

APPENDIX H

Proposed 110kV Substation and Underground Grid Connection

Grangeford, Co. Carlow.

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Issue P01 – 26 May 2025

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Prepared For:

PRT Solar Limited

MEIN-HARDT



**PROPOSED 110KV SUBSTATION AND UNDERGROUND
GRID CONNECTION**

GRANGEFORD, CO. CARLOW.

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Quality Assurance Page

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1 Introduction

1.1 Introduction

The Proposed Development will consist of a 110kV substation and associated 110kV underground grid connection, cabling and associated works required to connect a solar farm (permitted under Carlow County Council Reg. Ref: 23/60297; which amended previous permission Reg. Ref: 21/23 and ABP-309987-21) to the existing Kellistown 220kV substation. The 110kV grid connection route will consist entirely of underground cables (UGC), with a total length of ca. 8km. The cables will be installed within the public road network and through the Grangeford Solar Farm site. The proposed development is located between Carlow Town and Tullow. Grangeford Solar Farm lies approximately 5.2km from Tullow and 10.2km from Carlow, while the Kellis Substation is situated approximately 7.2km from Tullow and 10km from Carlow. The development as a whole is located across the townlands Friarstown, Grangeford Old, Grangeford, Moanalow, Glenoge, Rathnashannagh, Inchisland Or Moatalusha, Rathoe, Kellistown East, Ballycurrag, Kellistown West, Co. Carlow.

This Construction Traffic Management Plan (CTMP) has been prepared by Meinhardt on behalf of PRT Solar Limited (the applicant) in support of a Strategic Infrastructure Development (SID) planning application to An Bord Pleanála (ABP). The purpose of this CTMP is to ensure construction works are scheduled and carried out in a correct manner that will reduce the negative impact on the existing transport network over the construction period, whilst maintaining roadway safety and the amenity of the surrounding area.

It will be the responsibility of the appointed contractor to further update this CTMP prior to the commencement of the construction phase. The contractor will be required to agree the contents of the CTMP with both Carlow County Council (CCC) and An Garda Síochána before the commencement of works on site. The appointed contractor will fully implement and maintain the CTMP throughout the construction phase.

The proposed application boundary of the development is shown below in Figure 1-1.

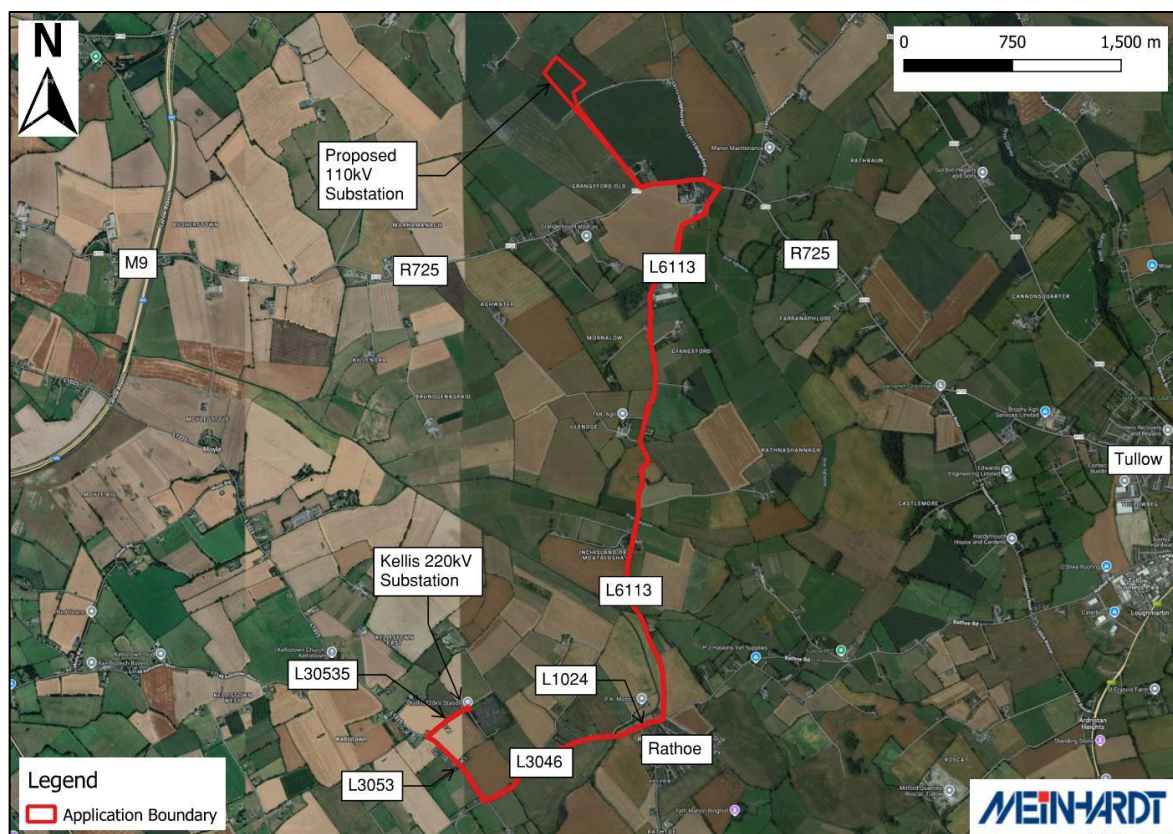


Figure 1-1: Proposed Application Boundary

1.2 Purpose & Scope

This CTMP aims to outline how the construction works will be carried out in a structured, respectful, and safe manner, incorporating targeted measures designed to minimise and manage potential impacts that may arise throughout the delivery of the Project.

The main objectives of this CTMP are to:

- Provide the basis for the completion of an updated CTMP by the appointed contractor to carry out the works.
- Outline to the contractor and Suppliers the need to adhere to the relevant guidance documentation for such works; and
- Outline minimum traffic management measures to be implemented for the works.

Should planning be granted by An Bord Pleanála (ABP) for the development, the updated CTMP will address the requirements of any relevant conditions, including any mitigation measures conditioned. The Employer's Representative will be responsible for ensuring that the appointed contractor manages the construction activities in accordance with the CTMP.

