van	Transit Van	Transit Van	Transit Van	-

Table 3-3: Envisaged Construction Equipment / Vehicles

4 TRAFFIC MANAGEMENT PLAN

This section outlines the content of the final Traffic Management Plan (TMP) which shall be prepared prior to construction of the proposed development. It shall be a requirement of the contract that, prior to construction, the appointed contractor shall liaise with the relevant authorities including the National Roads Authority (NRA), Local Authorities and Emergency Services for the purpose of finalising the TMP, which will encompass all aspects of this outline Traffic Management Plan.

The TMP shall be termed a 'Live Document', such that any changes to construction programme or operations can be incorporated into the TMP.

The contractor will be contractually required to ensure that the elements of this outline TMP shall be incorporated into the final TMP. The principal contractor shall also agree and implement monitoring measures to confirm the effectiveness of the mitigation measures outlined in the TMP. On finalisation of the TMP, the contractor shall adopt the plan and associated monitoring measures. The final TMP shall address the following issues (including all aspects identified in this outline TMP):

- Site Access & Egress;
- Traffic Management Signage;
- Routing of Construction Traffic / Road Closures;
- Timings of Material Deliveries to Site;
- Traffic Management Speed Limits;
- Road Cleaning;
- Road Condition;
- Road Closures;
- Enforcement of Traffic Management Plan;
- Details of Working Hours and Days;
- Details of Emergency plan;
- Communication;
- Construction Methodologies; and
- Particular Construction Impacts.

These items are explained in detail in the remainder of this section of the report.

4.1 SITE ACCESS & EGRESS

The proposed site access locations are detailed on the following scheme drawings:

- CMSA – Figure PE687-D141-139-001 to PE687-D141-139-015 contained in the Environmental Impact Statement Volume 3B, and
- MSA – Figure 6244-VOL 3B-Figure 16 to Figure 6244-VOL 3B-Figure 34 contained in the Environmental Impact Statement Volume 3B.

The contractor shall provide advanced warning signs, in accordance with Chapter 8 of the *Department of the Environment's Traffic Signs Manual 2010*, on the approach to proposed site access locations a minimum of one week prior to construction works commencing at the site.

4.1.1 National Road Network

Three number existing accesses will be utilised along the following national routes:

- Proposed Temporary Access to Tower 281 from N52 Road; and
- Proposed Temporary Accesses' to Towers 334 and 335 from the N51 Road.

The principal contractor shall utilise a safe system of permanent flag men for the control of traffic during all access / egress operations at each site location outlined above.

4.1.2 Regional & Local Road Network

The majority of access / egress to proposed sites shall be facilitated from the local road networks. To mitigate against possible restrictions in visibility requirements, it is proposed that the principal contractor shall use a safe system of permanent flag men for the control of traffic during all access / egress operations at each site location.

4.1.3 Construction Material Storage Yard

As noted in Section 13.4.1 of Volume 3C of the EIS, it is proposed to use a site to the south-east of Carrickmacross as a temporary construction material storage yard. This yard is located to the west of the N2 and is accessed by the L4700. The existing access into the storage yard is located adjacent to a junction on the public road network and has restricted visibility. As such, it is proposed to construct a new entrance onto the L4700 further south of the existing entrance. A speed survey along the L4700 indicated that 85th percentile speeds along the road are 70km/h. A visibility splay of 160m from a 3m set back is achievable to the left and 120m from a 3m setback is achievable to the right.

4.1.4 Woodland 400kV Substation

The existing entrance to the Woodland 400kV substation is situated at the end of an existing private entrance road, which itself extends from the public road. Visibility at the entrance to the substation is not an issue as the there is no requirement for turning left or right to access the public road network.

4.2 TRAFFIC MANAGEMENT SIGNAGE

The principal contractor shall undertake consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements. Such signage shall be installed prior to works commencing on site.

Proposed signage may include warning signs to provide warning to road users of the works access / egress locations and the presence of construction traffic. All signage shall be provided in accordance with the Department of Transport's *Traffic Signs Manual, November 2010* -Chapter 8 – Temporary Traffic Measures and Signs for Roadworks.

In summary, the contractor will be required to ensure that the following elements are implemented:

- Consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements;
- Provision of temporary signage indicating site access route and locations for contractors and associated suppliers; and
- Provision of general information signage to inform road users and local communities of the nature and locations of the works, including project contact details.

4.3 ROUTING OF CONSTRUCTION TRAFFIC

As outlined in **Section 3.2** a temporary construction material storage yard will be utilised for the proposed development. Vehicles will be permitted to access the road network via the L4700, to the R4700 and onto the N2 before turning north towards Carrickmacross or south towards Ardee, depending on the destination of the materials being delivered. Figure 13.9 (CMSA) to Figure 13.13 (CMSA) contained in the Environmental Impact Statement Volume 3C and Figure 13.9 (MSA) to Figure 13.13 (MSA) contained in the Environmental Impact Statement Volume 3D, detail the envisaged routes to be utilised in the delivery of materials and supplies to each of the tower locations.

It is envisaged that three of the seven construction teams will travel north along the N2 towards Carrickmacross and the remaining four construction teams will travel in a southerly direction towards Ardee.

