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INTRODUCTION

Background

- 14.1 Kilsaran Concrete Unlimited Company (hereinafter 'Kilsaran') proposes to backfill a void created by the previous extraction of rock at its quarry at Ballinclare, near Kilbride, Co. Wicklow by importing and landfilling inert waste and to restore the backfilled lands thereafter to long-term grassland / scrub habitat. Kilsaran also proposes to establish and operate a construction and demolition (C&D) waste recovery facility at the same site.
- 14.2 The location of the proposed development relative to the receiving road network is shown in **Figure 14-1** below, where the application site is identified with a red boundary line and location of the access is indicated with a yellow arrow.

Figure 14-1
Site Location and Receiving Road Network



- 14.3 Kilsaran proposes to backfill the quarry at Ballinclare to surrounding ground level by importing and landfilling inert waste and restoring it thereafter to long-term grassland / scrub habitat. The inert wastes to be imported and landfilled will principally comprise naturally occurring soil, stone and broken rock excavated in the course of construction and development projects, with occasional construction and demolition (C&D) waste being imported and used in the construction of internal haul roads.
- 14.4 The landfill development and backfilling of the quarry void will be undertaken on a phased basis, working progressively from west to east. Restoration of the final landform will also be undertaken on an ongoing, progressive basis and will entail placement of cover soils and seeding to establish a grassland / scrub habitat similar to that which existed prior to quarrying.
- 14.5 The proposed development also provides for the establishment and operation of a construction and demolition (C&D) waste recovery facility across the footprint of the existing concrete blockyard at the quarry. The principal wastes to be recycled at this facility will include concrete (ready-mixed, reinforced, blocks and/or pavement slabs), bricks and bituminous mixtures (hardened asphalt returns and road planings).

14.6 The proposed development provides for the following:

- The backfilling of the existing quarry void at Ballinclare to original ground level by developing and operating an inert waste landfill facility with a total intake capacity of approximately 6,165,000 tonnes of inert soil and stone waste and (non-waste) soil and stone by-product and its progressive restoration to long-term grassland / scrub habitat thereafter
- Continued use of established site infrastructure and services including, site / weighbridge office, staff welfare facilities, weighbridge, garage / workshop, wheelwash, hardstand areas, fuel and water storage tanks to service the proposed development;
- Installation of a new weighbridge along the inbound lane of the quarry access road;
- Decommissioning of any remaining fixed plant and infrastructure associated with former rock extraction activities or with aggregate, concrete and asphalt production activities at the application site;
- Off-site removal of any materials or bulky wastes associated with the former quarrying and production activities;
- Construction of an industrial shed (portal frame structure) at the paved blockyard area to house crushing and screening equipment and process / recycle inert C&D waste (principally solid / reinforced concrete, bricks, ceramics and solid bituminous waste mixtures);
- Use of any remaining external paved area surrounding the C&D waste processing shed as a hardstanding area for the external handling and storage of both unprocessed and processed C&D wastes;
- Separation of any intermixed construction and demolition (C&D) wastes (principally metal, timber, PVC pipes and plastic) prior to its removal off-site to authorised waste disposal or recovery facilities;
- Installation and operation of a soil washing plant in the former concrete / asphalt yard in the south-eastern corner of the application site to recover sand and gravel aggregate for use in construction. The plant comprises a loading hopper, a number of soil screens in series with connecting conveyor systems, a primary wastewater treatment tank, a buffer tank holding sludge and recycled water, an elevated plate press and filter cake discharge area.
- Construction of an on-site (passive) wetland treatment system and attendant drainage infrastructure to treat surface water run-off / groundwater collecting in the floor of the quarry area during backfilling / landfilling operations and surface water run-off from the C&D waste recovery area prior to its discharge off-site;
- Re-use of an existing storage shed as a dedicated waste inspection and quarantine facility to inspect and store suspect waste consignments as required;
- Upgrading and ongoing maintenance of established internal haul roads across the site;
- Temporary stockpiling of topsoil pending re-use as cover material for final restoration of the inert landfill / backfilled quarry;
- Environmental monitoring of noise, dust, surface water and groundwater for the duration of the site backfilling and restoration works and for a short period thereafter.

The proposed layout of site infrastructure and locations of site services are shown on Figure 2-2 and Figure 2-3 of this EIAR respectively. For further detail of the proposed development and the application site context, refer to Chapter 2 of this EIAR

- 14.7 Working hours at the inert landfill and C&D waste recovery facility will be in line with those in the existing planning permission for extractive activities (Ref. 14/2118), between 08:00 hours and 18:00 hours Monday to Friday, and between 08.00 hours and 14.00 hours on Saturday (but limited to 10 No. occasions in any given year). The facility will be closed on Sundays and Public / Bank Holidays.

Development History

- 14.8 Extractive operations have been carried out at the existing Ballinclare Quarry since before 1963. The site was purchased and developed by S.M Morris in 1991. In 1993 planning permission was sought for the construction of a macadam/asphalt manufacturing plant. Subsequently, in 1995, planning permission was sought for the construction of a concrete manufacturing plant and ancillary works. In both applications the Planning Authority gave notice of its intention to grant planning permission. Both cases were subject of third party appeal, whereupon An Bord Pleanála decided to uphold the decision of the Planning Authority and grant permission with revised conditions.
- 14.9 In 2007 S.M. Morris made a further application (Planning Ref 07/45) principally for the retention of, and extension to, the existing quarry. The development was granted permission in February 2008 for a 20 year period and covered the pre-existing development footprint of 13.4ha which comprised extraction areas, processing areas, stockpiling areas, concrete products manufacturing plant, macadam and asphalt manufacturing plant, stone crushing and screening plant, a waste recovery facility and all related site infrastructure. It also provided for the extension of the then existing quarry by 6.6ha to a level of 25mOD and a further 10.6ha extension towards the west (also to a level of 25mOD), into the townland of Carrimore.
- 14.10 Following the acquisition of the quarry by Kilsaran, planning permission was granted by Wicklow County Council for a further quarry extension and additional site activities, subject to 23 conditions, in January 2016. The permission, under Planning Reg. Ref. 14/2118, covers a 36ha application site and is valid for a period of 25 years and thus expires in 2041. It provides for continuance of uses which were previously permitted under Planning Reg. Ref. No. 07/45 for rock extraction and processing and for the manufacture of concrete and asphalt, an extension of the quarry to a floor level of +1mOD over an extraction area of 16.5 hectares, as well as for the manufacture of concrete blocks. The following conditions attaching to the most recent 2014 quarry permission are those considered most pertinent with respect to traffic and transportation matters. General conditions of operation are transcribed:
- Condition 5: *“The movement of all types of product from the quarry shall be limited to a maximum of 150 loads per day. Records of movements shall be kept on file at the site for review by Planning Authority on request.” Reason: “In order to control the impact of the development on the area, and of traffic on the surrounding road network, and to take account of the pre ’64 level of activity at the quarry.”;*
 - Condition 6: *“Extraction, Processing and Manufacturing shall not commence before 08:00 and shall not continue after 18:00 Monday - Friday, and 14:00 on Saturday. Loading of vehicles shall not take place before 07:00. No work shall take place on Sunday or Bank Holiday.” Reason: “In the interest of residential amenity.”;*
 - Condition 7: *“Road improvement works shall be carried out at the developers expense in accordance with the strengthening, widening and overlay works set out in the submission received on the 4th November 2015. The works shall be carried out to the satisfaction of the Municipal District Engineer (Arklow).” Reason: “In the interest of traffic safety.”;*
 - Condition 8: *“The developer shall be responsible for maintaining the adjoining public roadway in a clean state, free from mud and other debris caused by the haulage of gravel and sand from the site.” Reason: “In the interest of traffic safety and amenity.”;*

- Condition 9: “The developer shall refurbish the metal advance warning signs as proposed. These signs shall be maintained in good and clean condition.” Reason: “In the interest of traffic safety.”:

14.11 As can be seen, Condition No.5 above stipulates that the combined output from all permitted activities at Ballinclare Quarry is limited to a maximum of 150 HGV loads per day. The reason for limiting the number of HGV movements is understood to be to control the potential impact of the development on the area and to limit traffic volumes on the surrounding receiving road network.

Scope of Work

- 14.12 This Chapter of the EIAR constitutes a Traffic and Transport Assessment (TTA) and has been prepared by Trafficwise Limited, Traffic and Transportation Planning Consultants. This Chapter provides an assessment of the permitted and forecast future traffic conditions on the local roads network in the vicinity of the Ballinclare Quarry, Kilbride, Co Wicklow. The assessment compares the traffic scenario arising from the current permitted development for extractive operations and ancillary on-site manufacturing activities with that which will be generated by the proposed development, which principally comprises landfilling and restoration of the existing quarry void and the operation of a construction and demolition (C&D) waste recovery facility.
- 14.13 This traffic assessment is based upon 2019 classified turning count surveys and automatic traffic counter (ATC) surveys of the receiving local road traffic flows, together with road network and site traffic data collected in relation to previous planning applications in 2007 (Planning Reg. Ref. 07/45) and 2014 (Planning Reg. Ref. 14/2118) in respect of the current permitted quarry development. Reference is also made to traffic flow data and general road improvement works provided in the EIS for the N11 Rathnew to Arklow Road Improvement Scheme (RARIS).
- 14.14 This assessment includes a review of historic, current, permitted and forecast traffic generation arising at Ballinclare Quarry and evaluates the relative influence of same upon the capacity and operation of the receiving road network. The study also examines site infrastructure and access arrangements serving the application site at Ballinclare Quarry which straddles the townlands of Ballinclare and Carrigmore, Kilbride, Co Wicklow.
- 14.15 Automatic traffic counter surveys and junction turning surveys undertaken on the receiving road network identify existing traffic conditions. These traffic surveys were carried out by Traffinomics (formerly Abacus Transportation Surveys) on behalf of Trafficwise Ltd. In the interest of a comprehensive appraisal of the receiving road traffic characteristics, this EIAR Chapter provides an assessment of the traffic flow variations recorded on the roads that make up the pre-existing haul route to Ballinclare Quarry.
- 14.16 This Chapter provides an evaluation of the relative level of impact that the pre-existing quarry development has on the local road network whilst operating at current permitted levels. Baseline network traffic flows are surveyed with the existing quarry closed. From this baseline the traffic assessment evaluates the potential traffic generation of the pre-existing development and this is then compared with the forecast potential traffic arising from the proposed integrated inert waste management facility when operating at planned maximum capacity.
- 14.17 This Chapter identifies how traffic arising from the permitted existing development is accommodated on the local road network and thus how traffic associated with the proposed development can reasonably be accommodated. Where considered appropriate, measures are discussed regarding the management of traffic generated by the proposed development together with local road improvements, road widening and other related mitigation measures.

- 14.18 The advice to Local Authorities in Spatial Planning and National Roads (Guidelines for Planning Authorities – January 2012), Chapter 3, ‘*Development Management and Roads*’ is to make sure that development located close to national roads and/or their junctions can be catered for by the design assumptions underpinning such roads and junctions, thereby avoiding potentially compromising the capacity and efficiency of the national road. The assessments provided in this traffic study show that the traffic generated by the proposed development will not give rise to a premature or unacceptable reduction in the level of service available to road users on national roads or their junctions in the vicinity of the existing development. The development can proceed complementary to safeguarding the capacity, safety and operational efficiency of the national road network. Based upon consultations with the Local Authority and reference to Transport Infrastructure Ireland (TII) programmes, it can be demonstrated that the proposed development does not have any adverse impact upon existing or future national road schemes.

Consultations / Consultees

- 14.19 In preparing this EIAR, an initial pre-planning consultation meeting was held between officials of Wicklow County Council and representatives of Kilsaran Concrete and SLR Consulting Ireland on 7th February 2019 at the offices of Wicklow County Council in Wicklow Town. Staff from the roads, water and environment services departments of Wicklow County Council were also in attendance.
- 14.20 Insofar as it relates to the generation of traffic, the development proposal provides for landfilling and waste recovery operations at the site that will generate a similar volume of traffic, with similar characteristics to that arising from the permitted quarry development under Planning Ref. 14/2118. Previously, when preparing the TTA and roads details in respect of that application, there was extensive consultation with the Planning Authority’s Roads Department and on-site measurement and assessment of the existing and proposed haul route was undertaken to establish strengthening and maintenance requirements. The Roads Department ultimately had no objection to the grant of permission for the permitted quarry development. **Figure 14-2** below shows the permitted principal haul route to and from the M11 Motorway which includes an anti-clockwise one-way route incorporating Local Road L1113 (from Beehive M11 Junction 18), Local Road L1157 and Regional Road R772 back to M11 Junction 18.

Figure 14-2
Existing Haul Route Reg. Ref. 14/2118



- 14.21 As noted above, this development proposal will generate a similar volume of traffic and it was initially proposed to the Planning Authority that HGV traffic would continue to use the same haul routes as currently permitted. The Planning Authority acknowledged that the one-way haul route had had advantages when the N11 Rathnew to Arklow Road Improvement Scheme was under construction in 2014 but that the traffic patterns on the local roads had changed in the interim such that it was the Planning Authority's preference that to benefit traffic flows locally, the traffic management regime at Ballinclare Quarry should be revised.
- 14.22 The Planning Authority indicated a preference for all HGV traffic to and from the application site to use only the L1157 Local Road in both directions. To accommodate the revised regime, it was acknowledged that road strengthening and widening works would be required on the revised haul route, such works appropriate to accommodating the passage of site generated HGV are designed and detailed in the drawings that accompany this EIAR. The extent and nature of the proposed road improvement works is described in this Chapter.
- 14.23 Separate site assessments and measurements were undertaken jointly by the Applicant and the Planning Authority and further formal consultation was undertaken in respect of the road improvement works required for the haul route to accommodate the traffic generated by the proposed inert landfill and waste recovery facility.
- 14.24 The TTA prepared in support of Planning Ref. No. 14/2118 is referenced herein to aid in the understanding of the current permitted traffic scenario. Recent traffic surveys, baseline data and assessment underpinning this TTA do not include any HGV traffic generated by the existing site and are thus valid in evaluating the baseline receiving road network and comparing the existing permitted traffic scenario with that proposed under the current planning application.

Contributors / Author(s)

- 14.25 This Chapter is prepared by Julian Keenan whose primary degree (BE hons) is in Civil Engineering from University College Galway. A Director of Trafficwise Ltd., a member of the Institution of Engineers of Ireland and the Chartered Institution of Highways and Transportation, Julian Keenan has over 30 years engineering experience with 25 years specialising in Roads Design and Transportation Planning.

Limitations / Difficulties Encountered

- 14.26 No difficulties were encountered in preparing this EIAR Chapter / TTA.

Planning Policy and Development Control

- 14.27 The Wicklow County Development Plan (WCDP) 2016-2022 is the statutory plan detailing the development objectives and policies of the local Planning Authority. Those policies and objectives, with relevance to this assessment, are identified below.
- 14.28 Chapter 9 of the WCDP covers 'Infrastructure'. Section 9.1 thereof relates to 'Roads and Transportation' and sets out various policies and objectives, whilst Appendix 1 addresses *Development and Design Standards*.
- 14.29 Policies and objectives of relevance to the assessment, as set out in Section 9.1 of the Wicklow CDP, are identified below.
- **Policy TR15** "Traffic Impact Assessments will be required for new developments in accordance with the thresholds set out in the 'Design Manual for Roads and Bridges' the 'Traffic & Transport Assessment Guidelines' (TII) and the Design Manual for Urban Roads and Streets (DoECLG & DoTTS)."

- **Policy TR28** *“To continue to improve local roads to the appropriate standards (given the location), consistent with predicted traffic flow and in accordance with Government policy and the Roads Programme adopted by the Council.”*
- **Policy TR33** *“Rural local roads shall be protected from inappropriate development and road capacity shall be reserved for necessary rural development.”*

Guidelines

14.30 This Chapter of the EIAR was prepared using the following guidelines:

- Chartered Institution of Highways and Transportation (1994) Guidelines for Traffic Impact Assessment (1994)
- National Roads Authority ‘Traffic and Transport Assessment Guidelines’ (2014)
- Transport Infrastructure Ireland ‘Project Appraisal Guidelines: Unit 5.3 – Travel Demand Projections’ (May 2019)
- Transport Infrastructure Ireland ‘Project Appraisal Guidelines: Unit 16.1 Expansion Factors for Short Period Traffic Counts’ (Oct-2016)
- Wicklow County Development Plan 2016-2022

RECEIVING ENVIRONMENT

Study Area

- 14.31 Ballinclare Quarry is located in the townlands of Ballinclare and Carrimore, Kilbride, Co Wicklow. The area is rural in nature and there is a dispersed mix of single dwelling houses and farms. The site is accessed directly from Local Road L1157 which forms the southern boundary of the site. The site is generally set within an agrarian landscape and is bounded by mature trees on all sides, the northern boundary being characterised primarily by conifers and beech whilst the remainder of the side is generally bordered by dense deciduous trees.
- 14.32 Given the current permitted level of traffic generation from site activities, the duration of the current permission, the character of the existing road environment, the scope of the study and assessment previously agreed with the Local Authority at the time previous traffic studies were prepared for the site, the scope of this TTA covers the operation of the existing access, the operation of the existing approved haul route which comprises Local Road L1113, Local Road L1157 and Regional Road R772 and the operation of the proposed revised haul route. **Figure 14-3** shows the proposed principal haul route (in pink) leading to and from the M11 Motorway.
- 14.33 In response to the pre-planning engagement with the Planning authority it is proposed to revise the traffic management system implemented previously for extractive related development at Ballinclare Quarry. It is proposed to revise the permitted one-way haul route. Under the current proposal all traffic will be required to use the L1157 to the east of the site to travel both to and from Regional Road R772 (the former N11 National Primary Road). To accommodate the two-way HGV traffic generated by the proposed inert landfill and C&D waste recovery facility, significant road strengthening and widening works are proposed. Except for some short sections upgraded during the M11 Motorway works, the proposed roadworks include the entire length of L1157 between the R772 and the existing development site access.
- 14.34 All HGV traffic importing waste to the application site will be routed as shown in **Figure 14-3**. Development generated HGV traffic from the north will leave the M11 Motorway at Junction 18, beside the Beehive Inn, travel south along Regional Road R772 as far as the former Tap Café / Restaurant at Kilbride. Traffic from the south will use M11 Junction 19 at Jack Whites Inn to access

the R772. From the Tap Café all HGV will travel northwest along L1157 to Ballinclare Quarry. The load bearing capacity of any bridges or structures along the haul route has not been measured since the proposed development will not require any abnormal loads. As such, any bridges on the proposed haul route and the main connecting regional and national transport network are expected to be capable of carrying the vehicles transporting materials to and from the proposed development.