1.3 Existing Development

Grangeford Solar Farm, located at Grangeford Old and Friarstown, Co. Carlow was granted conditional planning permission by CCC on the 27th of September 2024 (Planning Reference: 23/60297). The development by PRT Solar Limited consisted of the construction of (i) a Solar PV development comprising photovoltaic panels laid out in arrays over a total development site area of ca. 91.2ha, (ii) the construction of a 38kV substation building ((6.1m (h) x 20.9 (l) and 7.3 (w)) and associated compound area, a transformer unit (ca. 6m x ca. 3.6m) and associated bund, (iii) 352 number Battery Energy Storage System units comprising 22 modules (ca. 21.9m x ca.5.2m) each with 16 number cabinet units within each module and (iv) all ancillary development including 15 number transformer integrated units (ca. 10.5m x ca.2.7m), 12 number inverter units (ca. 6.0m x ca.2.4m), 7 number CCTV cameras mounted on 4m high poles, a 3m high acoustic barrier, with berm and fencing, perimeter security fencing, site access, site egress and all ancillary works and services. The development has a 35- year operational lifetime.

It is noted that planning permission was granted by CCC to E.S.B International on the 4th of January 1994 for the erection of a 220kV outdoor type transmission station and control building at Kellistown East, Co. Carlow (Planning Ref: 93139).

It is anticipated that subject to obtaining consent for the Proposed Development, that the proposed 110kV substation will be developed in lieu of a previously permitted 38kV substation granted by Carlow County Council (Planning Ref: 2360297). The Proposed Development will connect the Permitted Solar Development to the national grid.

1.4 Existing Traffic

Formal traffic counts have not been carried out on the roads in question, however, from an in depth desk study it was noted that the L6113, the L3053 and the L30535 are all relatively lightly trafficked, with more moderate levels of traffic experienced on both the R725 and the L3046. See Figure 1-1 for the locations of these roads in relation to the application boundary.

2 Proposed Development

2.1 Development Description

The Proposed Development will consist of a 110kV substation, and associated 110kV underground grid connection, cabling and associated works required to connect a solar farm (permitted under Carlow County Council Reg. Ref: 23/60297) to the existing Kellistown 220kV substation. The 110kV grid connection route will consist entirely of underground cables (UGC), which will be installed within the public road network and through the solar farm site. The UGC works will consist of the installation of 6 No. ducts in an excavated trench to accommodate 3 No. power cables, 1 No. fibre communications cable to allow communications between the Grangeford Solar Farm Substation and Kellis 220kV substation 1 No. spare fibre communications cable and 1 No. earth continuity duct.

The outline construction methodology for the project, including a breakdown of the works required at each stage along the proposed route, is provided in Section 2.6.2.

2.2 Proposed Underground Cable Route

The grid connection utilises UGC with a route length of ca. 8km in total. The proposed route is detailed below and presented in Figure 2-1. The route is divided into two sections to facilitate the sequencing of construction works and the implementation of required traffic management measures. Further details are provided in Sections 2.3 and 2.4.

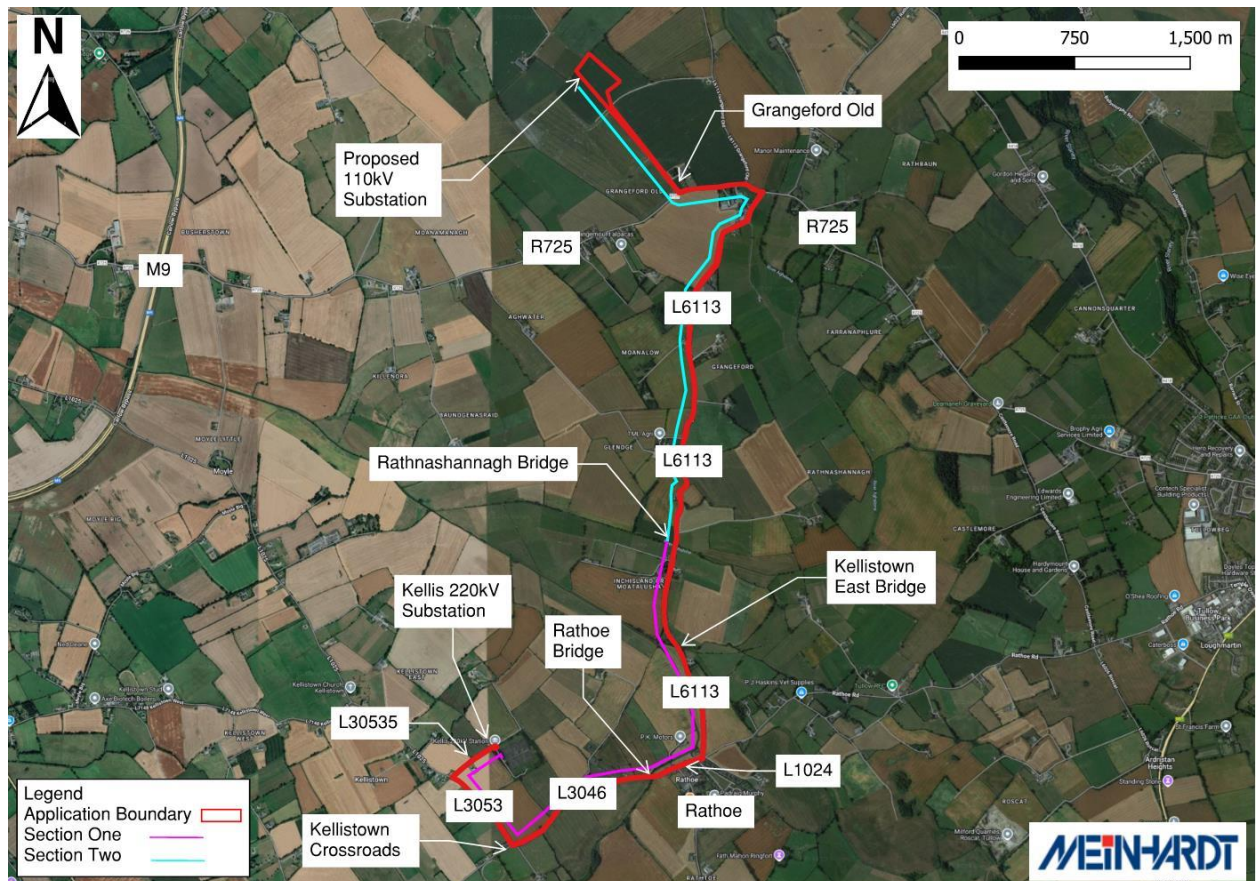


Figure 2-1: Proposed Underground Cable (UGC) Route between the Proposed 110kV Substation & Kellistown Crossroads.