Traffic leaving the storage yard will turn right onto the L4700 and right again at the junction between the R4700 and the link road. Traffic will then travel along the N2 where it will distribute along the works area as described above.

The use of local roads will be minimised as much as possible, particularly to avoid / minimise the encountering of narrow road widths, poor visibility and unsuitable bearing capacities.

4.4 PROGRAMMING

In order to reduce impacts on local communities and residents adjacent to the proposed sites, it is proposed that:

- The contractor will be required to liaise with the management of other construction projects and the local authorities to co-ordinate deliveries.
- The contractor will be required to schedule deliveries in such a way that construction activities and deliveries activities do not run concurrently e.g. avoiding pouring of concrete on the same day as material deliveries in order to reduce the possibility of numbers of construction delivery vehicles arriving at each tower location simultaneously, resulting in build up of traffic on road network.
- The contractor will be required to schedule deliveries to and from the proposed temporary construction materials storage yard such that traffic volumes on the surrounding road network is kept to a minimum.
- A construction phase programme of works shall be developed by the contractor in liaison with the relevant local authorities, specifically taking into account potential road repair works that are included in the local authorities road works schedule. In particular, works should be programmed where possible such that any road works are carried out following the presence of construction traffic for the proposed development.
- HGV deliveries to the development site will be suspended on the days of any major agricultural shows, sports events, etc. that have the potential to cause larger than normal traffic volumes.
- The contractor will be required to interact with members of the local community to ensure that deliveries will not conflict with sensitive events such as funerals.
- HGV deliveries will avoid passing schools at opening and closing times where it is reasonably practicable.
- Construction activities will be undertaken during daylight hours for all construction stages. It is not anticipated that construction works will be carried out on Sunday, or Bank Holidays or that any construction works will be carried out in hours of darkness.

4.5 RECOMMENDED TRAFFIC MANAGEMENT SPEED LIMITS

Adherence to posted / legal speed limits will be emphasised to all staff / suppliers and contractors during induction training.

Drivers of construction vehicles / HGVs will be advised that vehicular movements in sensitive locations, such as local community areas, shall be restricted to 60 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such recommended

speed limits will only apply to construction traffic and shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

4.6 ROAD CLEANING

It shall be a requirement of the works contract that the main contractor will be required to carry out road sweeping operations to remove any project related dirt and material deposited on the road network by construction / delivery vehicles. Road Sweepers will dispose of material following sweeping of road network, to licensed waste facility.

4.7 VEHICLE CLEANING

It shall be a requirement of the works contract that the main contractor will be required to provide wheel washing facilities, and any other necessary measures to remove mud and organic material from vehicles exiting tower sites. In addition, the cleaning of delivery trucks such as concrete delivery trucks shall be carried out at the material storage yard and shall not be undertaken at the tower site locations.

4.8 ROAD CONDITION

The extent of the heavy vehicle traffic movements and the nature of the payload may create problems of:

- Fugitive losses from wheels, trailers or tailgates; and
- Localised areas of subgrade and wearing surface failure.

The contractors shall ensure that:

- Loads of materials leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive loses from a vehicle during transportation to and from site, including but not limited to:
    - Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss; and
    - Utilisation of enclosed units to prevent loss.
- The roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.

In addition, the contractor shall, in conjunction with the local authority:

- Undertake additional inspections and reviews of the roads forming the haul routes one month prior to the construction phase to record the condition of these roads at that particular time.
- Such surveys shall comprise, as a minimum, a review of video footage taken at that time, which shall confirm the condition of the road corridor immediately prior to commencement of construction. This shall include video footage of the road wearing course, the appearance and condition of boundary treatments and the condition of any overhead services that will be crossed. Visual inspections and photographic surveys will be undertaken of bridges and culverts that are along the haul roads.
- Where requested by the local authority prior to the commencement of construction operations, pavement condition surveys will also be carried along roads forming part of the haul route. These will record the baseline structural condition of the road being surveyed immediately prior to construction.
- Throughout the course of the construction of the proposed development, ongoing visual inspections and monitoring of the haul roads will be undertaken to ensure any damage caused by construction traffic is recorded and that the relevant local authority is notified. Arrangements will be made to repair any such damage to an appropriate standard in a timely manner such that any disruption is minimised.

Upon completion of the construction of the proposed development, the surveys carried out at pre-construction phase shall be repeated and a comparison of the pre and post construction surveys carried out. Where such comparative assessments identify a section of road as having been damaged or as having deteriorated as a result of construction traffic, the road will be repaired to the pre-construction standard or better.

4.9 ROAD CLOSURES

During the course of the works, it is not envisaged that road closures will be required. In areas where existing carriageways are narrow, it is envisaged that Traffic Management measures such as temporary traffic lights will be utilised to facilitate traffic.

It is envisaged however that temporary road closures will be required at guarding locations for the purpose of removal following construction. The most notable of these temporary road closures will be on the M3 Motorway. These closures will be short in duration, with road closure times and appropriate measures to be agreed with the local authority, National Roads Authority and other relevant stakeholders prior to the removal of guarding. (Refer to Chapter 7, **Volume 3B** of the Environmental Impact Statement (EIS)). It is envisaged that road closures will be undertaken during night time when traffic volumes are at their lowest, subject to agreement with the National Roads Authority and other relevant stakeholders.