Figure 14-3
Proposed Haul Route



- 14.35 HGV traffic exiting the quarry will turn left out of the quarry and travel southeast along the L1157 Local Road to the junction with the R772 Regional Road at the former Tap Café / Restaurant. At the L1157 / R772 junction, most traffic will head north toward the M11 Motorway at Junction 18 and from there, head toward Dublin and North Wicklow. Only a relatively minor proportion (no more than 5%) is expected to turn south toward Arklow and M11 Junction 19 at Jack White's Inn.

Receiving Road Network

- 14.36 The location of the application site in the context of the receiving road network is shown in **Figure 14-1** whilst the haul route which is part of the existing permitted traffic management plan for Ballinclare Quarry is shown in **Figure 14-2**, the proposed revised haul route is shown in **Figure 14-3**.
- 14.37 The existing quarry development enjoys direct vehicular access to Local Road L1157 at a simple priority access for which planning permission has been granted and confirmed under subsequent permissions up to and including the most recent permission, granted in 2016.
- 14.38 Local Road L1157 intersects the existing R772 (former N11 National Primary Road) at a priority junction adjacent to the former Tap Café, located approximately 2 km east of the quarry access. Approximately 600m west of the existing access, the L1157 intersects the L1113 at a priority junction. To the south of this junction via L1153 is Kilmacurra, whilst to the north via the L1113 is Coolbeg. Known locally as the Coolbeg Road, Local Road L1113 intersects the M11 and Regional Road R751 (Wicklow Road) at M11 Junction 18, a grade separated motorway interchange in a dumbbell configuration spanning over the motorway near the Beehive Public House.

- 14.39 The travel distance along the L1157 and L1113 Coolbeg Road from M11 Junction 18 at the Beehive to the existing site access is approximately 4.5 km, refer to **Figure 14-2**.
- 14.40 As part of the N11 Rathnew to Arklow Road Improvement Scheme (RARIS), the L1113 Coolbeg Road was realigned and upgraded for approximately 800m to a point west of its junction with L1111 (which leads to Glenealy and to the R752 Regional Road). There is no direct access from L1157 to the motorway. Traffic on L1157 heading northbound can do so by either using the L1113 to M11 Junction 18 or by first heading east and then following R772 (the reclassified former N11 National Primary Road) from its junction at the Tap Café, north to the Beehive Interchange where they it can join the M11. L1157 traffic travelling south can similarly follow the R772 as far as M11 Junction 19, located at what was previously Jack Whites Crossroads.
- 14.41 A one-way local haulage route had historically been used by HGV travelling to and from Ballinclare Quarry and that is the regime currently permitted for extractive operations and associated processing of stone derived product at the site. The historic and permitted HGV route to the application site from the M11 follows the L1113 Coolbeg Road and L1157 in an anti-clockwise direction and is shown in **Figure 14-2**. The haul route from the site to the R772 and M11 follows the L1157 east to the junction at the Tap Café.
- 14.42 Notwithstanding the existence of other commercial developments and Local Authority sites that generate HGV traffic locally, the objective of the Ballinclare Quarry haul route had been to reduce, insofar as practicable, the opposed passage of quarry generated traffic through the use of a 'development specific' one-way HGV routing system.
- 14.43 From discussions with senior Roads Authority staff around the time the 2014 planning application was submitted (Planning Reg. Ref. 14/2118), it is understood that the haul route system has operated satisfactorily and indeed successfully in the past. The success of the haul route was commented upon specifically in the context of its operation during the early to mid 2000's when HGV traffic generation was generally significantly higher throughout the road network and at Ballinclare Quarry.
- 14.44 The haul route had proven to have distinct advantages for network operation during the construction of the M11 (RARIS) although it had not always been possible to stringently maintain the regime of the haul route due to various traffic flow restrictions and road closures of L1157 and L1113 over the course of the construction. It is understood that the haul route is informal in order to cater for just such eventualities and to permit the quarry to deliver product locally when the need arises.
- 14.45 Were the haul route a formal requirement then clearly the quarry could not have been operated were either the L1113 or L1157 closed or blocked for any reason whatsoever, regardless of whether such impediment was long term or short term in nature (eg. a fallen tree during inclement weather or road improvement works).
- 14.46 Following pre-planning engagement in respect of the proposed inert waste facility at Ballinclare Quarry, the Planning Authority's opinion was that due to local traffic characteristics and the completion of the M11 Motorway, the benefits of the one-way system were not in evidence. The Planning Authority indicated a preference that a shorter haul route along the L1157, directly to and from the R772 was preferred, subject to appropriate road strengthening and widening works to accommodate the safe opposed passage of HGV traffic.
- 14.47 For the purposes of this assessment and in the interest of network efficiency it is assumed that the long-established pre-existing haul route to and from the quarry will be abandoned in favour of a two-way haul route along L1157 to the east of the site, as preferred by the Planning Authority.
- 14.48 The speed limit on the greater receiving road network of local roads is the default rural speed limit of 80kph. The system of applying a default 80kph speed limit on rural road has been the subject of considerable national debate. Since early 2014, a default speed limit is no longer considered by the

Department of Transport to be a suitable system given the geometry and alignment of some of the roads to which it applies. In response, the Minister for Transport has set up a Speed Limits Working Group which has published recommendations to undertake a nationwide reform of the speed limit system with the goal of ensuring that the speed limit on any given road is a fair reflection of the road conditions.

- 14.49 The typical procedure for establishing suitable speed limits, which is supported by the advice of the National Roads Authority Design Manual for Roads and Bridges (DMRB), now Transport Infrastructure Ireland Publications, is to carry out vehicle speed measurement surveys on the road and to determine suitable speed limits based upon the 'Design Speed' whilst also taking into consideration the general character of the road.
- 14.50 The 80kph default speed limit is not the relevant design consideration in the standards and accordingly is not the appropriate factor upon which to determine the suitability of sightlines and visibility criteria along the receiving road network and at the junctions and accesses thereupon. It has nonetheless been determined from the automatic traffic counters that the Design Speed on the receiving road network at the location of the counter site on L1157 is generally 79kph.

Existing Traffic Flows on Local Road Network

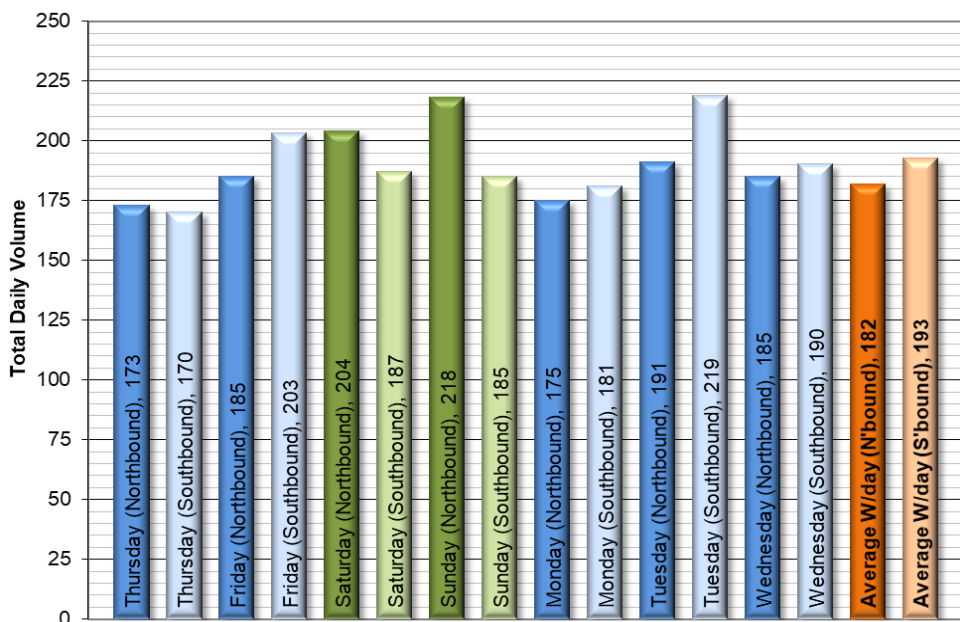
- 14.51 In relation to general roads geometry, the principle design parameter is the 'Design Speed' of the receiving road. Other considerations include vehicle categories, the proportions of vehicle types, the volume of traffic on the receiving road and the volume of traffic generated at junctions and accesses.
- 14.52 In order to assess the current traffic conditions on the receiving road automatic traffic counter (ATC) surveys were carried out by Traffinomics (formerly Abacus Transportation Surveys). ATC equipment was installed on the L1157 to the east of the existing Ballinclare Quarry access. The ATC recorded traffic data for one week starting at midnight on Wednesday 3rd April 2019 and ending at midnight on Wednesday 10th April 2019. In addition, classified turning count surveys were undertaken at the existing site access, at the L1113 / L1157 junction and L1157 / R772 junction on Thursday 4th April 2019.
- 14.53 The traffic survey locations are shown in **Figure 14-4** where turning counts are annotated as 'site' and the ATC annotated. Given the ongoing Covid-19 Pandemic emergency measures including travel restrictions it is unlikely that more recent or current (2020 / 2021) network traffic flow data would be representative. Network traffic flows are unlikely to return to a settled pattern until perhaps the latter part of 2021. The traffic data collected in April 2019 during the school term pre-dates the pandemic and being aged less than 2 years it is valid for use in these analyses.
- 14.54 The automatic traffic counter data provides a continuous record of:
- Traffic Volume by Direction
 - Vehicle Classification (Category of Vehicle) by Direction
 - Vehicle Speed by Direction.
- 14.55 Comprehensive summaries and analyses of the survey data are presented in this Chapter and a full copy of the base traffic survey data is provided in **Appendix 14-1**.

Figure 14-4
Traffic Survey Locations



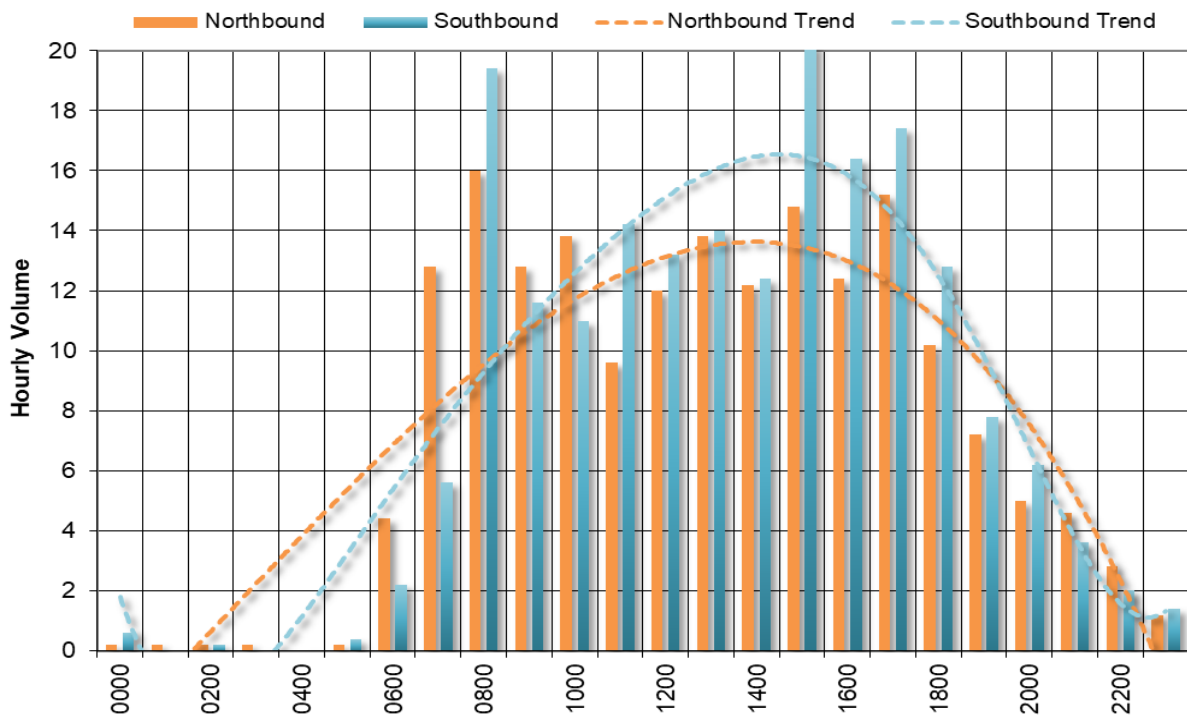
- 14.56 Existing traffic flows along Local Road L1157 are low and therefore it can be difficult to obtain representative survey data during a one day manual count. The ATC equipment has been used over the course of one week in the interest of acquiring a representative sample size and to verify the one day classified turning count data. In relation to the records of vehicle speeds, automatic traffic counter data was gathered in accordance with advice provided in the Design Manual for Roads and Bridges TA22.
- 14.57 Analysis of the traffic flow data recorded by the ATC on L1157 is summarised in the following graphical output in **Figure 14-4** which shows the total daily traffic flow by direction for each day of the week and in **Figure 14-5** which shows the average hourly traffic flow by direction on weekdays:

Figure 14-5
2019 Baseline Daily Traffic Flows L1157 East of Site Access



- 14.58 By direction, the average weekday total daily traffic flow passing the existing site access location on Local Road L1157 is 182 vehicles per day northbound (toward L1113) and 193 vehicles per day southbound (toward R772). The lowest daily traffic flow occurred on Friday with 173 vehicles northbound and 170 southbound over a 24-hour period, whilst the highest daily flow occurred on Wednesday with 219 vehicles northbound and 185 southbound.
- 14.59 **Figures 14-5** shows the recorded average weekday hourly traffic flow over the course of the weeklong survey. The profile for the average daily weekday flows shows modest evidence of a tidal commuter traffic pattern typically observed on regional and national roads which tend to show peaks in one direction at the traditional commuting periods in the morning with a reversal in the predominant direction of flow during the evening peak. The graph for both directions of flow follows a normal distribution with discernible but not significant morning or evening peak hour periods.

Figure 14-6
2019 Baseline Hourly Traffic Flows L1157 East of Site Access



- 14.60 The average traffic flow recorded for each hour of the weekday over the course of the survey between the hours of 07:00 and 19:00hrs is 13 vehicles northbound and 14 vehicles southbound per hour. The weekday morning peak hour during the traditional commuter peak hour period of 08:00 to 09:00hrs shows the road carries 16 vehicles northbound and 19 vehicles southbound. The weekday evening peak hour period during the traditional commuter peak of 17:00 to 18:00hrs shows the road carries 15 vehicles northbound and 17 vehicles southbound.

HGV Traffic

- 14.61 The volume of HGV traffic recorded in the surveys is summarised separately in the graphical output provided in **Figure 14-6** and **Figure 14-7**. It is noted that Ballinclare Quarry was closed and not operational at the time of the traffic surveys. The surveys therefore establish a baseline traffic flow scenario where no development takes place. This data can be used to compare the current permitted extractive operation and the proposed inert landfill and C&D waste recovery facility.

- 14.62 **Figure 14-6** shows the average weekday daily HGV traffic flow is 13 vehicles per day northbound (toward L1113) and 19 vehicles per day southbound (toward R772). The lowest daily traffic flow is unsurprisingly Sunday with 3 HGV in either direction in 24 hours whilst the highest daily flow occurred on Wednesday with 22 HGV northbound and 29 southbound.
- 14.63 **Figure 14-7** shows the profile for the average weekday daily HGV flow which despite the small sample size is consistent with the typical pattern of commercial traffic flows expected on regional and local roads which tend to show a distribution curve resembling the mathematical ‘standard normal distribution’ (Gaussian).
- 14.64 **Figure 14-8** shows the weekday average HGV traffic flow recorded for each hour of the day over the course of the survey. The average weekday traffic flow between the hours of 07:00 and 19:00hrs is 1 HGV northbound and 1 HGV southbound per hour.
- 14.65 The morning peak hour in HGV traffic occurs between 09:00 to 10:00hrs which is after the traditional commuter peak hour period of 08:00 to 09:00hrs. During the weekday HGV morning peak hour 09:00 to 10:00hrs the road carries a two-way flow of 4 HGV. The evening peak hour period is less well defined as there is a relatively consistent two-way HGV traffic flow of vehicles in either direction from 10:00hrs through to 17:00hrs.