- A UGC will exit the Kellis 220kV Substation Compound and turns south-west onto the L-30535.
- The UGC then turns south-east onto the L3053 for 500 m before entering the L-3046, at the Kellistown Crossroads, and thereafter veering north-east.

- Close to Rathoe Village, the UGC route encounters Rathoe Bridge. This is a multiple arch bridge spanning the river Burren. It is proposed to utilise Horizontal Directional Drilling (HDD) method to cross beneath the bridge within the public road boundaries.
- After, Rathoe Bridge, the UGC continues along the L1024. At Rathoe village the UGC turns north on the L-6113.
- On the L6113, the UGC route encounters two stone-built bridges. The first is at Kellistown East on a tributary of the Burren River and the second in Rathnashannagh on the Aghalona River. It is proposed to utilise the HDD method to traverse the bridges in both cases, within the curtilage of the road.
- The UGC continues on the L-6113 before turning west onto the R725.
- At Grangeford Old, approximately 500 m along the R725 the UGC turns north-west into a private access route toward the solar farm substation which is approximately 1 km north of the R725 at Grangeford Old.

The exact location of the UGC will be determined following a further detailed assessment to be undertaken before construction and following consultation with Carlow County Council and all other relevant stakeholders, having regard for all environmental protection measures required.

Table 2-1 below provides a summary of the route composition and details the proportion of works that will occur within each land designation.

Table 2-1: UGC Route Location Summary

	UGC Route Summary		
Solar Farm Site	Private Land	Public Road	Total
975 m	0 m	6900 m	7875 m

2.3 Section 1: Kellis 220kV Substation – Inchisland

Section 1 of the cable route extends from the Kellis 220kV Substation to the townland of Inchisland at Rathnashannagh Bridge, as shown in , with a total length of approximately 3750m.

This section of the route features six Joint Bay's, which are below ground pre-cast structures which are used to facilitate the connection of cable sections, further details on the joint bays are provided in Section 4.1. This part of the route also comprises two river crossings, located at Rathoe Bridge and Kellistown East Bridge, which will be undertaken using HDD within the curtilage of the road. Additional information on the HDD is provided in Section 3.1.

2.4 Section 2: Inchisland – Grangeford Solar farm 100kV Substation

Section 2 of the cable route extends from the townland of Inchisland at Rathnashannagh Bridge to the proposed Grangeford Solar Farm 100kV Substation, as shown in , with a total length of approximately 4125m.

This portion of the route includes five joint bays and one HDD crossing at Rathnashannagh Bridge.

2.5 Construction Programme

The construction programme, provided by the client, outlines a total project duration of just over 90 weeks as illustrated in Figure 2-2 below.

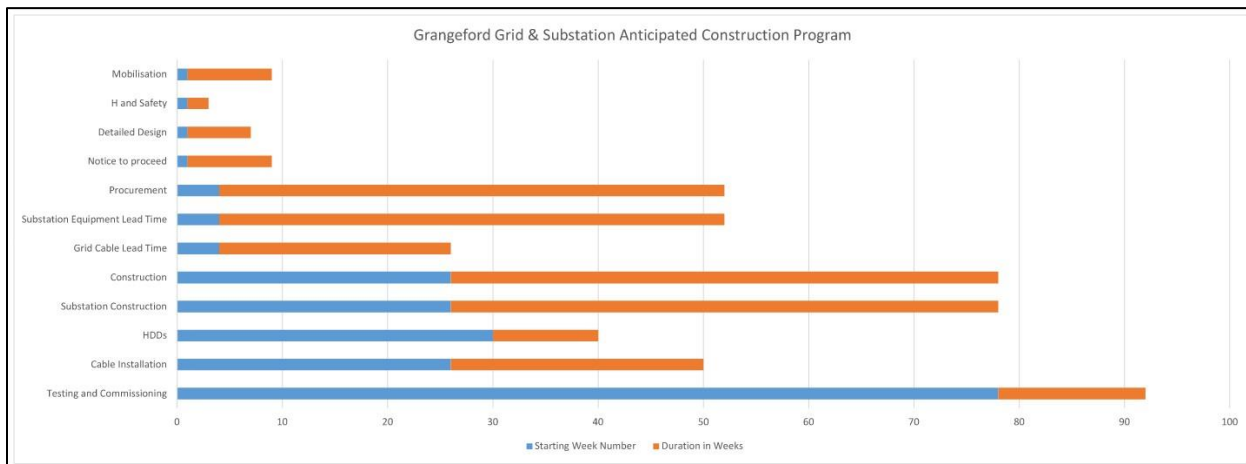


Figure 2-2: Anticipated Construction Programme for the Proposed 110kV Substation and Underground Grid Connection

2.6 Overview of Construction Methodology

2.6.1 Underground Cable (UGC) Design

The UGC will consist of 3 No. 160mm diameter High Density Polyethylene (HDPE) power cable ducts, 2 No. 125mm diameter HDPE communications duct and 1 no. 63mm diameter earth continuity duct to be installed in an excavated trench, typically 825mm wide by 1,315mm deep, with variations on this design to adapt to bridge crossings, service crossings and watercourse crossings, etc. The power cable ducts will accommodate 1 No. power cables per duct. The communications duct will accommodate a fibre cable to allow communications between the Grangeford Solar Farm Substation and the Kellis 220kV substation. The inclusion 1 No. earth continuity conductor duct will also be required.

Where ducting is installed within the public road, both installation and reinstatement will be carried out in accordance with the requirements of the Local Authority. The installation of the electrical cabling / fibre cable will be pulled through in some sections. Construction methodologies to be implemented and materials to be used will ensure that the UGC is installed in accordance with the requirements of the council and private landowners.