4.10 ENFORCEMENT OF TRAFFIC MANAGEMENT PLAN

All project staff and material suppliers will be required to adhere to the final TMP. As outlined above, the principal contractor shall agree and implement monitoring measures to confirm the effectiveness of the TMP and compliance will be monitored by the resident engineer on behalf of ESB. Regular inspections / spot checks will also be carried out to ensure that all project staff and material supplies follow the agreed measures adopted in the TMP.

4.11 DETAILS OF WORKING HOURS AND DAYS

Construction of the proposed development is envisaged to be undertaken during daylight hours for all construction stages. It is not anticipated that construction works will be carried out on Sunday, or Bank Holidays or that any construction works will be carried out in hours of darkness.

4.12 EMERGENCY PROCEDURES DURING CONSTRUCTION

The contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses.

The contractor shall provide to the local authorities and emergency services, contact details of the contractors personnel responsible for construction traffic management.

In the case of an emergency the following procedure shall be followed:

- Emergency Services will be contacted immediately by dialling 112;
- Exact details of the emergency / incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner;
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer;
- All construction traffic shall be notified of the incident (where such occurs off site);
- Where required, appointed site first aiders will attend the emergency immediately; and
- The Safety Officer will ensure that the emergency services are en route.

4.13 COMMUNICATION

The contractor shall ensure that close communication with the relevant local authorities and the emergency services shall be maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures for comment and approval;
- Ongoing reporting relating to the condition of the road network and updates to construction programming; and

- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic in order to implement alternative measures to avoid such conflicts.

The contractor shall also ensure that the local community is informed of proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures etc. which may conflict with proposed traffic management measures.

4.14 CONSTRUCTION METHODOLOGIES

The contractor shall take cognisance of the construction methodology as detailed in Chapter 7 of **Volume 3B** of the EIS in the preparation of the final TMP. In particular, the contractor shall address the following construction elements in the development of the plan:

- Pre-Construction Works / Site Preparatory Work;
- Tower Foundations;
- Tower Assembly and Erection (including Derrick Pole Installation Method and Mobile Crane Installation Method);
- Conductor / Insulator Installation (Stringing of Overhead Lines) including Guarding provision and removals; and
- Reinstatement of Lands.

The contractor shall provide detailed traffic management arrangements for all construction stages and submit for approval to the relevant local authorities.

4.15 PARTICULAR CONSTRUCTION IMPACTS

The contractor shall be aware of the following particular issues in relation to the construction of the proposed development.

- **National, Regional and Local Road Crossings** - The contractor shall include in their final TMP, proposed traffic management measures to be utilised for the installation and removal of guarding across National, Regional and Local Roads. Such plans shall be made available to the relevant local authorities, National Roads Authority and relevant stakeholders for consideration and approval. Such plans shall include for all stages as follows:
    - Pre-Construction Works / Site Preparatory Work;
    - Tower Foundations;
    - Tower Assembly and Erection (including Derrick Pole Installation Method and Mobile Crane Installation Method);

- Conductor / Insulator Installation (Stringing of Overhead Lines) including Guarding provision and removals; and
- Reinstatement of Lands.

- **Railway Infrastructure** – The proposed development crosses one dismantled railway line in the townland of Tankardstown (ED Ardbraccan). While the footprints of adjacent towers do not impact on the existing infrastructure, the contractor shall take cognisance of the possibility that such redundant sections of railway may be utilised as walking or cycling routes, either formally or informally, by members of the public. No live railway infrastructure is traversed by the proposed scheme.
- **M3 Motorway** – The contractor shall include in the final TMP, proposed traffic management measures to be utilised for the installation and removal of guarding crossing the M3 Motorway. Such plans shall be made available to the relevant local authorities, National Roads Authority and relevant stakeholders for consideration and approval. Such plans shall include for all stages as follows:
  - Pre-Construction Works / Site Preparatory Work;
  - Tower Foundations;
  - Tower Assembly and Erection (including Derrick Pole Installation Method and Mobile Crane Installation Method);
  - Conductor / Insulator Installation (Stringing of Overhead Lines) including Guarding provision and removals; and
  - Reinstatement of Lands.
- **Vehicle Pooling** – The contractor shall submit for approval to the client and to the Local Authority, as part of their final TMP, details in relation to construction staff vehicle pooling and parking.

5 CONCLUSION

This Traffic Management Plan (TMP) will form part of the construction contract and is designed to reduce possible impacts which may occur during the construction of the proposed development.

The outline TMP shall be used by the appointed contractor as a basis for the preparation of a final TMP and shall detail, at a minimum, the items detailed in this outline TMP and any subsequent requirements of the local authorities.

The employer (ESB) shall be responsible for ensuring that the contractor manages the construction activities in accordance with this outline TMP and shall ensure that any conditions of planning are incorporated into the final TMP prepared by the appointed works contractor.

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