Figure 14-7
2019 Baselines Daily HGV Traffic Flows L1157 East of Site Access

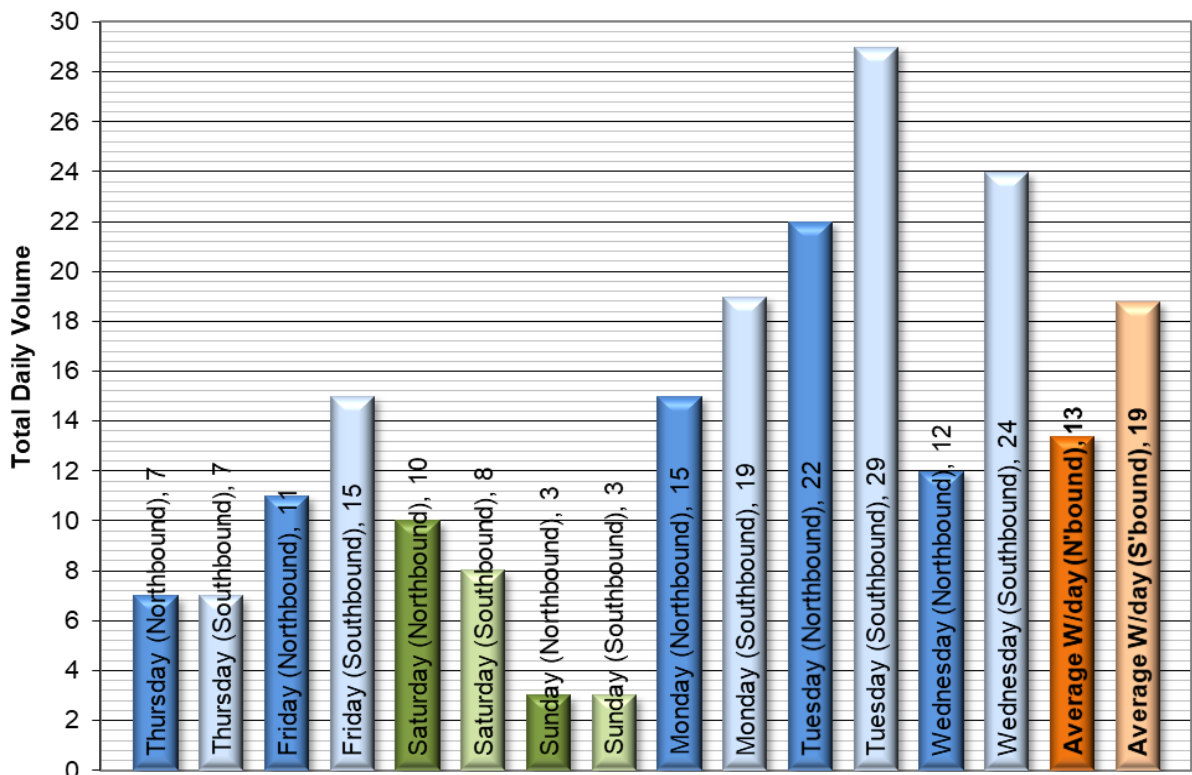
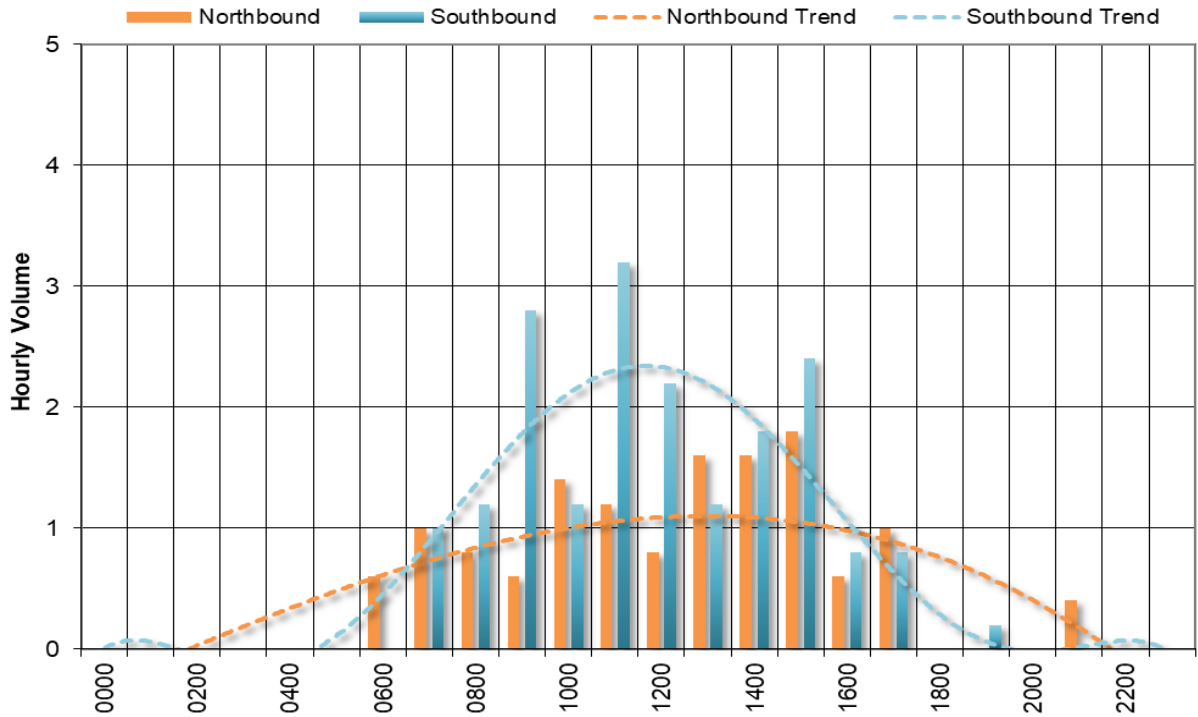


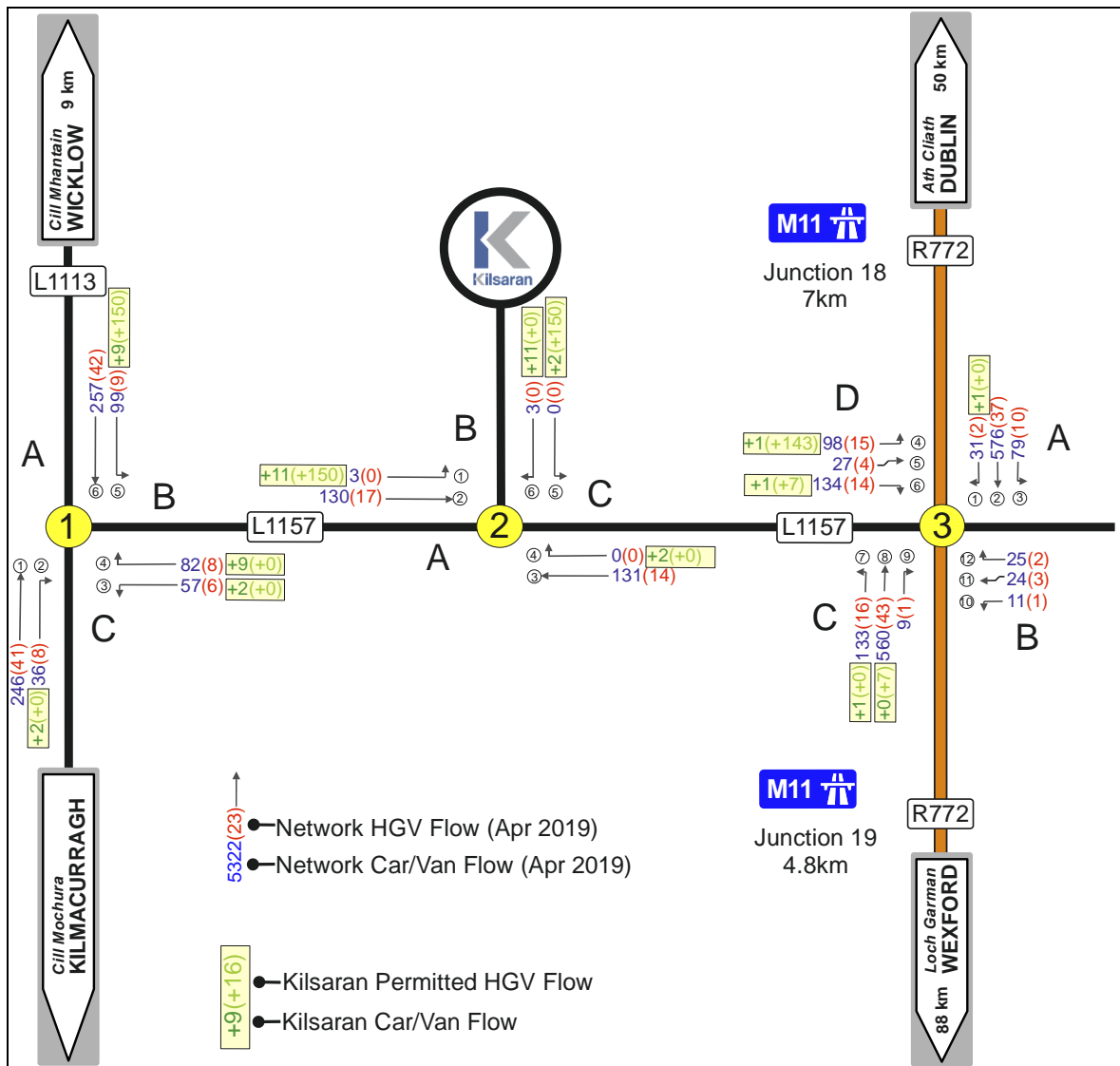
Figure 14-8
2019 Baseline Daily HGV Traffic Flows L1157 East of Site Access



14.66 Daily traffic flows recorded on the receiving road network during the course of a survey on Thursday 4th April 2019 are shown in the following **Figure 14-9** which presents the traffic flow data in network flow diagram format. The total car and light vehicle flow figures are shown 'blue' and the HGV flows are '(red)'.

14.67 Also shown on **Figure 14-9** are the traffic flows generated by the permitted quarry development assigned to the network in the proportions set out in the submission to the Planning Authority for the current permission (Planning Reg. Ref. 14/2118.)

Figure 14-9
2019 Baselines Daily Network Traffic Flows



- 14.68 **Table 14-1** below provides a summary of the recorded traffic flows on the receiving road network during the turning count surveys on Thursday 4th April 2019. **Table 14-1** shows the recorded traffic flow and percentage HGW content enumerated between 07:00 and 19:00hrs.
- 14.69 Based upon NRA: Project Appraisal Guidelines Unit 16.1 'Expansion Factors for Short Period Traffic Counts' the weekday AADT is estimated to be approximately 19.3% higher than the flows recorded during the 12-hour surveys.
- 14.70 The short-term count data at Site 2 shows 295 (11.7% HGW) over the 12-hour count. Comparing this data against the average ATC data for the week which shows a 24-hour flow of 375 (8.5% HGW) suggests that the short term data should be factored by 27% to reflect the recorded 24hr data.
- 14.71 In the interest of simplicity for the purposes of this assessment, the AADT values of **Table 14-1** are approximated for the L1157 as +27% of recorded 12-hour traffic flows for all roads.

Table 14-1
2019 Baseline Receiving Road Traffic Flows (4th April 2019)

Road Link	Daily Traffic Flows 07:00-19:00hrs			AADT
	Total	HGV	%HGV	
L1157 (W)	298	31	10.4%	378
L1157 (E)	292	31	10.6%	370
L1113 (N)	784	100	12.8%	996
R772 (N)	1,478	99	6.6%	1,877

14.72 It is best practice in preparing TTA to assess the impact of the proposed development during periods when the impact of development traffic flows on the receiving road network are likely to be greatest. The peak hours and associated traffic flows recorded in the April 2019 surveys are as follows:

- Weekday AM Network Peak Hour 08:00-09:00hrs
- Weekday PM Network Peak Hour 17:00-18:00hrs

14.73 **Table 14-2** and **Table 14-3** provide a summary of the recorded two-way peak hour traffic flows on the receiving road network in the morning and evening peak hours.

Table 14-2
2019 Baseline Morning Peak Hour Receiving Road Traffic Flows (4th April 2019)

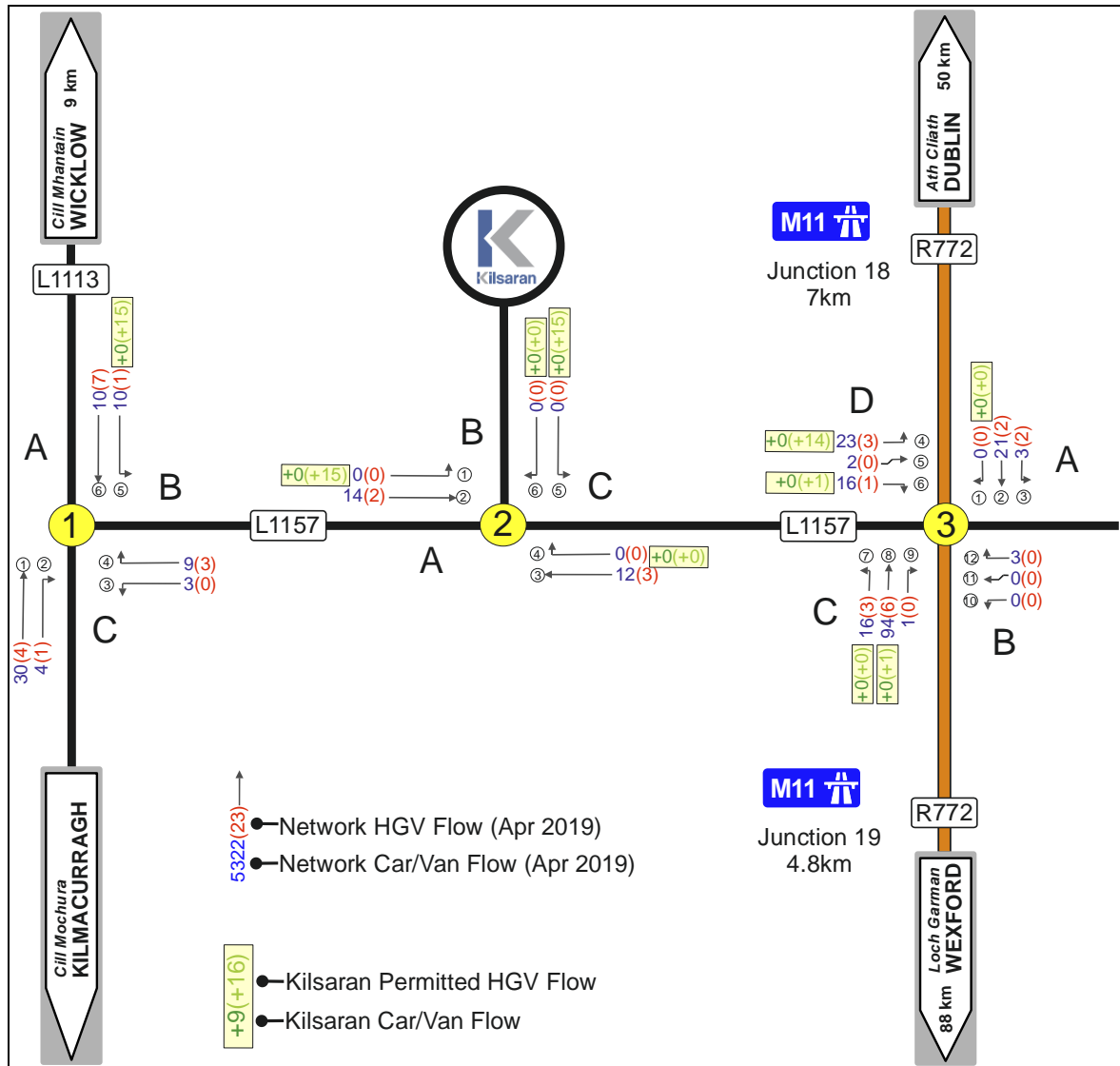
	Total	HGV	%HGV
L1157	31	5	16.1%
L1113 (N)	74	15	20.0%
R772 (N)	157	13	8.2%

Table 14-3
2019 Baseline Evening Peak Hour Receiving Road Traffic Flows (4th Apr-2019)

	Total	HGV	%HGV
L1157	28	5	17.8%
L1113 (N)	68	5	7.3%
R772 (N)	161	7	4.3%

14.74 The morning peak hour traffic flows recorded on the receiving road network during the course of the Thursday 4th April 2019 survey are shown in the following **Figure 14-10** which presents the traffic flow data in network flow diagram format. The total car and light vehicle flow is shown 'blue' and the HGV flow '(red)'.

Figure 14-10
2019 Baseline Morning Peak Hour Network Traffic Flows



14.75 The surveys show that that the existing quarry was not operational at the time of the traffic surveys. The daily traffic flows permitted under Planning Reg. Ref. 14/2118 (Condition 5) are shown separately in **Figure 14-9**. The average hourly traffic generation figures to and from the permitted quarry at the development site are set out in **Figure 14-10** above.