2.6.2 Construction Methodology

The Construction Phase of the project will include the following:

- Temporary Construction Compounds;
- Trenching and ducting including joint bays, link boxes and communication chambers;
- Traffic Management;
- Watercourse and Infrastructure Crossings;
- Horizontal Directional Drilling (HDD);
- Demobilise Temporary Construction Compound and Offices; and
- Reinstatement Works.

The proposed cable route comprises the installation of ca. 8km of cable, 11 joint bays and three river crossings. Each segment of ducting between joint bays is approximately between 700-900 m long, refer to Figure 2-3 for a typical 110 kV installation.

- No more than a 100m section of trench will be opened at any one time. The second 100m will only be excavated once the majority of reinstatement has been completed on the first;
- The excavation, installation and reinstatement process will take on average of 1 no. day to complete a 100m section;
- Where the cable is being installed in a roadway, temporary reinstatement may be provided to allow larger sections of road to be permanently reinstated together;
- Following the installation of ducting, pulling the cable will take approximately 1 no. day between each joint bay, with the jointing of cables taking approximately 1 week per joint bay location.
- Joint bays are typically precast, joint bay excavation, installation and backfill with temporary reinstatement is expected to take approximately 3 days, refer to Figure 2-4 for a typical joint bay installation.

There are three HDD locations that will be completed by a separate specialist subcontractor. These works will be incorporated into the programme with a view to ensuring no impact on the overall programme duration.



Figure 2-3: Typical 110kV Installation (Source: TLI Group)



Figure 2-4: Typical Joint Bay Installation (Source: Eirgrid)

3 Construction Traffic Management Plan

This section outlines the traffic management measures to be implemented on the road network during the construction period. The contractor will be responsible for further developing the contents of this Construction Traffic Management Plan (CTMP) prior to the commencement of works, ensuring alignment with and any relevant planning conditions. The CTMP will be treated as a 'live document', allowing for the incorporation of updates in response to changes in the construction programme or operational requirements.

The contractor will also be responsible for agreeing upon and implementing monitoring measures to verify the effectiveness of the mitigation measures set out in the CTMP.

The contractor will apply to the relevant road authority (CCC or Transport Infrastructure Ireland (TII)) for a road opening licence for consent to allow works to be carried out on a public road. The contractor will comply with restrictions and/or conditions relating to the road opening licence.

The potential impacts of the project on the local road network during the construction phase are outlined as follows:

- Impacts due to lane closures, road closures and diversions.
- Impacts resulting from the movement of construction materials, vehicles and equipment to and from the site.
- Impacts associated with material excavation to facilitate construction works.
- The movement of construction staff to and from the site, working areas and compounds.
- General traffic as a result of construction including plant deliveries, visitors and traffic between working areas.

3.1 Proposed Traffic Management Strategy & Procedures

In general, it is proposed to minimise disruption to the surrounding road network as far as is practical within the scope of the works. Temporary road closures will only be implemented as a last resort where the existing road width does not permit the use of a 'Stop / Go' traffic management system.

The primary disruptions to the road network are expected to occur during the installation of Joint Bay's. Joints Bays are to be provided approximately every 700-900 m along the UGC routes to facilitate the jointing of 2 no. lengths of UGC. 110kV Joint Bays are typically 6 m x 2.5 m x 2.05 m pre-cast concrete structures installed below the finished ground level. Where possible, Joint Bays will be located in the non-wheel bearing strip of roadways, however given the narrow profile of local roads this may not always be possible.

As shown in , the proposed cable route includes one regional road (R725) and four local roads. Due to the scale of the Joint Bays, it is anticipated that only the R725 will have sufficient width to accommodate the minimum carriageway width of 2.5 metres (as per Chapter 8 of the Traffic Signs Manual) required for a 'Stop/Go' traffic management system during the installations. As a result, three temporary full road closures are proposed on the local roads to facilitate the installations, as detailed in Section 3.4.

Temporary full road closures will also be required to facilitate the HDD at the three bridge locations shown in Figure 2-1 along the underground grid connection route. HDD is a method of drilling under obstacles such as bridges, watercourses, existing UG infrastructure, etc. This method is employed where installing the ducts using standard installation methods is not possible and is implemented to install cable ducts under the obstacle, as shown in Figure 3-1. As all three bridges are located along local roads, the same diversion arrangements implemented for the installation of the Joint Bay's may also be applied during the HDD at the bridge locations. It is noted that where temporary full road closures are implemented, local and emergency access to houses and businesses along affected routes must be accommodated at all times.

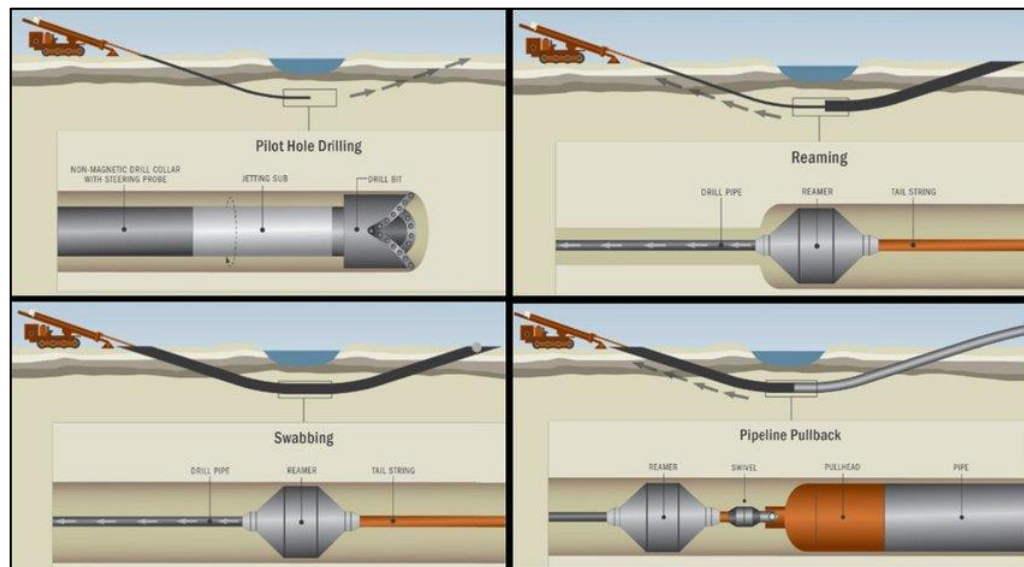


Figure 3-1: HDD Method (Source: Research Gate)

3.2 Duties & Responsibilities

The following stakeholders will contribute to the traffic management planning for the project and will be kept informed by the contractor regarding all developments related to traffic management:

- Contractor
- CCC Road Engineers
- An Garda Síochána
- Project Supervisor Construction Stage (PSCS)
- Project Supervisor Design Process (PSDP)
- Emergency Services; and
- Local Residents

3.2.1 Contractor

The contractor will engage with An Garda Síochána, emergency services, and all other relevant stakeholders listed above during the preparation of traffic management proposals. As the designated PSCS, the appointed contractor will be responsible for coordinating the implementation of the agreed traffic management measures. Should any issues arise during implementation, the contractor will consult with the relevant parties to revise the traffic management plan as necessary to ensure it meets the satisfaction of all stakeholders.

3.2.2 Carlow County Council Road Engineers

CCC Road Engineers are primarily responsible for the maintenance and management of the road network and its services in the area of the cable route. With regard to all works on, under, or above the road network, officers of the Roads Authority are empowered to issue directions to the undertakers of such works concerning timing, execution methods, reinstatement, and satisfactory completion. This authority is exercised through the road opening and closure licence processes. The contractor will ensure close coordination and cooperation with the Roads Department of the Local Authorities at all times.

3.2.3 An Garda Síochána

An Garda Síochána will have final authority with regard to day-to-day traffic control. The contractor will comply with all directions, instructions and requirements issued by An Garda Síochána.

3.2.4 Emergency Services

In relation to accidents occurring on, or caused by, the works, the contractor will provide all necessary assistance to deal with any emergency to An Garda Síochána, Ambulance Services and Fire Brigade services. The contractor will engage with the emergency services regarding the traffic proposals for work in public areas/on public roads.

In the event that emergency services need to pass through a works area where a lane closure is in effect, the existing traffic management system—whether stop/go controls or temporary traffic signals—may be temporarily suspended to allow priority access for the emergency vehicle. If the emergency is located within the works area itself, the contractor will facilitate access by promptly and safely removing machinery from the roadway under the direction of the designated team leader. Steel road plates will be kept on-site and made available, if required, to span any open trench and enable safe passage of emergency vehicles.

3.2.5 Local Residents

The following measures will be implemented to communicate relevant information to all households located along the cable route or for road's designated for use as a haul route:

- Information signage will be erected ahead of the commencement of construction / traffic management works.
- An informational flyer drop will be conducted to notify residents along the local road leading to the site about the planned construction programme.
- Contact details for a Liaison Officer will be provided so that any concerns can be easily communicated to the Developer.

The complaints procedure in relation to the construction works is detailed in Section 4.11.

3.3 Proposed Traffic Management Works

A total of three advisory traffic diversions are proposed along the cable route for through traffic as shown in Table 3-1 for the reasons outlined Section 3.1.

Table 3-1 presents a summary of the three advisory diversion routes and an estimated timeline of how long they will be in place. These timelines are subject to change based on the number of operatives and construction crews working on site and the provision of a detailed CTMP. It is noted that, in the case of Diversions 1 and 2, the approximate durations provided will not represent continuous works. There will be periods within these timeframes during which the road network will operate as normal.

Table 3-1: Advisory Diversion Routes

Road Section	Joint Bay / HDD Crossing	Diversion Route	Advisory Diversion Route Length (approx)	Approx Time and Activities
L6113	JB No. 4-10	Diversion 1: L6026 via R725 and L1024	6.6km	15 weeks - trenching & ducting, joint bay installation, HDD under bridges (Non-Consecutive)
L3053	JB No. 1-3	Diversion 2: N80 via L3046 and L7148	8.1km	3 weeks - trenching & ducting, joint bay installation (Non-Consecutive)
L3046	Rathoe Crossing	Diversion 3: L1024, L7113 and L7112	5.2km	2 Days – HDD Crossing at Rathoe Bridge

3.4 Proposed Traffic Diversions

3.4.1 Diversion One

In the case of diversion one, it is proposed to divert the L6113 via the L6026, R725 and L1024 as shown in Figure 3-2. The L6113 has an average paved width of approximately 4 metres, while the proposed diversion route along the L6026, R725, and L1024 has an average paved width of approximately 5 metres.

A total of five joint bays are proposed along the L6113. Due to the size of the precast units, which will occupy the majority of the road width, it is intended that the road will be temporarily closed during the installation of each individual joint bay. As outlined in Section 2.6.2, the installation of each joint bay is expected to take approximately three days.

Between joint bay locations, where road widths permit, the UGC installation works will allow one lane of traffic to remain open at all times through the use of a 'Stop/Go' traffic management system, maintaining a minimum carriageway width of 2.5 metres. Where it is not feasible to implement a 'Stop/Go' system, or during the installation of the joint bays as referenced above, a temporary full road closure will be required. In such instances, the previously described diversion route one will be implemented.

Additional temporary road closures will be required to facilitate HDD works beneath both Rathnashannagh Bridge and Kellistown East Bridge along the L6113. These works will necessitate the full road width and are expected to result in closures of approximately two days at each location.

The works outlined above would result in the L6113 being closed for a total of approximately 19 days with exact road closure arrangements and timings to be confirmed with CCC, should planning be granted.



Figure 3-2: Diversion 1 - Joint Bay No. 5 to Joint Bay No. 9 (Source: Google Maps)

3.4.2 Diversion Two

Diversion two is proposed to divert traffic from the L3053 via the N80, using the L3046 and L7148 as shown in Figure 3-3. The L3046 and L7148 have an average paved width of 5m and 4m respectively while the N80 has a typical road width of 6.5m.

Diversion two will be implemented to facilitate the installation of joint bay 2 which, as outlined in Section 3.4.1, will occupy the majority of the road width, preventing the use of a 'Stop/Go' traffic management system. The installation of joint bay two is expected to take approximately three days, resulting in a proposed temporary closure of the L3053 during this period. As detailed in Section 3.4.1, the exact timing and duration of the closure will be subject to agreement with CCC, should planning permission for the development be granted.