Site Access Junction

14.76 The existing site standard of walled access was first granted under Planning Ref. 07/45 and subsequently confirmed under the current quarry permission Planning Ref. 14/2118. The Applicant continues to maintain the hedgerow either side of the site access to ensure that sight distances in both directions are optimised and not obstructed by overgrown hedgerow or overhanging branches of mature trees.

14.77 Access to the operations part of the site is via a two-way avenue. The existing weighbridge office is located approximately 120m from the site access junction on L1157. Should it be required there is ample linear queuing space for up to 10 HGV. There are no records of queuing on the public road over the history of the operation of the existing site.

Existing Public Road Network

- 14.78 A detailed structural analysis of the full length of the one-way haul route to and from Ballinclare Quarry (along L1113 and L1157) was previously undertaken in support of the planning application for the current permitted quarry development (Planning Ref. 14/2118).
- 14.79 The structural analysis was carried out by Milestone Pavements Technologies and included Falling Weight Deflectometer (FWD) testing which is a non-destructive test that determines the load bearing capacity of a pavement structure. In addition to the FWD tests, Milestone also undertook a visual condition survey, together with coring of the pavement which involves cutting and extraction of the upper bound layers from the pavement, in order to investigate pavement condition.
- 14.80 The results of the structural analysis suggested that, subject to routine general road maintenance and strengthening works, the existing one-way haulage route was suitable for the pre-existing traffic levels at that time. The results showed that those sections that had received more recent maintenance works were comparatively more structurally capable. General maintenance would ordinarily include overlay or surface dressing or a combination of both.
- 14.81 The results of the structural analysis further suggested that portions of the haul route may be advanced in terms of design life and would require maintenance works in the not too distant future in order to accommodate the existing, permitted traffic volumes. Such maintenance would be required irrespective of any increase in traffic volumes arising from the current planning application. The results of the earlier structural analysis suggest that to accommodate permitted traffic levels over the next 20 years (typical pavement design life), the proposed haul route would require ongoing strengthening and maintenance works.
- 14.82 The structural analysis identified some sections of the haul route where the upper layers of the pavement were in poor condition. The structural analysis nevertheless showed the sub-grade to be stiff to moderate over the degraded sections identified along Local Road L1157.
- 14.83 In assessing the 2014 planning application, the Planning Authority Roads Department determined that the proposed limit of 150 HGV loads (trips) per day could be accommodated on the road network, subject to an examination of the network to show that it is structurally capable of accommodating the increased HGV traffic.
- 14.84 In order to accommodate the permitted traffic levels, the Roads Section required some sections of the haul route to undergo maintenance and strengthening works. Having concluded the detailed structural analysis, a walk-over of the haul route was subsequently undertaken with the Roads Department's Senior Engineer, the Municipal District Engineer and WCC Area Engineer at which any road sections requiring strengthening and remediation works were identified and agreed.
- 14.85 The resulting (ie. current) quarry permission (Planning Ref. 14/2118) included Condition 7 which relates directly to those sections of road for which strengthening, widening or overlay works are required. These sections are identified in a planning submission received by the Planning Authority on 4 November 2015. A copy of that submission, which was provided in response to a request for clarification of further information (CFI), is attached as **Appendix 14-2**. The response to CFI Item 4 provides details of the roads strengthening, widening and overlay works that had been agreed.

Proposed Road Strengthening and Widening

- 14.86 The proposed inert waste facility at Ballinclare Quarry will generate a similar volume of traffic with similar characteristics in terms of vehicle type and payload, nevertheless it is proposed to alter the haul route from the previous one-way regime that had been agreed but not conditioned under Planning Ref. 14/2118. The proposed new haul route will remove all development generated HGV

traffic from the L1113 and from the L1157 to the west of the existing site access. The current proposal is for traffic to come and go from the east using only Local Road L1157 and will effectively double the volume of HGV travelling along the L1157 to the east of the development access.

- 14.87 Given the total number of HGV movements along the L1157 will double, the previously agreed road strengthening works are not considered sufficient over the design life of the scheme. In addition, the proposed haul route is required to accommodate the opposed two-way flow of HGV and so in addition to strengthening works to carry the traffic, carriageway widening works will be required to increase the road width to safely accommodate two-way opposed HGV passage.
- 14.88 On site, pre-application engagement with Wicklow County Council included a walkover survey of the local roads and examination of detailed surveys of the geometry and structure of the receiving road network, together with traffic flow and speed surveys. Trafficwise personnel met with Arklow Municipal District Engineer, Rob Mulhall on 24-July-2020 to conduct a joint walkover assessment of the structural condition and width of Local Road L1157 between the Tap Café and the existing site access.
- 14.89 Following the on-site meeting, to assist the Planning Authority to undertake an independent assessment of road widths etc. Trafficwise provided to the Arklow Municipal District Engineer a detailed topographical survey undertaken by Techsol in July 2020 along L1157. The topographical survey includes all boundary features along the public road, together with all infrastructure between the boundaries. The survey scope extends over approximately 2km between the junction with Regional Road R772 and the site entrance.
- 14.90 Spreadsheets and full details of traffic turning count surveys undertaken by Traffinomics for the junctions at either end of L1157 and at the site access, together with Automatic Traffic Counter data on the L1157 to the east of the site access was also provided to the Arklow Municipal District Engineer.
- 14.91 The Arklow Municipal District Engineer was also directed to refer to the comprehensive Haul Route Structural Analysis Survey undertaken of the existing haul route including the L1113 and L1157 by Milestone Pavement Technologies dated June 2015 (which accompanied the response to a Request for Further Information dated 04-Feb-2015 on Planning Reg. Ref. 14/2118). A copy of the Haul Route Structural Analysis Survey is provided at **Appendix 14-C** for information.
- 14.92 Trafficwise subsequently prepared preliminary road widening drawings for the consideration of the Planning Authority. The initial objective of the exercise was to strengthen those sections of road which required it (as identified from the walkover survey), to widen the road to a consistent width of 5.5m carriageway, together with the provision of a series of inter-visible passing bays measuring 6m in width over the length of the haul route, between the existing site entrance and Regional Road R772.
- 14.93 Having examined the preliminary proposals and having considered the matter internally, the Planning Authority advised that, in its view, a road width of 5.5m would not be sufficient. Wicklow County Council Roads Section advised that they were of the view that the Applicant should be considering measures that would achieve a carriageway width of 6.0m. This standard was based upon independent site measurements undertaken by Arklow Municipal District Engineer along the Local Road L1113 (Coolbeg Road) which is currently subject to locally generated HGV traffic. Coolbeg Road does not have benefit from formal passing areas or local carriageway widenings. From the measurements on the Coolbeg Road the average width was estimated by the Municipal District Engineer to be in the region of 5.7/5.8m, and this was not considered sufficient principally due to the observed encroachment of HGV into the grassed verge when passing other HGV opposed.

- 14.94 Arklow Municipal District Engineer advised that the Applicant should re-examine the L1157 with the aim of achieving a consistent carriageway width of 6.0m over the L1157 between the existing site access and Regional Road R772. The Applicant was advised that where 6.0m may not be achievable over the entire length, the Planning Authority would consider an option that included suitable 6.0m wide passing bays at those sections where a consistent 6.0m width was not achievable.
- 14.95 In addition to carriageway widening, it was clear from the joint road condition survey of 24-July-2020 that a comprehensive road improvement would be required to incorporate a significant amount of road strengthening. Wicklow County Council stated that upon resolution and confirmation of a satisfactory scheme of road widening, the scope and extent of road strengthening works could be agreed.
- 14.96 Attached as **Appendix 14-D** is a series of drawings showing the proposed road strengthening, widening and improvement works to the L1157 between Ballinclare Quarry and Regional Road R772. **Appendix 14-D** includes the following drawings:
- 02991-20-PB-00 Proposed Inter-visible Passing Bays (NTS) General Layout
 - 02991-20-PB-01 Proposed Inter-visible Passing Bays (1:500) Passing Bays 9, 10, 11
 - 02991-20-PB-02 Proposed Inter-visible Passing Bays (1:500) Passing Bays 5, 6, 7, 8
 - 02991-20-PB-03 Proposed Inter-visible Passing Bays (1:500) Passing Bays 1, 2, 3, 4
 - 02991-20-WD-00 Proposed Road Widening (NTS) General Layout
 - 02991-20-WD-01 Proposed Road Widening (1:500) Chainage +0.000 to +500.000
 - 02991-20-WD-02 Proposed Road Widening (1:500) Chainage +500.000 to +1180.000
 - 02991-20-WD-03 Proposed Road Widening (1:500) Chainage +1180.000 to +2050.000
 - 02991-20-ST-00 Proposed Strengthening (NTS) General Layout
 - 02991-20-ST-01 Proposed Strengthening (1:500) Chainage +0.000 to +500.000
 - 02991-20-ST-02 Proposed Strengthening (1:500) Chainage +500.000 to +1180.000
 - 02991-20-ST-03 Proposed Strengthening (1:500) Chainage +1180.000 to +2050.000
 - 02991-20-PB-WD-ST Proposed Cumulative Road Improvement Overview
- 14.97 Assessment of boundary constraints found that although a significant portion of the road can be widened to 6.0m, it is not possible to widen the L1157 to 6.0m over the full length between the R772 and the existing quarry access.
- 14.98 The first 4 drawings (Series PB) show proposals to construct a series of 11 No. 6.0m wide inter-visible passing bays which without any other road widening works would be capable of operating satisfactorily. These drawings also include annotation of the areas of road strengthening.
- 14.99 Where widening of the existing carriageway is required to achieve the 6.0m width at the passing bays, these areas are highlighted and dimensioned. Each passing bay measures 45m in length, the geometry is dependent upon location but generally incorporates a 15m lead in taper, 15m of full width 6.0m carriageway and a 15m exit taper.
- 14.100 The drawings include vehicle track assessments for each of the passing bay arrangements using a design vehicle with the specification, dimensions and steering characteristics of articulated tipper vehicles that will likely be used (with rigid body HGV's) to service the proposed development.

- 14.101 Apart from the specific road widening works at the proposed passing bays, it is proposed to improve the carriageway to a consistent 6.0m in width where this is achievable within the constraints of the existing public road.
- 14.102 Drawing series WD shows the sections of road where 6.0m wide carriageway is proposed. Drawing 02991-20-WD-00 shows that full widening to 6.0m is achieved over the following chainages +0.000 to +200.000, +400.000 to +450.000, +560.000 to +700.000, +1275.000 to +1600.000, 1680.000 to +1910.000 and +1990.000 to +2050.000.
- 14.103 The overall haul route length is 2km. Widening to 6.0m is achievable over 1km. It should be noted that 7 No. of the proposed 11 No. passing bays fall within those 1km sections of Local Road L1157 where the consistent 6.0m carriageway is not achievable due to local constraints.
- 14.104 Drawing series ST show in detail those areas where road strengthening is proposed. Strengthening will generally involve digging out the existing carriageway and reinstatement with new materials to the specification for roads construction used by Wicklow County Council. Most of the sections that require strengthening have identified failures of the carriageway edges.
- 14.105 At all locations where strengthening is proposed, there will be scope for road edge strengthening and some element of road widening. The initial objective is to provide an absolute minimum carriageway width of 5.5m whilst aiming for a minimum of 5.7m which, from the walkover assessment of 24-July-2020 and the topographical survey, is estimated to be achievable over practically all the sections requiring strengthening as detailed on the ST series of drawings.
- 14.106 The sections of strengthening have been assessed by further walkover survey by the Applicant's Roads Engineer. The sections included in the proposed strengthening works not only correspond with those identified by the Arklow Municipal District Engineer as noted during the joint site meeting of 24th July 2020, but include additional areas and road edge works identified by the Applicant's Road Engineer.
- 14.107 The final drawing listed above, Ref. 02991-20-PB-WD-ST, shows the proposed strengthening works, the passing bays and the widening works on a single sheet so that the co-ordination between the measures can be appreciated.
- 14.108 In addition to the road widening works shown on the drawings, once the road strengthening and repair works have been completed, Kilsaran proposes to overlay the entire L1157 from the R772 up to and including the existing site access.
- 14.109 The previous FWD assessment of the road structure as set out in Haul Route Structural Analysis Survey of **Appendix 14-C** had recommended that an overlay in the order of 50mm would be satisfactory. That set of calculations was based upon one-way traffic flow. The volume and laden characteristics of traffic heading toward R772 will essentially remain unchanged from that permitted under the current permission, the proposed change will principally be that the same volume of HGV will travel westbound into the site.
- 14.110 Given the passage of time since the detailed FWD carriageway assessment of the Haul Route Structural Analysis Survey, and given the change in traffic flow characteristics, it was agreed with Wicklow County Council engineers that an increased overlay to a total depth of 80mm would be appropriate.
- 14.111 The current proposal is therefore to provide an 80mm overlay to Local Road L1157 between the site access and Regional Road R772. It is understood that the Planning Authority considers the proposed road improvement incorporating strengthening, widening and overlay are comprehensive and will significantly improve the current degraded state of L1157 and will satisfactorily accommodate the traffic generated by the proposed inert waste facility at Ballinclare Quarry.

- 14.112 The proposals outlined above essentially constitute road maintenance and road safety improvement works including road strengthening, localised pavement widening and pavement edge strengthening. The proposed road works will not impact any existing trees or hedgerows or field boundaries. All works are achieved within the bounds of the public road as defined in the Roads Act 1993. Road widening works are achieved principally in the existing verges. The proposed road works do not require the use of third party lands or consent from third party landowners.
- 14.113 Close examination of the submitted suite of drawings provided in **Appendix 14-D** confirms that the proposed works chiefly involve a road repair/reconstruction and strengthening scheme together with localised widening and these works should not significantly alter the character of the existing road. The proposed works in the public road are those of road improvement and maintenance. It is considered likely that the required works will take approximately eight weeks to complete.
- 14.114 Acceptance of materials at the proposed development will be by pre-approval only. Haulage contractors will be assigned to a particular job / contract and so can be easily identified. Any individual driver associated with these hauliers who fails to adhere to the designated haul route along L1157 will be banned sanctioned and temporality / permanently restricted from making deliveries to the waste facility, depending on the frequency on any transgressions. This approach has proved very effective in controlling hauliers at other similar developments operated by Kilsaran.
- 14.115 The Applicant's project team has consulted extensively with Wicklow County Council with respect to the details of the proposed road improvement works and have provided detailed topographical survey data, detailed traffic survey data to aid in the examination and evaluation of the existing road.
- 14.116 The detailed set of drawings included in **Appendix 14-D** were provided to the Planning Authority for review and consideration. Save for minor amendments to annotation on the drawing to reflect the increased overlay thickness the current drawing set are unchanged from those provide at the pre-planning consultation stage.
- 14.117 Wicklow County Council has indicated that it is satisfied in principle with the upgrades being proposed. There are a number of details that Wicklow County Council stated would need to be agreed prior to the Planning Authority agreeing to a formal approval to use the L-1157 as the haul route for the purposes of the proposed development. These are as follows:
- An 80mm binder course overlay of the entire roadway followed by a surface dressing with a 6-10mm chipping;
 - The construction detail for the road widening and pull-in bays will be in accordance with TII Specifications and will be agreed with Wicklow County Council prior to works commencing;
 - The construction detail for the road strengthening works will be in accordance with TII specifications for and will be agreed with Wicklow County Council prior to works commencing;
 - The roadway should be marked over the entire 2km length with the edge of carriageway marking in both directions in accordance with the Traffic Signs Manual – Chapter 7;
 - Where the road width is 6.0m and above the roadway should be marked with a centreline in accordance with the Traffic Signs Manual – Chapter 7;
 - Line marking should be carried out at the junction of L-1157 and the R-772 to the satisfaction of Wicklow County Council and in accordance with the Traffic Signs Manual – Chapter 7;
 - There are 7-8 private entrance driveways along the proposed haul route and some of these are higher than the existing road level. Based upon the surveys and detailed drawings Wicklow County Council is of the view that the tie-in works at the private entrances is achievable.

14.118 Should An Bord Pleanála (ABP) be minded to grant planning permission for the proposed inert landfill and C&D waste recovery facility at Ballinclare Quarry, the Applicant respectfully invites that an appropriate condition of planning is applied to ensure that the proposed road improvement works are undertaken to the satisfaction of Wicklow County Council and to the appropriate standard, as set out above.

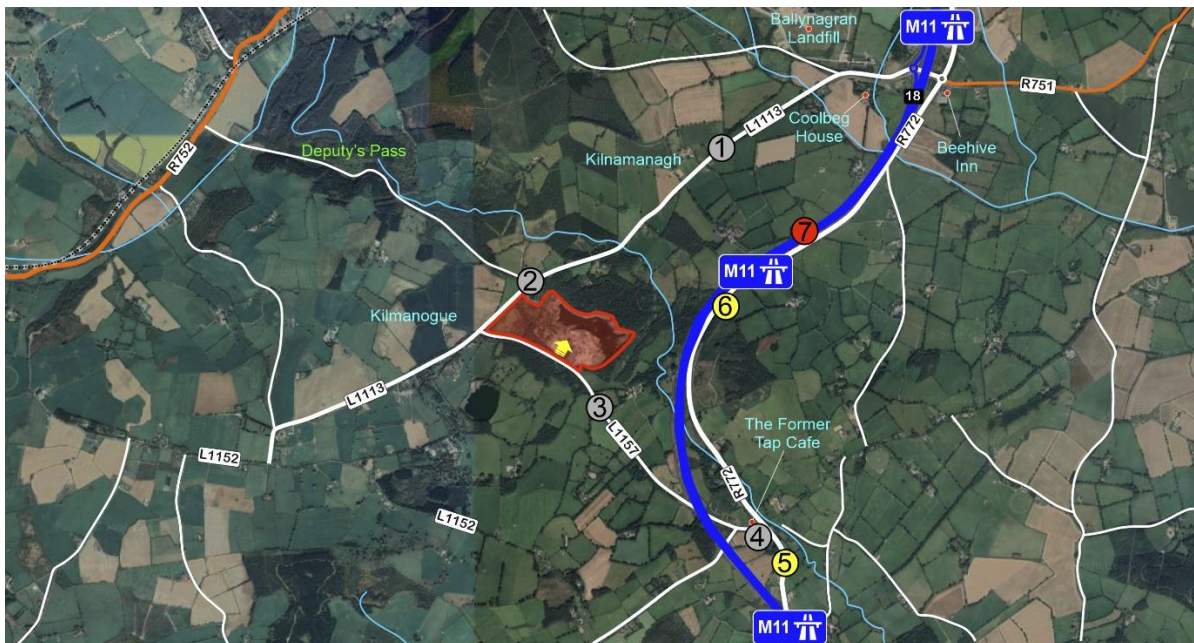
Accident Records

14.119 Collision statistics on the Road Safety Authority (RSA) website include records of road traffic collisions for the period 2005 to 2016 inclusive and provides basic information on all reported collisions. This is the extent of the data in the online database and reports for 2017, 2018 and 2019 are not yet available.

14.120 In 2004, the N11 extended as a high standard dual carriageway as far as the outskirts of Wicklow town. From here southward, a 16 km winding single carriageway section which used to wend its way through the trees suffered from a high accident rate and was replaced by motorway in July 2015. The original road was reclassified as Regional Road R772.

14.121 The RSA records include only officially recorded collisions where a Garda was present to formally record details of the incident. The following **Figure 14-11** presents a plot of the recorded collisions along the local road network for the period 2005-2016 whilst the record of accidents on the R772 (former N11) and new motorway are shown only for 2015-2016, after the opening of the M11 Motorway in 2015.

Figure 14-11
RSA Recorded Collisions
2005-2015 (Local Roads) 2015/16 (Motorway/Regional Roads)



14.122 **Figure 14-11** identifies a total of 7 No. collisions on the network serving the general location of the application site. There are 4 No. minor collisions along the existing designated (one-way) haul route, of which 2 No. are located on the proposed haul route along the L1157, between the existing site access and Regional Road R772.

- 14.123 There are three categories of collision which include ‘minor’ (highlighted grey), ‘serious’ (highlighted yellow) and ‘fatal’ (highlighted red). Two collisions on Figure 14-11 are highlighted yellow along the R772 and are classified as ‘serious’, with one collision along the M11 categorised as fatal.
- 14.124 All four collisions shown on the existing local road haul route L113 and L1157 between 2005 and 2016 are shown with a grey dot and are classified as ‘minor’. **Table 14-4** provides the basic data relevant to each of the numbered collisions shown in **Figure 14-11**. Only collisions 4 and 5 are located on the proposed L1157 haul route between the application site at Ballinclare Quarry and the Tap Café.

Table 14-4
RSA Collision Records

Ref	Year	Vehicle	Circumstances	Day	Time	Severity	Casualties
1	2005	Car	Rear End, Straight	Thur	16:00-19:00	Minor	2 Minor
2	2010	Car	Single Vehicle Only	Thur	10:00-16:00	Minor	1 Minor
3	2006	Car	Rear End, Straight	Sun	10:00-16:00	Minor	3 Minor
4	2009	NA	Single Vehicle Only	Mon	07:00-10:00	Minor	1 Minor
5	2016	HGV	Single Vehicle Only	Tue	16:00-19:00	Serious	1 Serious
6	2016	Car	Single Vehicle Only	Sat	19:00-23:00	Serious	1 Serious
7	2015	Ped	Pedestrian	Sat	19:00-23:00	Fatal	1 Fatal

- 14.125 The data provided in **Figure 14-11** and **Table 14-4** shows that there was a total of 2 collisions in the 11-year period from 2005 to 2016 over the local road that makes up the haul route, an average of less than one collision in every 5 years. None of the collisions recorded on the haul route involved HGV’s.
- 14.126 There have been two serious accidents on the R772 (former N11 National Primary Road) since the opening of the M11 motorway in 2015. One involved a car and the other a HGV. Both collisions involved single vehicles. There is one recorded fatality in 2015 which involved a pedestrian on the motorway.
- 14.127 The RSA collision records suggest that on the receiving road network which serves the proposed development at Ballinclare Quarry, there is no significant clustering of accidents and no significant trends in the type of traffic collisions. The available data suggests that the local road network and the haul route in particular has a good safety record. The frequency and severity of collisions on the former N11 (R772) have significantly decreased since the opening of the M11 motorway in 2015.

DEVELOPMENT DETAILS

Historic Trip Generation

- 14.128 In the past, the generation of HGV traffic from the quarry, and the volume of material transported by each vehicle leaving the site had been product dependent and commercially driven. The quarry provided aggregates and stone derived products (principally readymixed concrete and asphalt) for a broad spectrum of construction projects in diverse quantities, as required by purchasers and clients.
- 14.129 A guide to the carrying capacity of typical HGVs used by the quarry and haulage industry to transport aggregates, construction materials, excess soil and/or C&D waste is provided in **Table 14-5** below.

Table 14-5
Transportation Vehicle Statistics

Vehicle Type	Length	Max Weight	Capacity
4 Wheel x 2 Axle Tipper (Five Wheeler)	7.6m	24.5t	14.5t
6 Wheel x 4 Axle Tipper (Six Wheeler)	8.5m	26t	16t
8 Wheel x 4 Axle Tipper (Eight Wheeler)	9.8m	32t	20t
Articulated	14.2m	44t	29t

- 14.130 It is likely that the proposed inert landfill and C&D waste recovery facility at Ballinclare will principally be served by 8 wheeled tippers and articulated tippers.
- 14.131 Under Planning Ref. 07/45, Condition 3 required the contribution of €30,000 to the Planning Authority in respect of drainage works along the L1157. Condition 6 of the same permission restricted the movement of HGVs to a total of 70 loads per day. Production figures submitted to that planning file showed that the average volume exported off-site in the years immediately prior to the planning application being made was 600,000 tonnes per annum, up to a maximum of 750,000 tonnes per annum.
- 14.132 Condition 5 of the current permitted quarry development under Planning Reg. Ref. 14/2118 limits the maximum number of HGV loads (trips) to 150 per day.

Proposed Trip Generation

HGV Trip Generation

- 14.133 The proposed combined rate of inert waste import (for landfilling and recovery at the C&D facility) will be up to a maximum of 800,000 tonnes per annum. Waste will be delivered in a mixture of 8 wheeled tippers with a payload capacity of 20t and articulated tippers with a payload capacity of 29t.
- 14.134 It is envisaged that the maximum annual intake of soil and stone / C&D waste at the proposed waste recovery facility at Ballinclare will be of the order of 750,000 tonnes of soil and stone and 50,000 tonnes of construction and demolition (C&D) waste per annum. The combined annual intake of 800,000 tonnes per annum is equivalent to an average of
- 16,000 tonnes per week (assuming 50 weeks in a working year)
 - 2,900 tonnes per day (assuming 5.5 days in a working week)
 - 290 tonnes per hour (assuming 10 hours in a working day)

- 14.135 Waste materials incoming to the site will be transported by similar vehicles to those used to transport quarry materials, which in the case of rigid HGV have a payload of 20t per vehicle and for articulated HGV is 29t. The traffic surveys at a similar Kilsaran Concrete facility show that materials are principally imported by the latter vehicle type. The total volume imported to the site includes those materials that will be processed in the proposed C&D recovery facility at the former blockyard and at the proposed soil washing plant in the former concrete / asphalt yard. The recycled (secondary) aggregate and sand/gravel / recovered from the C&D recovery facility and soil washing process will be exported from the application site through backhaul (ie. departing lorries leaving site with recycled product rather than empty) and will not generate a separate stream of HGV trips.
- 14.136 Based on the proposed maximum intake of 800,000t of material per annum and based upon 5½ working days per week and 48 working weeks, and **assuming the lower value payload of 20t** per vehicle (8 wheel tipper type), the proposed inert landfill and C&D waste recovery activities would potentially give rise to a average of **150 No. HGV** trips per day.
- 14.137 Some proportion of materials are likely to be imported using articulated vehicles which have a payload of 29t. Were **all loads to be imported by articulated vehicle**, the resultant daily HGV traffic generation would be potentially reduced, of the order of **104 No. HGV** trips per day.
- 14.138 Modern haulage fleets tend to carry a mix of rigid and articulated tippers. It is estimated that approximately 70% or more, of loads are likely to be transported by articulated vehicles. On this basis the proposed development site is forecast to generate an average of **115 No. HGV** trips per day when operating at maximum intake capacity.

Light Vehicle Trip Generation

- 14.139 The proposed backfilling operations will require a minimum of four personnel to be based at the facility at all times during working hours. One individual will be nominated as the facility / site manager, one will be based at the weighbridge office, while the remaining two operatives will oversee the inert landfilling / C&D waste recovery operations
- 14.140 For the purposes of the traffic assessment it is assumed that four employees will be based at the site permanently and that all four employees use a separate private car. It is assumed that all four enter and exit in the morning and evening and also enter and exit at lunchtime. It is further assumed that there will be on average two sundry visitors to the site on a daily basis.

Proposed Trip Routing

- 14.141 It is proposed that the HGV traffic will follow the proposed two-way haul route along Local Road L1157 as shown in **Figure 14-3**.

IMPACT ASSESSMENT

General

- 14.142 In Ireland, a Traffic and Transport Statement (TTS) should generally accompany all planning applications for developments that could potentially act as traffic generators. A TTS is a brief outline of the transport requirements for the development and is used as a first step to identify the likely impact of any development. A TTS can also be used to determine if further, more detailed traffic analysis is required to evaluate potential impact upon the capacity of links and junctions on the receiving road network.
- 14.143 An in-depth analysis of the impact of a development in terms of traffic is carried out through the preparation of a Traffic and Transport Assessment (TTA). Table 2.1 of the NRA Traffic and Transport

Assessment Guidelines (May 2014) sets out threshold limits above which a Transport Assessment is automatically required. The relevant thresholds are reproduced below:

- 100 trips (in/out combined) in the peak hour
- Development traffic exceeds 10% of two-way traffic flow on adjoining road
- Development traffic exceeds 5% of two-way traffic flow on adjoining road if congestive or sensitive
- 100 on-site parking spaces.

- 14.144 The threshold approach is used to establish the area of influence of the development. In general, the study area should include all road links and associated junctions where traffic to and from the development may be expected to exceed 10% of the existing traffic movements, or 5% in congested or other sensitive locations, including junctions with national roads.
- 14.145 The application site currently enjoys a planning permission which expires in 2041 and which expressly permits a total of **150 HGV loads** (trips) each day across the receiving road network daily (refer to Planning Ref. 14/2118 Condition 5). The current proposed development will generate no greater volume of HGV traffic and the characteristics of the haulage vehicles deployed will be essentially the same.
- 14.146 The Applicant has no objection to the application of a similar condition limiting the daily number of loads to the proposed waste facility at Ballinclare Quarry to a maximum of 150 waste loads / trips per day. The inert landfill development is projected to have a lifespan of between 8 and 17 years, depending on the rate of soil waste importation, and is therefore likely to be completed before the current (2014) permission expires.
- 14.147 Given that a maximum of 150 HGV loads / trips is permitted per day, it follows that the peak hour total number of trips will not exceed 100. As a direct result of the proposed revisions to the haul route, when compared against the current permitted scenario, there will be an elimination of all 150 permitted HGV traffic trips generated by activities at Ballinclare Quarry from the L1113 Coolbeg Road and from the western end of the L1157.
- 14.148 The volume of HGV traffic on the designated haul route along the L1157 will in future be two-way, as opposed to one-way previously. Accordingly it follows that the level of HGV traffic generation to the L1157 will double. Since the volume of traffic assigned to the haul route is likely to exceed the 5% and 10% thresholds a significant package of mitigation works is proposed. These works are set out in the earlier section entitled 'Proposed Road Strengthening and Widening' and detailed in the various drawings included at **Appendix 14-D**. The works involve a significant road improvement including carriageway widening, inter-visible passing bay scheme, road strengthening, overlay and road markings.
- 14.149 The NRA Traffic and Transport Assessment Guidelines (May 2014) advise that there may be some cases where the impact of traffic volumes may not be significant and where the thresholds requiring a TTA may not be exceeded, but where the type and volume of traffic may be of a nature to raise concerns about potential effects.
- 14.150 In view of the current grant of permission for under Planning Ref. 14/2118, it is reasonable to conclude that the Planning Authority has, through suitably rigorous and objective assessment of the traffic arising from the permitted quarry development, already considered the traffic effects arising from both that development and the proposed development, which effectively substitutes and locally re-routes quarry traffic for inert landfill / C&D waste recovery traffic. The rationale for the proposed re-routing of traffic comes about through Planning Authority observation and assessment of local road traffic flows and carriageway width and structure assessments.

14.151 In the case of sub-threshold scenarios, the NRA guidelines advise that the Planning Authority should consult evaluation criteria set out in Table 2.3 of the guidelines and recommends that if the proposed development meets two or more of the following criteria, then a Transport Assessment should be requested.

- The character and total number of trips in / out combined per day are such that as to cause concern;
- The site is not consistent with national guidance or local plan policy or accessibility criteria contained in the Development Plan;
- The development is part of incremental development that will have significant transport implications;
- The development may generate traffic at peak times in a heavily trafficked / congested area or near a junction with a main traffic route;
- The development may generate traffic, particularly heavy vehicles in a residential area;
- There are concerns over the development's potential effects on road safety;
- The development is in a tourist area with potential to cause congestion;
- The planning authority considers that the proposal will result in a material change in trips patterns or raises other significant transport implications.

14.152 Under the current development proposals and corresponding to the above bullet points,

- the character and total number of trips in and out of the site per day will not alter from that which was assessed previously and is already permitted;
- the site is permitted and is consistent with the Development Plan;
- the proposed development is not part of an incremental development;
- the peak hour traffic generation of the site is estimated to be in the order of 15 HGV trips which is not considered significant by the standard metrics set out in the guidelines. The receiving road network is neither heavily trafficked nor congested and the volume of traffic is unlikely to give rise to concern at the junctions with the main traffic route;
- notwithstanding the residences adjoining the local roads, the proposed development does not generate traffic in a residential area;
- existing permitted development did not / does not give rise to congestion on the receiving road network and it is therefore considered reasonable to conclude that the proposed development will similarly not give rise to traffic congestion;
- the proposed development **will result in a material change in established trip patterns**. The changes are proposed in response to existing local traffic characteristics on the surrounding network of local roads including L1113 Coolbeg Road.

14.153 The record of collision statistics for the period 2005 to 2016 set out in **Figure 14-11** and **Table 14-4** show that the receiving road network and the haul route has a good safety record. No collisions involving HGVs have been recorded in the Road Safety Authority records.

14.154 In light of the above and notwithstanding the elimination of development HGV traffic from L1113 Coolbeg Road it is considered that in the case of the proposed haul route along the L1157, both the threshold and sub-threshold criteria for TTA are met and that there is a requirement for an assessment of traffic.

14.155 Regional Road R772 is the former N11 National Primary Road and the R772 / L1157 priority junction which was improved and upgraded in recent years has been shown to operate well within capacity even when subject to those flows which have been displaced and are now accommodated on the

M11 Motorway. Given the peak hour generation of 15 HGV trips, the proposed development will not give rise to capacity problems at this junction.

- 14.156 The other junctions on the haul route are M11 Junction 18 and M11 Junction 19 and the forecast traffic would not have a noticeable impact on the operation of these interchanges. The volume of traffic throughput at these junctions on the M11 will not alter significantly between the traffic scenario under the permitted Planning Ref. 14/2118 and that arising at the proposed development.
- 14.157 In light of these considerations, the evaluation of traffic and traffic levels on the receiving road is not required to include detailed modelling of the capacity of these junctions since it is clear to an experienced practitioner that the volumes of traffic generation are not such as to be of concern with respect to capacity.