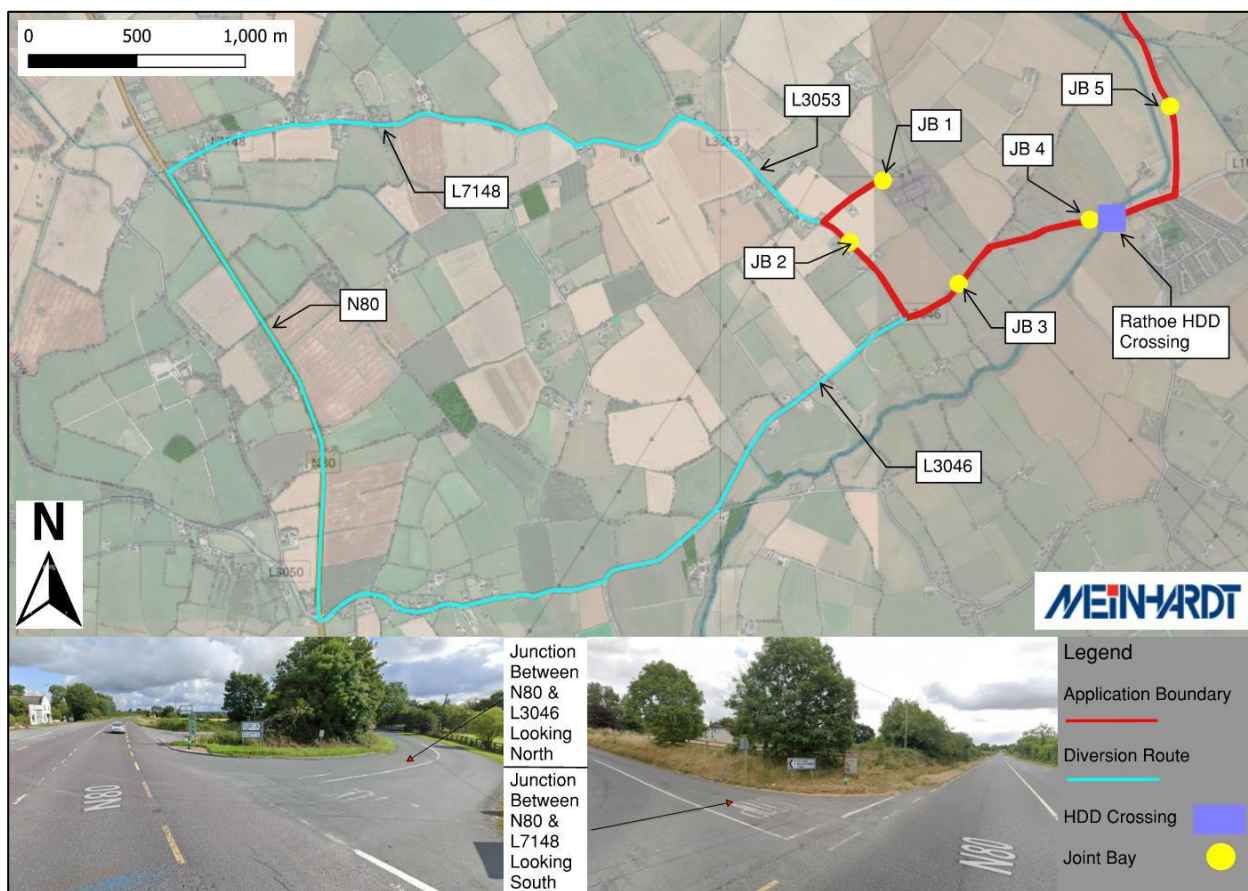
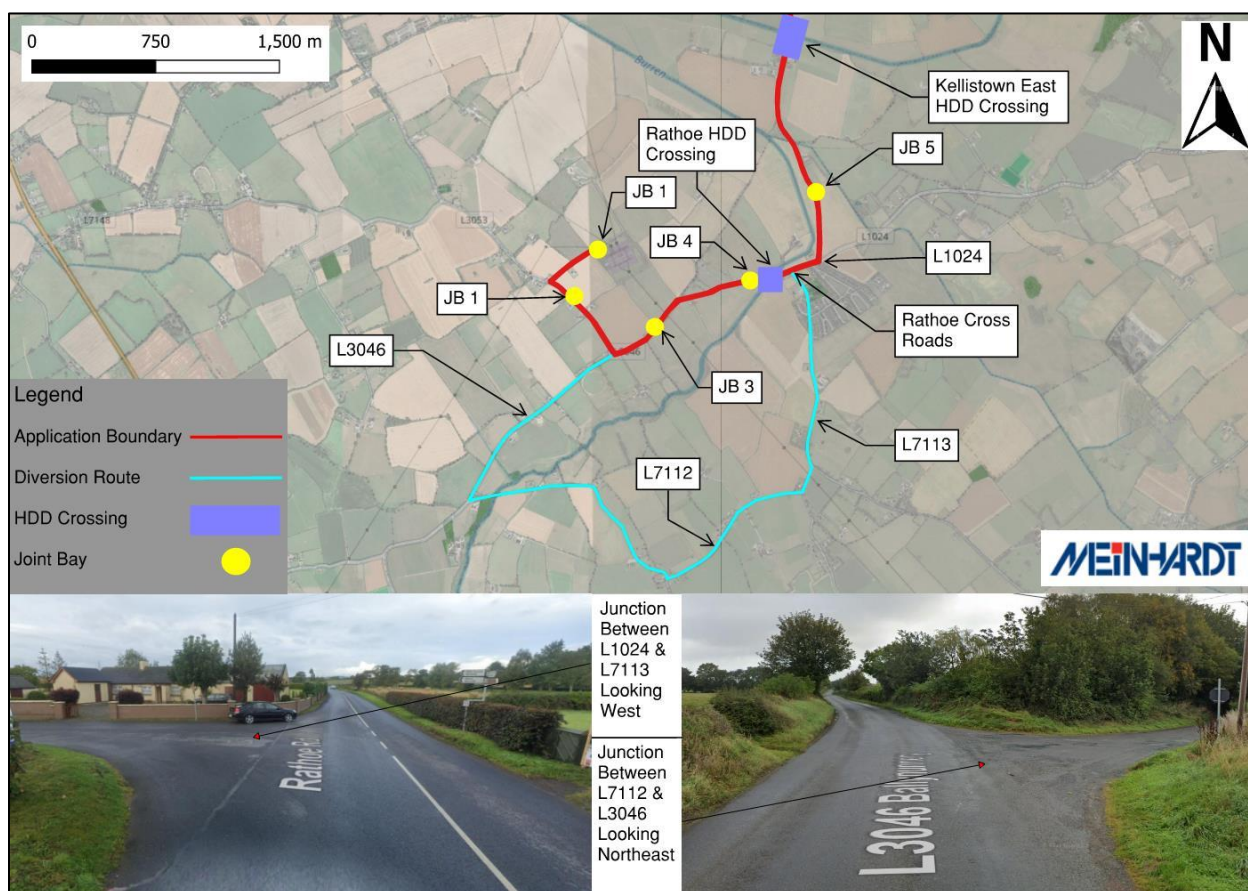