Traffic Impact Assessment – Construction Stage

- 14.158 The proposed development does not involve significant construction save for the buildings associated with the receipt and sorting / processing of inert soil and stone and C&D wastes. It is acknowledged that there will also be some site preparatory works which include some final decommissioning and dismantling works for on-site manufacturing plant and equipment. Notwithstanding that these activities will require a greater number of personnel on site, it is highly unlikely that the daily HGV traffic arising will exceed the current permitted 150 loads per day.
- 14.159 The impact arising from the construction and site preparation works is likely to be significantly less than the current permitted quarry development and accordingly, no specific analysis of general network operation and impact is considered necessary. Notwithstanding this, and since the proposed road strengthening and widening works to the L1157 are considered appropriate to the opposed passage of large vehicles, it is reasonable to expect that these road improvement works should be substantially complete prior to commencement of construction works on site.
- 14.160 The decommissioning works will involve the removal of any residual items of plant which have already been largely dismantled. The articulated vehicles used to transport any decommissioned plant and/or machinery from the application site are typically semi low-loaders and flat trailers. Similarly, the vehicles importing steel, cladding etc. for the construction of the proposed C&D waste recovery building will be vehicles that satisfy the legal requirements for transport by road in the EU and that do not differ significantly from the articulated haulage vehicles generated by the permitted quarry or by the proposed development.
- 14.161 Much of the required site infrastructure, including vehicle washing systems, is already in place for maintaining the adjoining public roadway in a clean state, free from mud and other debris arising from the soil / C&D waste haulage. This infrastructure will be in operation during construction.

Traffic Impact Assessment – Operational Stage

- 14.162 The following **Table 14-7** shows baseline traffic flows for the year of opening 2021 and is based upon the traffic flows recorded in the April 2019 traffic surveys (see **Table 14-1**). The baseline traffic flows in **Table 14-7** are derived from the **Table 14-6** figures which have been factored to 2021 by standard central growth rates set out in TII Project Appraisal Guidelines Unit 5.3 'Travel Demand Projections' which forecast the following growth rates.

Table 14-6
TII PAG Link-Based Central Growth Rates

Central Growth Rate					
2016-2030		2030-2040		2040-2050	
LV	HV	LV	HV	LV	HV
1.0157	1.0377	1.0051	1.0173	1.0047	1.0204

Table 14-7
Traffic Flows Forecast 2021

Road Link	[1] No Development Baseline Scenario			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	309	33	11%	392 ¹ (9%)
L1157 (E)	303	33	11%	384 (9%)
L1113 (N)	813	108	13%	1,033 (10%)
R772 (N)	1,529	107	7%	1,942 (5%)
Road Link	[2] Permitted Scenario Planning Reg. Ref 14/2118 to 2040			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	309 + [160] = 469	33 + [150] = 183	39%	595 (31%)
L1157 (E)	303 + [160] = 463	33 + [150] = 183	40%	588 (31%)
L1113 (N)	813 + [160] = 973	108 + [150] = 258	26%	1,236 (21%)
R772 (N)	1,529 + [160] = 1,689	107 + [150] = 257	15%	2,145 (12%)
Road Link	[3] Baseline Plus Proposed Development – Theoretical			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	309	33	11%	392 (9%)
L1157 (E)	303 + [320] = 623	33 + [300] = 333	54%	791 (42%)
L1113 (N)	813	108	13%	1,033 (10%)
R772 (N)	1,529 + [320] = 1,849	107 + [300] = 407	22%	2,349 (17%)

¹ AADT Estimated by reference to ATC data. Light traffic multiplier 1.27. HGV traffic not factored as it will not generally be present on local roads between the hours of 19:00-07:00hrs.

Road Link	[3] – [2] Proposed Scenario [4]			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	469 - [160] = 309	183 - [150] = 33	11%	392 (9%)
L1157 (E)	463 + [160] = 623	183 + [150] = 333	54%	791 (42%)
L1113 (N)	973 - [160] = 813	258 - [150] = 108	13%	1,033 (10%)
R772 (N)	1,689 + [160] = 1,849	257 + [150] = 407	22%	2,349 (17%)

- 14.163 The existing permitted quarry was not operating at the time of the traffic surveys accordingly Scenario [1] shows a baseline where no traffic at all is generated by the existing quarry site.
- 14.164 Scenario [2] shows the traffic flows permitted traffic flows arising under the current permitted traffic scenario. Scenario [2] shows the HGV traffic flow and estimated light traffic flow arising from the development permitted under Planning Reg. Ref. 14/2118 which has been added to the baseline 2021 traffic flows.
- 14.165 For ease of reference that traffic generated by the permitted development is identified separately with the resulting sum shown in bold in each cell of the table. In calculating figures in **Table 14-7**, only the baseline traffic has been factored by the network growth rates since development generated traffic is capped at 150 HGV and can therefore be assumed to remain at or below this constant value.
- 14.166 The traffic management proposals implemented previously for extractive related development at Ballinclare Quarry will not apply for the proposed inert landfill and C&D waste recovery facility. As previously advise, the Planning Authority indicated its preference for a shorter haul route along the L1157, directly to and from the R772 (the former N11), subject to appropriate road strengthening and widening works to accommodate the safe opposed passage of HGV traffic.
- 14.167 For the purposes of this assessment, and in the interest of network efficiency, it is assumed that the long-established pre-existing haul route to and from the quarry will be abandoned in favour of the two-way haul route along L1157 to the east of the site as preferred by the Planning Authority.
- 14.168 Scenario [3] in **Table 14-7** is theoretical and is provided in order to show the steps in estimating network traffic flows on the receiving road network. Scenario [3] shows the proposed development traffic superimposed on the baseline scenario where no development whatsoever is assumed at the existing Ballinclare Quarry site.
- 14.169 The development currently permitted under Planning Reg. Ref. 14/2118 permits a maximum generation of 150 HGV loads per day together with movement of support staff and other traffic. That permission is due to expire in 2040. Proposed Scenario [4] of **Table 14-7** shows the forecast change in traffic flows between the permitted and proposed scenarios. The incremental difference between the permitted and proposed scenarios is again highlighted by the coloured figures in each cell of the table. Where traffic reduces the figures are negative and coloured red, where traffic is diverted from the existing haul route to the proposed shorter haul route this is identified by the green figures.

Table 14-8
Forecast Potential Changes in Traffic Flows 2021

Road Link	Changes between Permitted and Proposed			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	-160	-150	-28%	-203(-22%)
L1157 (E)	+160	+150	+14%	-203(+11%)
L1113 (N)	-160	-150	-13%	-203(-10%)
R772 (N)	+160	+150	+7%	+230(+5%)

14.170 **Table 14-8** above summarises the forecast changes in traffic flows arising on the receiving road due to the redistribution of site traffic to the proposed upgraded haul route. The proposed new haul route will remove all permitted development generated HGV traffic from the L1113 and from the L1157 to the west of the existing site access. The current proposal is for traffic to come and go from the east using only Local Road L1157 and this will effectively double the volume of development generated HGV travelling on the L1157 to the east of the development access.

14.171 The following **Table 14-9** is based upon the traffic flows forecast for 2021 factored to the forecast end of the project which is estimated as potentially 2038 and similarly shows the forecast changes in traffic flows on the local roads between those flows arising from those currently permitted development under Planning Reg. Ref. 14/2118 and the proposed development.

Table 14-9
Traffic Flows Forecast 2038

Road Link	[1] No Development Baseline Scenario			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	422	63	15%	535 (12%)
L1157 (E)	414	63	15%	525 (12%)
L1113 (N)	1,122	202	18%	1,424 (14%)
R772 (N)	2,054	200	10%	2,609 (8%)
Road Link	[2] Permitted Scenario Planning Reg. Ref 14/2118 to 2040			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	422 + [160] = 582	63 + [150] = 213	37%	739 (29%)
L1157 (E)	414 + [160] = 574	63 + [150] = 213	37%	728 (29%)
L1113 (N)	1,122 + [160] = 1,282	202 + [150] = 352	27%	1,628 (22%)
R772 (N)	2,054 + [160] = 2,214	200 + [150] = 350	16%	2,812 (12%)

Road Link	[3] Baseline Plus Proposed Development – Theoretical			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	422	63	15%	535 (12%)
L1157 (E)	414 + [320] = 734	63 + [300] = 363	49%	932 (39%)
L1113 (N)	1,122	202	18%	1,424 (14%)
R772 (N)	2,054 + [320] = 2,374	200 + [300] = 500	21%	3,015 (17%)
Road Link	[3] – [2] Proposed Scenario			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	582 - [160] = 422	213 - [150] = 63	15%	535 (12%)
L1157 (E)	574 + [160] = 734	213 + [150] = 363	49%	932 (39%)
L1113 (N)	1,282 - [160] = 1,122	352 - [150] = 202	18%	1,424 (14%)
R772 (N)	2,214 + [160] = 2,374	350 + [150] = 500	21%	3,015 (17%)

14.172 **Table 14-10** below summarises the forecast changes in traffic flows arising on the receiving road due to the redistribution of site traffic to the proposed upgraded haul route. As per the assessment for the 2021 opening year, the introduction of the revised traffic distribution arising from the proposed new haul route will remove all permitted development generated HGV traffic from the L1113 and from the L1157 to the west of the existing site access. The current proposal is for traffic to come and go from the east using only Local Road L1157 and this will effectively double the volume of development generated HGV travelling on the L1157 to the east of the development access.

Table 14-10
Forecast Potential Changes in Traffic Flows 2038

Road Link	Changes between Permitted and Proposed			AADT
	Total (07:00-19:00hrs)	HGV	%HGV	
L1157 (W)	-160	-150	-22%	-203(-17%)
L1157 (E)	+160	+150	+12%	-203(+10%)
L1113 (N)	-160	-150	-9%	-203(-7%)
R772 (N)	+160	+150	+5%	+230(+4%)

14.173 Road capacity, defined as the maximum design capacity of a given roadway at link and junction level for motorised traffic, is well understood for different lanes and carriageway widths. Road capacity is the maximum potential capacity of a given roadway. It is usually expressed in terms of vehicles per hour or day.

- 14.174 From **Table 14-7** the opening year daily traffic flow along L1157 is forecast to be 392 vehicles per day with a HGV content of 9% to the west of Ballinclare Quarry and 791 to the east with a HGV content of 42%. The corresponding figures for the future year 2038 are 535(12%) and 932(39%) respectively. The design capacity of a rural undivided carriageway measuring 5.5m in width is estimated to be in excess of 1,000 vehicles per hour per direction.
- 14.175 **Table 14-2** and **Table 14-3** set out the current flows along the L1157 without any traffic arising from the Ballinclare Quarry site and show approximately 30 cars and 5 HGV using the L1157 in the peak hours. It is estimated that the permitted quarry development gives rise to an additional 15 HGV per hour in one direction thus increasing the hourly flow to 30 car and 20 HGV. The proposed development has the potential to increase the hourly traffic flow to 30 cars and 35 HGV.
- 14.176 The total traffic flow on the L1157 and the proposed haul route serving the site is many multiples less than the theoretical capacity of the road. With the cessation in the use of the existing one-way haul route, the proposed development will give rise to a reduction in traffic on Coolbeg Road L1113. Whilst it is acknowledged that the proposed new haul route will give rise to an intensification in traffic flows on the L1157 to the east of the existing quarry site, it is not considered likely that the change in traffic flows will give rise to capacity issues on the receiving road network. On balance the level of service and capacity of the L1157 are not considered likely to be significantly affected.
- 14.177 The proposed combined rate of waste import (for landfilling and recovery at the C&D facility) will be up to a maximum of 800,000 tonnes per annum. This rate of waste importation will give rise to a volume of traffic that is equal to or less than the existing permitted limit of 150 loads or HGV trips per day. The primary change in traffic flows arises from the proposed alteration to the haul route.
- 14.178 The existing development site access is lightly trafficked and will continue to be lightly trafficked in the context of the ultimate capacity of a simple priority junction. This can be appreciated from a review of the traffic counter data for the L1157.
- 14.179 The local roads network intersects with the greater network at a motorway interchange at the Beehive (M11/L1113) and at a priority junction near the former Tap Café (R772/L1157) and these junctions form part of the haul route. The Beehive junction is a grade separated motorway interchange which will have significant capacity to cater for current and future traffic flows to and from the R772 (the former N11) practically for as long as the junction remains in operation. There are unlikely to be any capacity issues arising at the interchange as a result of the proposed development over those that potentially arise from the pre-existing permitted quarry use.
- 14.180 The junction at the Tap Café is a priority arrangement. The N11 mainline or major road at the junction was reclassified to R772 and traffic flows along the major road have reduced by more than 90%. Given the significant reduction in major road flows, it is highly unlikely that the traffic flows arising from the proposed development at Ballinclare Quarry will have a significant impact upon capacity, road safety or the structural integrity and carrying capacity of the road.
- 14.181 The R772/L1157 junction was improved in the same timeframe as the M11 works. The road structure and surfacing is in good order and the improvements carried out by Wicklow County Council to the junction provide satisfactory visibility sightlines. The improvements were undertaken with knowledge of the current permitted Ballinclare Quarry development.

Traffic Impact Assessment - Post Closure Stage

- 14.182 Upon completion of landfilling and backfilling to original ground level, the former quarry lands will be restored to long-term grassland / scrub habitat and will not generate any HGV traffic thereafter.
- 14.183 The operation of the C&D waste recovery facility will be discontinued once landfilling and restoration activities cease, with no HGV traffic being generated thereafter.

MITIGATION MEASURES

Operational Stage

- 14.184 No additional traffic volume is likely to arise from the proposed development. Due to the proposed alterations to the haul route the HGV traffic generated by the proposed development will redistribute to the local road network. This benefits the L1113 Coolbeg Road but increases the HGV numbers traveling from the development site two-fold on the proposed new haul route along L1157.
- 14.185 The above section entitled 'Proposed Road Strengthening and Widening' sets out a comprehensive scheme of road strengthening and road widening along L1157 aimed at improving the condition and serviceability of L1157 and to mitigate the impact of the additional traffic load assigned to this section of local road.
- 14.186 The design life of the proposed road improvement is 20 years so it follows that save for routine maintenance no additional mitigation measures are considered necessary during the operational stage of the proposed development.

Post – Operational Stage

- 14.187 No mitigation measures are considered necessary at the post-operational stage of the proposed development.

RESIDUAL IMPACT ASSESSMENT

Operational Stage

- 14.188 The proposed development will have **no effects** on the receiving road network other than those already arising from previously permitted development.

Post – Operational Stage

- 14.189 No traffic impacts are identified after the operational stage.

'Do-Nothing' Impact

- 14.190 The proposed development is in place of an existing permitted quarry. Without further reference to the planning system the quarry can operate at a rate of up to 150 loads per day allocated to traverse a one-way haul route that includes L1113 and L1157. The potential traffic impact arising in the 'Do-nothing' scenario is essentially the addition of 150 HGV movements to L1113 and the addition of 150 HGV movements to L1157. The do-something scenario removes the former and doubles the latter.

REFERENCES

Chartered Institution of Highways and Transportation (1994) Guidelines for Traffic Impact Assessment

The National Roads Authority (2014) Traffic and Transport Assessment Guidelines

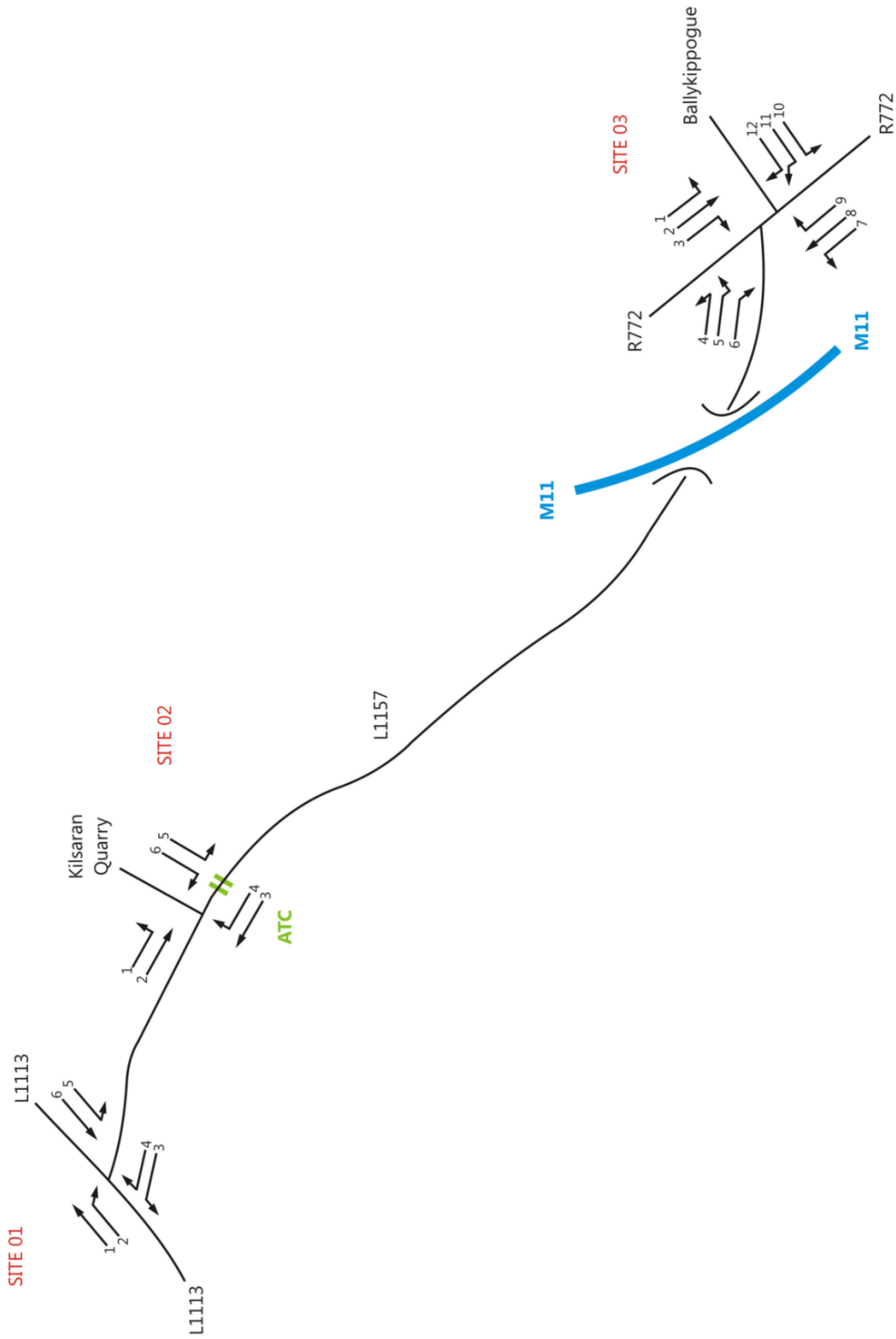
The National Roads Authority 'Project Appraisal Guidelines: Unit 5.5 Link-Based Traffic Growth Forecasting'

The National Roads Authority 'Project Appraisal Guidelines: Unit 16.2 Expansion Factors for Short Period Traffic Counts'

Wicklow County Development Plan 2016-2022

APPENDIX 14-A
Traffic Survey Data

Junction Turning Count Site & Movement Numbering



	Job number:	TRA/19/076	Drawing No:	TRA/19/076
	Client:	Trafficwise	Author:	SPW
	Job Date:	4 th April 2019	Job Day:	Thursday



TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 01

DATE: 4th April 2019

LOCATION: L1113/L1157

DAY: Thursday

TIME	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3							
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
07:00	4	1	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	3	2	0	0	0	5	5	1	0	0	0	0	1	1	1	0	0	0	0	0	1	1
07:30	6	1	0	1	0	8	9	0	0	0	0	0	0	0	0	0	0	2	0	2	5	
07:45	4	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	17	4	0	1	0	22	23	1	0	0	0	0	1	1	1	0	0	2	0	3	6	
08:00	5	1	0	0	1	7	8	1	0	0	0	0	1	1	1	0	0	0	0	1	1	
08:15	9	0	0	0	0	9	9	2	0	0	0	0	2	2	0	1	0	0	0	1	1	
08:30	6	1	1	2	0	10	13	1	0	0	1	0	2	3	0	1	0	0	0	1	1	
08:45	7	1	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	27	3	1	2	1	34	38	4	0	0	1	0	5	6	1	2	0	0	0	3	3	
09:00	6	0	0	1	0	7	8	1	0	0	0	0	1	1	1	0	0	0	0	1	1	
09:15	4	1	0	3	0	8	12	0	0	0	0	0	0	0	2	0	0	0	0	2	2	
09:30	11	0	0	2	0	13	16	0	0	0	1	0	1	2	2	1	0	0	0	3	3	
09:45	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	23	1	0	6	0	30	38	1	0	0	1	0	2	3	5	1	0	0	0	6	6	
10:00	6	0	0	0	0	6	6	0	1	0	0	0	1	1	1	0	0	0	0	1	1	
10:15	5	0	0	2	0	7	10	0	0	0	0	0	0	0	1	0	0	0	0	1	1	
10:30	6	1	0	0	0	7	7	1	0	0	0	0	1	1	1	1	0	0	0	2	2	
10:45	8	0	1	1	0	10	12	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
H/TOT	25	1	1	3	0	30	34	2	1	0	0	0	3	3	3	1	0	0	0	4	4	
11:00	8	0	0	0	0	8	8	0	0	0	0	0	0	0	1	0	0	0	0	1	1	
11:15	4	0	0	1	0	5	6	0	1	0	1	0	2	3	2	0	0	0	0	2	2	
11:30	6	0	0	1	1	8	10	1	0	0	0	0	1	1	2	0	0	0	0	2	2	
11:45	1	0	1	1	0	3	5	2	0	0	0	0	2	2	1	0	0	0	0	1	1	
H/TOT	19	0	1	3	1	24	29	3	1	0	1	0	5	6	6	0	0	0	0	6	6	
12:00	4	0	0	0	0	4	4	0	0	0	0	0	0	0	1	0	0	0	0	1	1	
12:15	8	2	0	1	0	11	12	2	0	1	0	0	3	4	2	0	0	1	0	3	4	
12:30	7	1	0	0	0	8	8	0	0	0	0	0	0	0	3	0	0	0	0	3	3	
12:45	5	0	0	0	1	6	7	1	0	0	0	0	1	1	1	0	0	0	0	1	1	
H/TOT	24	3	0	1	1	29	31	3	0	1	0	0	4	5	7	0	0	1	0	8	9	

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 01

DATE: 4th April 2019

LOCATION: L1113/L1157

DAY: Thursday

TIME	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	2	0	0	0	0	2	2	0	0	0	0	0	0	0	2	0	0	0	0	2	2
07:15	2	2	0	0	0	4	4	0	0	0	0	0	0	0	1	2	0	0	0	3	3
07:30	2	0	1	0	0	3	4	1	0	0	0	0	1	1	0	0	0	0	0	0	0
07:45	1	0	0	0	0	1	1	5	0	0	0	0	5	5	1	0	1	1	0	3	5
H/TOT	7	2	1	0	0	10	11	6	0	0	0	0	6	6	4	2	1	1	0	8	10
08:00	1	1	1	0	0	3	4	1	2	0	1	0	4	5	3	0	0	2	0	5	8
08:15	3	1	1	0	0	5	6	1	1	0	0	0	2	2	2	0	0	2	0	4	7
08:30	2	0	1	0	0	3	4	3	0	0	0	0	3	3	2	1	0	2	0	5	8
08:45	1	0	0	0	0	1	1	0	2	0	0	0	2	2	2	0	0	1	0	3	4
H/TOT	7	2	3	0	0	12	14	5	5	0	1	0	11	12	9	1	0	7	0	17	26
09:00	5	2	1	0	0	8	9	2	0	0	0	0	2	2	8	1	0	0	0	9	9
09:15	1	0	0	0	0	1	1	3	0	0	0	0	3	3	4	1	0	0	0	5	5
09:30	0	0	0	0	0	0	0	0	1	0	0	0	1	1	4	0	0	1	0	5	6
09:45	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	1	0	0	1	4	5
H/TOT	7	2	1	0	0	10	11	5	1	0	0	0	6	6	18	3	0	1	1	23	25
10:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	3	0	0	1	0	4	5
10:15	2	0	0	0	0	2	2	1	0	0	0	0	1	1	4	0	0	2	0	6	9
10:30	2	0	0	0	0	2	2	2	2	0	0	0	4	4	2	0	1	0	0	3	4
10:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	3	1	0	1	0	5	6
H/TOT	4	0	0	0	0	4	4	5	2	0	0	0	7	7	12	1	1	4	0	18	24
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0	5	8
11:15	0	0	0	0	0	0	0	2	1	0	0	0	3	3	6	0	1	0	0	7	8
11:30	0	0	0	0	0	0	0	3	0	2	0	0	5	6	5	0	0	0	0	5	5
11:45	2	1	0	0	0	3	3	2	0	0	0	0	2	2	6	1	0	1	0	8	9
H/TOT	2	1	0	0	0	3	3	7	1	2	0	0	10	11	20	1	1	3	0	25	29
12:00	1	0	0	0	0	1	1	1	0	0	0	0	1	1	4	2	0	1	0	7	8
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	3	4
12:30	2	0	0	0	0	2	2	0	0	0	0	0	0	0	6	0	0	1	0	7	8
12:45	0	0	0	0	0	0	0	3	0	0	0	0	3	3	9	0	0	0	0	9	9
H/TOT	3	0	0	0	0	3	3	4	0	0	0	0	4	4	21	2	0	3	0	26	30

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 01

DATE: 4th April 2019

LOCATION: L1113/L1157

DAY: Thursday

TIME	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	3	1	0	1	0	5	6	0	0	0	0	0	0	0	1	1	1	0	0	3	4
13:15	8	0	0	1	0	9	10	2	0	0	0	0	2	2	4	0	0	1	0	5	6
13:30	3	0	0	1	0	4	5	0	0	0	0	0	0	0	0	1	0	0	0	1	1
13:45	7	0	0	1	0	8	9	2	0	0	0	0	2	2	0	0	0	0	0	0	0
H/TOT	21	1	0	4	0	26	31	4	0	0	0	0	4	4	5	2	1	1	0	9	11
14:00	6	0	0	0	0	6	6	2	0	0	0	0	2	2	3	0	0	1	0	4	5
14:15	1	0	0	1	0	2	3	2	1	0	0	0	3	3	0	0	0	0	0	0	0
14:30	2	0	0	2	1	5	9	1	0	0	0	0	1	1	1	0	0	0	0	1	1
14:45	2	1	0	1	0	4	5	0	1	0	0	0	1	1	1	0	0	0	0	1	1
H/TOT	11	1	0	4	1	17	23	5	2	0	0	0	7	7	5	0	0	1	0	6	7
15:00	3	0	0	1	0	4	5	1	0	0	0	0	1	1	1	0	0	0	0	1	1
15:15	7	1	0	2	0	10	13	0	0	0	0	0	0	0	1	0	0	0	0	1	1
15:30	3	0	1	0	0	4	5	0	1	0	0	0	1	1	1	0	0	0	0	1	1
15:45	3	1	1	0	0	5	6	0	0	0	0	0	0	0	0	2	0	0	0	2	2
H/TOT	16	2	2	3	0	23	28	1	1	0	0	0	2	2	3	2	0	0	0	5	5
16:00	5	0	1	1	0	7	9	1	0	0	0	0	1	1	2	0	0	0	0	2	2
16:15	2	0	0	0	0	2	2	1	0	0	0	0	1	1	1	0	0	0	0	1	1
16:30	3	0	0	1	0	4	5	0	0	0	0	0	0	0	0	1	0	0	0	1	1
16:45	6	2	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	16	2	1	2	0	21	24	2	0	0	0	0	2	2	3	1	0	0	0	4	4
17:00	4	0	0	1	0	5	6	0	0	1	1	0	2	4	2	0	0	0	0	2	2
17:15	4	1	0	0	0	5	5	1	0	0	0	0	1	1	2	0	0	0	0	2	2
17:30	6	0	0	0	0	6	6	1	0	0	0	0	1	1	0	0	0	0	0	0	0
17:45	2	0	0	0	0	2	2	2	0	1	0	0	3	4	0	0	0	0	0	0	0
H/TOT	16	1	0	1	0	18	19	4	0	2	1	0	7	9	4	0	0	0	0	4	4
18:00	10	0	0	0	0	10	10	1	0	1	0	0	2	3	1	0	0	0	0	1	1
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
18:30	1	0	1	0	0	2	3	0	0	0	0	0	0	0	1	0	0	0	0	1	1
18:45	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	12	0	1	0	0	13	14	1	0	1	0	0	2	3	5	0	0	0	0	5	5
P/TOT	227	19	7	30	4	287	334	31	5	4	4	0	44	51	48	9	1	5	0	63	70

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 01

DATE: 4th April 2019

LOCATION: L1113/L1157

DAY: Thursday

TIME	MOVEMENT 4							PCU	MOVEMENT 5							PCU	MOVEMENT 6							PCU
	CAR	LGV	OGV1	OGV2	BUS	TOT	CAR		LGV	OGV1	OGV2	BUS	TOT	CAR	LGV		OGV1	OGV2	BUS	TOT				
13:00	2	0	0	0	0	2	2	0	0	1	0	0	1	2	0	1	0	1	0	2	3			
13:15	0	1	0	0	0	1	1	2	0	0	0	0	2	2	3	0	0	0	0	3	3			
13:30	5	2	0	0	0	7	7	0	0	0	0	0	0	0	6	1	0	1	0	8	9			
13:45	2	0	0	0	0	2	2	2	1	0	0	0	3	3	8	0	0	2	0	10	13			
H/TOT	9	3	0	0	0	12	12	4	1	1	0	0	6	7	17	2	0	4	0	23	28			
14:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	7	0	0	0	0	7	7			
14:15	2	0	0	0	0	2	2	1	2	0	0	0	3	3	2	0	0	2	0	4	7			
14:30	1	0	0	0	0	1	1	0	1	1	0	0	2	3	8	0	0	1	0	9	10			
14:45	2	1	0	0	0	3	3	0	1	0	0	0	1	1	7	1	0	0	1	9	10			
H/TOT	5	1	0	0	0	6	6	3	4	1	0	0	8	9	24	1	0	3	1	29	34			
15:00	3	0	0	1	0	4	5	3	0	0	0	0	3	3	6	2	1	0	0	9	10			
15:15	0	1	0	0	0	1	1	3	0	0	0	0	3	3	1	0	1	1	0	3	5			
15:30	2	1	0	0	0	3	3	4	1	0	0	0	5	5	7	0	0	2	0	9	12			
15:45	2	0	0	0	0	2	2	0	1	1	0	0	2	3	12	0	0	1	1	14	16			
H/TOT	7	2	0	1	0	10	11	10	2	1	0	0	13	14	26	2	2	4	1	35	42			
16:00	2	0	1	0	0	3	4	3	2	0	0	0	5	5	5	1	0	0	0	6	6			
16:15	0	1	1	0	0	2	3	2	0	1	0	0	3	4	6	0	1	0	0	7	8			
16:30	2	1	0	0	0	3	3	0	1	0	0	0	1	1	7	3	0	1	0	11	12			
16:45	2	0	0	0	0	2	2	3	1	0	0	0	4	4	5	2	0	0	0	7	7			
H/TOT	6	2	2	0	0	10	11	8	4	1	0	0	13	14	23	6	1	1	0	31	33			
17:00	1	0	0	0	0	1	1	4	0	1	0	0	5	6	2	2	0	2	0	6	9			
17:15	2	0	0	0	0	2	2	1	1	0	0	0	2	2	6	0	0	0	0	6	6			
17:30	0	0	0	0	0	0	0	4	1	1	0	0	6	7	13	1	0	0	0	14	14			
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	0	0	0	8	8			
H/TOT	3	0	0	0	0	3	3	9	2	2	0	0	13	14	26	6	0	2	0	34	37			
18:00	1	0	0	0	0	1	1	3	0	0	0	0	3	3	9	0	0	0	0	9	9			
18:15	2	0	0	0	0	2	2	3	2	0	0	0	5	5	10	1	0	0	0	11	11			
18:30	1	0	0	0	0	1	1	1	1	0	0	0	2	2	5	0	0	0	0	5	5			
18:45	3	0	0	0	0	3	3	1	0	0	0	0	1	1	5	0	0	0	0	5	5			
H/TOT	7	0	0	0	0	7	7	8	3	0	0	0	11	11	29	1	0	0	0	30	30			
P/TOT	67	15	7	1	0	90	95	74	25	8	1	0	108	113	229	28	6	33	3	299	348			

APPENDIX 14-A

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 02

DATE: 4th April 2019

LOCATION: L1157/Quarry Entrance

DAY: Thursday

TIME	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
07:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	4	2	0	0	0	6	6
07:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	0	1	2	0	5	8
07:45	0	0	0	0	0	0	0	6	0	0	0	0	6	6	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	8	0	0	0	0	8	8	9	2	1	2	0	14	17
08:00	0	0	0	0	0	0	0	4	1	0	1	0	6	7	3	1	1	0	0	5	6
08:15	0	0	0	0	0	0	0	3	1	0	0	0	4	4	3	2	1	0	0	6	7
08:30	0	0	0	0	0	0	0	4	0	0	1	0	5	6	1	1	1	0	0	3	4
08:45	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	11	3	0	2	0	16	19	8	4	3	0	0	15	17
09:00	0	1	0	0	0	1	1	3	0	0	0	0	3	3	5	2	1	0	0	8	9
09:15	0	0	0	0	0	0	0	3	0	0	0	0	3	3	3	1	0	0	0	4	4
09:30	0	0	0	0	0	0	0	0	1	0	1	0	2	3	3	0	0	0	0	3	3
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	0	1	0	0	0	1	1	6	1	0	1	0	8	9	12	3	1	0	0	16	17
10:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	0	0	0	0	2	2
10:15	0	0	0	0	0	0	0	1	1	0	0	0	2	2	2	0	0	0	0	2	2
10:30	0	0	0	0	0	0	0	3	2	0	0	0	5	5	2	1	0	0	0	3	3
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	5	3	0	0	0	8	8	6	1	0	0	0	7	7
11:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1
11:15	0	1	0	0	0	1	1	2	1	0	1	0	4	5	2	0	0	0	0	2	2
11:30	0	0	0	0	0	0	0	4	0	1	0	0	5	6	2	0	0	0	0	2	2
11:45	0	0	0	0	0	0	0	3	0	1	0	0	4	5	2	1	0	0	0	3	3
H/TOT	0	1	0	0	0	1	1	11	1	2	1	0	15	17	7	1	0	0	0	8	8
12:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	2	0	0	0	0	2	2
12:15	0	0	0	0	0	0	0	2	0	1	0	0	3	4	2	0	0	1	0	3	4
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	5
12:45	0	0	0	0	0	0	0	4	0	0	0	0	4	4	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	8	0	1	0	0	9	10	10	0	0	1	0	11	12

TRAFFINOMICS LIMITED

**KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS**

**APRIL 2019
TRA/19/076**

SITE: 02

DATE: 4th April 2019

LOCATION: L1157/Quarry Entrance

DAY: Thursday

TIME	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6							
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 02