Figure 3-3: Diversion 2 - Joint Bay No. 2 (Source: Google Maps)

3.4.3 Diversion Three

Diversion three proposes to divert traffic from the L3046 after Rathoe Crossroads via the L7113, L7112 and L3046, as illustrated in Figure 3-4. The L7113, L7112 and L3046 have average paved widths of approximately 4m, 3m and 5m respectively.

Diversion three is proposed to facilitate HDD works at the Rathoe Bridge Crossing, which will necessitate a temporary full road closure. In addition, temporary closures will also be required to accommodate the installation of joint bays 3 and 4, with each installation expected to take approximately three days. In total, the works requiring a temporary full closure are anticipated to take around six days, resulting in a proposed closure of the L3046 during this period. As outlined above, the exact details and timings of the closure will be subject to agreement with CCC, should planning permission for the development be granted.



4 Measures, Management & Control Procedures

4.1 Hours of Work

Working hours for construction activities related to the proposals would be agreed upon in advance with CCC, but all construction traffic movements are anticipated to be undertaken from 08:00 to 20:00 Monday to Friday and 08.00 to 18.00 on Saturdays (if required). No construction will be carried out on Sundays or Bank Holidays unless in exceptional circumstances, with prior written approval from CCC, or in the event of an emergency.

4.2 Site Compound

A temporary construction compound will be located within the permitted Grangeford Solar Farm site during the construction phase of the permitted development. It is expected that 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;
- Parking for staff, construction vehicles and machinery;
- Designated skips for construction waste;
- Wheel washing facility.

4.3 Construction & Staff Vehicle Parking

All construction vehicles will be parked within the abovementioned site compound or within the works area so as not to cause additional obstruction or inconvenience to road users or residents.

No parking will be allowed for construction workers on the public road network in the vicinity of the site or at any location in the vicinity of the site other than within the abovementioned parking areas. All subcontractors and staff will be made aware of this policy and associated parking restrictions before they commence work on site.

4.4 Construction Traffic Routing

The appointed contractor will outline the haul route to all sub-contractors and staff, ensuring that they are informed of these routes and any restrictions before commencing work. Heavy vehicles will use the haul route as illustrated in Figure 4-1, subject to agreement from CCC.

Delivery vehicles will travel along the M9, located to the west of the application site. Vehicles will exit the M9 at Junction 5 (Rathcroogue) onto the N80 in a northwest direction for approximately 900m, before turning right onto the L1023. They will then continue along the L1023 for approximately 1.4 km, before turning left onto the L1025 and travelling a further 1 km to the junction with the R725. From there, vehicles will turn right onto the R725 and proceed east for approximately 5.9 km before making a left-hand turn into the site access point.

This 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.

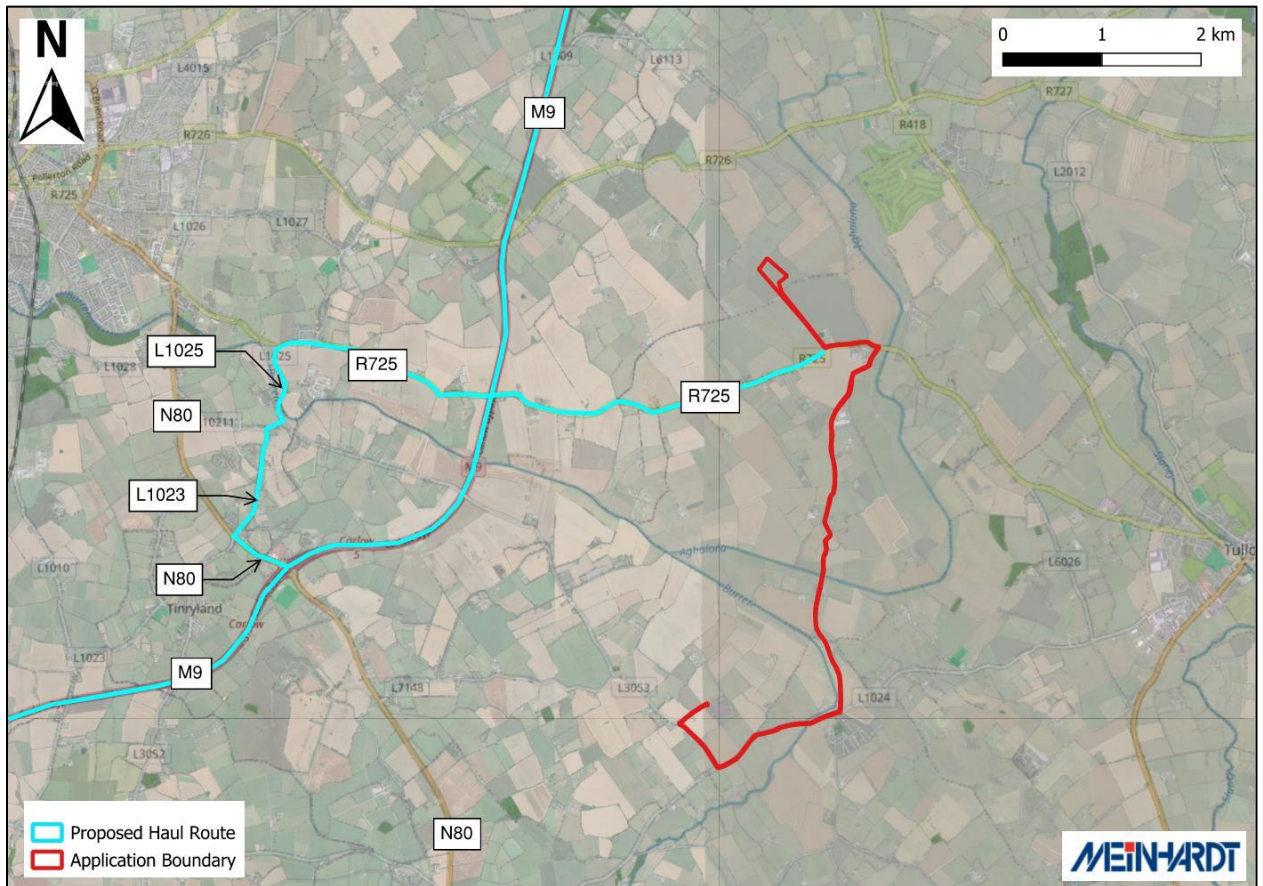


Figure 4-1: Proposed Haul Route

4.5 Access for Residents

- The contractor will ensure that safe access is provided at all times to private residences along the proposed cable route.
- Stone or steel plates will be made available along the proposed cable route to allow access to private residences where necessary.
- Local residents along the proposed cable route will be kept informed of the construction programme in their area by the contractor, and local access will be maintained wherever reasonably practicable.

4.6 Pedestrian Safety

There are currently no existing pedestrian or cyclist facilities along the proposed cable route. However, the contractor will be required to ensure that all construction activities are undertaken in a manner that does not endanger pedestrians or cyclists at any time. The contractor shall comply with the guidance set out in the most recent edition of the Department of Transport's Traffic Signs Manual, Chapter 8: *Temporary Traffic Measures and Signs for Roadworks*, specifically in relation to pedestrian and cyclist management.

4.7 Construction Traffic Signage

All warning signs will be erected in accordance with Chapter 8 of the TSM, Temporary Traffic Measures and Signs for Roadworks.

All signage will be inspected at least twice daily by the contractor to ensure that it is in place, secure and appropriately fitted with warning lights as required.

All sign faces are to be retro-reflective material to Class Ref 2 of EN 12899. The colours, chromaticity and luminance factors shall be as specified in Specification TS4.

4.8 Access to Commercial/ Business/ School Properties

The contractor will make provision for safe access to commercial, business and school premises for all users, including staff, customers, the general public and for deliveries.

4.9 Deliveries

Daily deliveries to the temporary site compound at the Grangeford Solar Farm during the construction phase will be efficiently scheduled to minimise congestion and disruption. The site manager will implement a delivery booking schedule to prevent construction vehicles from waiting on public roads. Deliveries will be scheduled outside of peak traffic hours or at times that minimise disturbances to local businesses and residents. Construction materials will be stored within the boundaries of the construction areas.

4.10 Enforcement

All contractors will be required to comply with the CTMP, which will be monitored by the applicant's site representative through spot checks to ensure vehicles adhere to the outlined measures, including vehicle speed restrictions.

4.11 Complaints and Enquires

A representative appointed by the contractor will manage complaints and enquiries related to construction traffic and site operations. This individual will log complaint and enquiry details, including location, time, and nature of the issue, and promptly communicate them to the client. The representative will also work towards resolving the issues, including liaison with complainants or enquirers, and report to the site manager and client on the resolution outcome.

4.12 Noise, Mud & Debris Controls

The appointed contractor will develop mitigation measures within the CTMP to address noise, mud, and debris associated with construction vehicles. These measures may include an on-site wheel washing facility, covering construction materials and waste to prevent spillage onto the local road network and measures to control noise and vibrations associated with construction vehicles will be employed where necessary.

4.13 Monitoring

As part of the CTMP, site operations, including construction traffic-related issues, will be continuously monitored through regular inspections and internal and external audits. Non-conformance areas or issues will be documented, investigated, and corrective measures will be implemented and monitored for resolution. A comprehensive review of the CTMP will occur on a bi-monthly basis to ensure its ongoing effectiveness.

4.14 Mitigation Measures

The impacts arising from the construction of the permitted development will be temporary in nature extending over a period of just over 90 weeks as outlined in Section 2.5. However, it is still important to ensure the safe and convenient use of the public road by motorists, cyclists and pedestrians and that any impact is minimised as far as possible. To that end, the following mitigation measures have been considered.

- A dedicated person will be appointed for the management of the deliveries during the construction stage. It will also be this person's duty to make sure the haul route is adhered to.
- Where temporary full road closures are implemented, local and emergency access to houses and businesses along the effected routes must be accommodated at all times.

- The appointed contractor will conduct a pre - and post-construction condition survey of the roads and bridges along the haul and cabling route's (see Figure 4-1), with the contractor liable to repair any damage to the public roads attributed to the construction of the permitted development.
- Deliveries will be scheduled to avoid morning and evening peak hours. This will avoid HGV traffic arriving during the morning peak hours and creating conflict with local residents' commute or school run. Construction personnel will also be encouraged to car-pool.
- The site entrance points and works areas along the cable route will also be appropriately signed during the construction phase. Clear construction warning signs will be placed on the approach to the site access point's and works areas, in accordance with Chapter 8 of the Traffic Signs Manual. Access to the working areas 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 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 on-site drainage network. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site.
 - Any dust generating activities will be avoided or minimised, wherever practical, during windy conditions
 - Drivers will adopt driving practices that minimise dust generation including a 30km/h speed limit within the works areas and the temporary compound.
 - Once construction of the development is completed, all portacabins, machinery and equipment will be removed and any temporary hard standing excavated.

4.15 Summary

The CTMP outlines strategies to mitigate transport-related impacts during the proposed development's construction phase. The plan focuses on minimising congestion and disruption to the local road network, as well as reducing environmental impacts and safety risks associated with the permitted development. It includes details on working hours, temporary compounds, parking arrangements, traffic routing, deliveries, enforcement, complaint management, staff movements and travel, as well as controls for noise, mud, and debris. Regular monitoring and reviews are planned to ensure the plan's effectiveness.

The CTMP also proposes mitigation measures with the aim of ensuring the local road networks continued safe operation for all road users.



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