DATE: 4th April 2019

LOCATION: L1157/Quarry Entrance

DAY: Thursday

TIME	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	0	0	0	0	0	0	0	0	0	1	0	0	1	2	4	0	1	0	0	5	6
13:15	0	0	0	0	0	0	0	4	0	0	0	0	4	4	4	0	0	1	0	5	6
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	6	6
13:45	0	0	0	0	0	0	0	5	0	0	0	0	5	5	3	0	0	0	0	3	3
H/TOT	0	0	0	0	0	0	0	9	0	1	0	0	10	11	15	2	1	1	0	19	21
14:00	0	0	0	0	0	0	0	4	0	0	0	0	4	4	1	0	0	1	0	2	3
14:15	0	1	0	0	0	1	1	3	1	0	0	0	4	4	2	0	0	0	0	2	2
14:30	0	0	0	0	0	0	0	1	1	1	0	0	3	4	2	0	0	0	0	2	2
14:45	0	0	0	0	0	0	0	0	1	0	0	0	1	1	3	0	0	0	0	3	3
H/TOT	0	1	0	0	0	1	1	8	3	1	0	0	12	13	8	0	0	1	0	9	10
15:00	0	0	0	0	0	0	0	4	1	0	0	0	5	5	4	0	0	1	0	5	6
15:15	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	1	0	0	0	2	2
15:30	0	0	0	0	0	0	0	4	1	0	0	0	5	5	4	1	0	0	0	5	5
15:45	0	0	0	0	0	0	0	1	1	1	0	0	3	4	1	2	0	0	0	3	3
H/TOT	0	0	0	0	0	0	0	11	3	1	0	0	15	16	10	4	0	1	0	15	16
16:00	0	0	0	0	0	0	0	4	1	0	0	0	5	5	4	0	1	0	0	5	6
16:15	0	0	0	0	0	0	0	2	1	1	0	0	4	5	1	0	1	0	0	2	3
16:30	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	2	0	0	0	4	4
16:45	0	0	0	0	0	0	0	3	1	0	0	0	4	4	2	0	0	0	0	2	2
H/TOT	0	0	0	0	0	0	0	9	4	1	0	0	14	15	9	2	2	0	0	13	14
17:00	0	0	0	0	0	0	0	4	0	2	1	0	7	9	3	0	0	0	0	3	3
17:15	0	0	0	0	0	0	0	3	1	0	0	0	4	4	4	0	0	0	0	4	4
17:30	0	0	0	0	0	0	0	4	1	1	0	0	6	7	1	0	0	0	0	1	1
17:45	0	0	0	0	0	0	0	2	0	1	0	0	3	4	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	13	2	4	1	0	20	23	8	0	0	0	0	8	8
18:00	0	0	0	0	0	0	0	4	0	1	0	0	5	6	2	0	0	0	0	2	2
18:15	0	0	0	0	0	0	0	3	2	0	0	0	5	5	4	0	0	0	0	4	4
18:30	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	0	0	0	0	2	2
18:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	0	0	0	0	2	2
H/TOT	0	0	0	0	0	0	0	8	3	1	0	0	12	13	10	0	0	0	0	10	10
P/TOT	0	3	0	0	0	3	3	107	23	12	5	0	147	160	112	19	8	6	0	145	157

APPENDIX 14-A

TRAFFINOMICS LIMITED

**KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS**

**APRIL 2019
TRA/19/076**

SITE: 02

DATE: 4th April 2019

LOCATION: L1157/Quarry Entrance

DAY: Thursday

TIME	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	2
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3	3

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
07:15	1	1	0	0	0	2	2	0	0	1	0	0	1	2	0	0	0	0	0	0	0
07:30	1	0	0	0	0	1	1	3	0	2	0	0	5	6	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	3	1	2	0	1	7	9	1	0	0	0	0	1	1
H/TOT	2	1	0	0	0	3	3	6	1	5	0	1	13	17	2	0	0	0	0	2	2
08:00	0	0	0	0	0	0	0	3	1	0	0	1	5	6	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	1	1	1	0	0	3	4	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	4	0	0	0	0	4	4	0	0	1	0	0	1	2
08:45	0	0	0	0	0	0	0	9	2	0	0	0	11	11	3	0	0	1	0	4	5
H/TOT	0	0	0	0	0	0	0	17	4	1	0	1	23	25	3	0	1	1	0	5	7
09:00	0	0	0	0	0	0	0	7	2	0	0	0	9	9	2	0	0	0	0	2	2
09:15	0	0	1	0	0	1	2	9	0	1	0	0	10	11	1	1	0	0	0	2	2
09:30	0	0	0	0	0	0	0	7	0	0	1	0	8	9	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	6	1	0	0	0	7	7	2	1	0	0	0	3	3
H/TOT	0	0	1	0	0	1	2	29	3	1	1	0	34	36	5	2	0	0	0	7	7
10:00	0	1	0	0	0	1	1	8	3	0	0	0	11	11	1	0	0	0	0	1	1
10:15	2	0	0	0	0	2	2	8	1	1	0	0	10	11	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	8	2	1	0	0	11	12	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	2	2	0	0	0	4	4	0	0	0	0	0	0	0
H/TOT	2	1	0	0	0	3	3	26	8	2	0	0	36	37	1	0	0	0	0	1	1
11:00	0	0	0	0	0	0	0	9	1	0	1	0	11	12	2	0	0	1	0	3	4
11:15	0	0	0	0	0	0	0	7	2	1	0	1	11	13	1	0	0	0	0	1	1
11:30	0	0	0	0	0	0	0	12	0	0	0	0	12	12	1	0	0	0	0	1	1
11:45	0	0	0	0	0	0	0	8	1	0	0	0	9	9	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	36	4	1	1	1	43	46	5	0	0	1	0	6	7
12:00	0	0	0	0	0	0	0	7	2	0	0	1	10	11	1	0	0	1	0	2	3
12:15	1	0	0	0	0	1	1	9	2	0	0	0	11	11	0	0	0	0	0	0	0
12:30	0	1	0	0	0	1	1	8	0	2	0	0	10	11	5	0	0	0	0	5	5
12:45	0	0	0	0	0	0	0	7	1	0	0	0	8	8	0	0	0	0	0	0	0
H/TOT	1	1	0	0	0	2	2	31	5	2	0	1	39	41	6	0	0	1	0	7	8

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6							
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
07:00	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	1	0	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
07:30	3	0	0	0	0	3	3	0	0	0	0	0	0	0	1	0	0	0	0	1	1	
07:45	3	0	1	0	0	4	5	0	0	0	0	0	0	0	5	0	0	0	0	5	5	
H/TOT	9	0	1	0	0	10	11	1	0	0	0	0	1	1	6	0	0	0	0	6	6	
08:00	3	1	0	0	0	4	4	1	0	0	0	0	1	1	4	0	0	0	0	4	4	
08:15	5	0	1	0	0	6	7	0	0	0	0	0	0	0	3	2	0	0	0	5	5	
08:30	9	0	0	0	0	9	9	0	0	0	0	0	0	0	3	0	0	0	0	3	3	
08:45	5	0	1	1	0	7	9	1	0	0	0	0	1	1	3	1	0	1	0	5	6	
H/TOT	22	1	2	1	0	26	28	2	0	0	0	0	2	2	13	3	0	1	0	17	18	
09:00	1	0	0	1	0	2	3	1	0	0	0	0	1	1	3	0	0	0	0	3	3	
09:15	5	0	0	0	0	5	5	1	0	0	0	0	1	1	1	0	0	0	0	1	1	
09:30	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	1	0	3	4	
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	
H/TOT	7	0	0	1	0	8	9	2	0	0	0	0	2	2	6	1	0	1	0	8	9	
10:00	3	0	0	0	0	3	3	0	0	0	0	0	0	0	3	1	0	0	0	4	4	
10:15	4	0	0	0	0	4	4	3	1	0	0	0	4	4	0	0	0	0	0	0	0	
10:30	2	0	0	1	0	3	4	1	0	0	0	0	1	1	2	3	0	0	0	5	5	
10:45	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H/TOT	11	0	0	1	0	12	13	4	1	0	0	0	5	5	5	4	0	0	0	9	9	
11:00	2	0	0	0	0	2	2	0	0	0	0	0	0	0	2	0	0	0	0	2	2	
11:15	1	1	0	2	0	4	7	0	0	1	0	0	1	2	2	1	0	0	0	3	3	
11:30	2	0	0	0	0	2	2	0	0	0	0	0	0	0	3	0	1	0	0	4	5	
11:45	2	0	0	0	0	2	2	1	0	0	0	0	1	1	5	0	1	0	0	6	7	
H/TOT	7	1	0	2	0	10	13	1	0	1	0	0	2	3	12	1	2	0	0	15	16	
12:00	2	0	0	0	0	2	2	0	1	0	0	0	1	1	3	0	1	0	0	4	5	
12:15	1	0	0	1	0	2	3	0	1	0	0	0	1	1	1	0	0	0	0	1	1	
12:30	3	0	0	1	0	4	5	0	0	0	0	0	0	0	3	0	0	0	0	3	3	
12:45	2	0	0	0	0	2	2	0	0	0	0	0	0	0	4	0	0	0	0	4	4	
H/TOT	8	0	0	2	0	10	13	0	2	0	0	0	2	2	11	0	1	0	0	12	13	

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 7							MOVEMENT 8							MOVEMENT 9						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	0	1	0	0	0	1	1	18	2	0	0	1	21	22	0	0	0	0	0	0	0
07:15	2	1	0	0	0	3	3	17	0	0	0	0	17	17	0	0	0	0	0	0	0
07:30	1	0	1	2	0	4	7	10	2	0	0	1	13	14	0	0	0	0	0	0	0
07:45	2	0	1	0	0	3	4	22	3	0	0	1	26	27	0	0	0	0	0	0	0
H/TOT	5	2	2	2	0	11	15	67	7	0	0	3	77	80	0	0	0	0	0	0	0
08:00	4	1	1	0	0	6	7	21	3	1	0	1	26	28	1	0	0	0	0	1	1
08:15	3	2	1	0	0	6	7	22	4	0	0	2	28	30	0	0	0	0	0	0	0
08:30	1	0	1	0	0	2	3	17	2	1	0	0	20	21	0	0	0	0	0	0	0
08:45	5	0	0	0	0	5	5	23	2	1	0	0	26	27	0	0	0	0	0	0	0
H/TOT	13	3	3	0	0	19	21	83	11	3	0	3	100	105	1	0	0	0	0	1	1
09:00	4	2	1	0	0	7	8	18	0	0	1	1	20	22	0	0	0	0	0	0	0
09:15	3	1	0	0	0	4	4	16	1	1	1	0	19	21	0	0	0	0	0	0	0
09:30	2	0	0	0	0	2	2	14	1	0	0	0	15	15	0	0	0	0	0	0	0
09:45	1	0	0	0	0	1	1	12	1	2	0	1	16	18	0	0	0	0	0	0	0
H/TOT	10	3	1	0	0	14	15	60	3	3	2	2	70	76	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	12	0	1	0	0	13	14	0	0	0	0	0	0	0
10:15	2	1	0	0	0	3	3	10	1	0	0	1	12	13	1	0	0	0	0	1	1
10:30	3	1	0	0	0	4	4	8	2	1	1	0	12	14	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	15	1	0	0	0	16	16	0	0	0	0	0	0	0
H/TOT	5	2	0	0	0	7	7	45	4	2	1	1	53	56	1	0	0	0	0	1	1
11:00	1	0	0	0	0	1	1	11	1	2	0	0	14	15	1	0	0	0	0	1	1
11:15	2	0	0	0	0	2	2	7	1	0	0	2	10	12	0	0	0	0	0	0	0
11:30	1	0	0	0	0	1	1	5	2	0	0	0	7	7	0	0	0	0	0	0	0
11:45	2	2	0	0	0	4	4	5	3	1	0	0	9	10	0	0	0	0	0	0	0
H/TOT	6	2	0	0	0	8	8	28	7	3	0	2	40	44	1	0	0	0	0	1	1
12:00	5	1	1	0	0	7	8	5	0	0	0	0	5	5	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	15	1	0	0	1	17	18	0	0	0	0	0	0	0
12:30	5	1	1	0	0	7	8	6	2	1	0	0	9	10	0	0	0	0	0	0	0
12:45	3	0	0	0	0	3	3	7	0	0	1	0	8	9	0	0	0	0	0	0	0
H/TOT	13	2	2	0	0	17	18	33	3	1	1	1	39	42	0	0	0	0	0	0	0

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 10							MOVEMENT 11							MOVEMENT 12						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
07:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	3	0	0	0	0	3	3	0	1	0	0	0	1	1
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3
09:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1
09:15	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1
09:30	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	1	0	0	0	0	1	1	4	0	0	0	0	4	4	2	0	0	0	0	2	2
10:00	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	1	1	0	0	2	3
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
10:30	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	1	1	0	0	0	2	2	0	0	1	0	0	1	2	2	1	1	0	0	4	5
11:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	1	1
11:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1
H/TOT	1	0	0	0	0	1	1	3	0	0	0	0	3	3	2	1	0	0	3	3	
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2
12:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	0	0	0	0	2	2
12:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	1
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	2	0	0	0	0	2	2	3	2	0	0	0	5	5

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	0	0	0	0	0	0	0	8	0	0	0	0	8	8	2	0	0	1	0	3	4
13:15	0	0	0	0	0	0	0	2	1	0	0	1	4	5	1	0	1	0	0	2	3
13:30	0	1	0	0	0	1	1	14	1	0	0	0	15	15	4	2	0	0	0	6	6
13:45	0	0	0	0	0	0	0	9	0	0	0	0	9	9	2	0	0	0	0	2	2
H/TOT	0	1	0	0	0	1	1	33	2	0	0	1	36	37	9	2	1	1	0	13	15
14:00	0	0	0	0	0	0	0	10	3	1	0	0	14	15	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	10	1	0	0	0	11	11	1	1	0	0	0	2	2
14:30	2	0	0	0	0	2	2	12	1	1	0	0	14	15	1	0	0	1	0	2	3
14:45	1	0	1	0	0	2	3	12	3	0	0	0	15	15	1	1	0	0	0	2	2
H/TOT	3	0	1	0	0	4	5	44	8	2	0	0	54	55	3	2	0	1	0	6	7
15:00	2	0	0	0	0	2	2	6	2	0	0	0	8	8	3	0	0	0	0	3	3
15:15	0	0	0	0	0	0	0	11	0	2	0	1	14	16	0	1	0	0	0	1	1
15:30	0	0	0	0	0	0	0	12	2	1	1	1	17	20	2	0	0	1	0	3	4
15:45	0	0	0	0	0	0	0	14	5	2	0	0	21	22	1	0	0	0	0	1	1
H/TOT	2	0	0	0	0	2	2	43	9	5	1	2	60	66	6	1	0	1	0	8	9
16:00	0	0	0	0	0	0	0	11	5	1	0	0	17	18	2	1	0	0	0	3	3
16:15	1	1	0	0	0	2	2	16	2	0	0	2	20	22	0	0	0	0	0	0	0
16:30	2	0	0	0	0	2	2	24	2	0	0	1	27	28	1	1	0	1	0	3	4
16:45	0	0	0	0	0	0	0	22	2	0	0	1	25	26	0	2	0	0	0	2	2
H/TOT	3	1	0	0	0	4	4	73	11	1	0	4	89	94	3	4	0	1	0	8	9
17:00	1	0	0	0	0	1	1	14	0	1	0	0	15	16	2	1	1	0	0	4	5
17:15	3	0	0	0	0	3	3	26	4	0	0	0	30	30	4	0	0	0	0	4	4
17:30	0	0	0	0	0	0	0	17	3	0	0	0	20	20	4	1	0	0	0	5	5
17:45	1	0	0	0	0	1	1	26	3	0	0	1	30	31	3	1	0	0	0	4	4
H/TOT	5	0	0	0	0	5	5	83	10	1	0	1	95	97	13	3	1	0	0	17	18
18:00	1	1	0	0	0	2	2	17	2	1	0	0	20	21	5	0	0	0	0	5	5
18:15	1	0	0	0	0	1	1	28	3	0	0	0	31	31	2	0	0	0	0	2	2
18:30	1	0	0	0	0	1	1	22	1	0	0	0	23	23	2	0	0	0	0	2	2
18:45	3	1	0	0	0	4	4	15	2	0	0	0	17	17	0	0	0	0	0	0	0
H/TOT	6	2	0	0	0	8	8	82	8	1	0	0	91	92	9	0	0	0	0	9	9
P/TOT	24	7	2	0	0	33	34	503	73	22	3	12	613	640	65	14	3	7	0	89	100

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1	1	0	0	3	4
13:15	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	2	2
13:30	2	0	0	1	0	3	4	0	0	0	0	0	0	0	1	0	0	0	0	1	1
13:45	1	0	0	0	0	1	1	1	1	0	0	0	2	2	4	0	0	0	0	4	4
H/TOT	4	0	0	1	0	5	6	2	1	0	0	0	3	3	8	1	1	0	0	10	11
14:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	4	0	0	0	0	4	4
14:15	4	1	0	0	0	5	5	1	0	0	0	0	1	1	2	0	0	1	0	3	4
14:30	1	1	0	0	0	2	2	0	0	0	0	0	0	0	1	1	1	0	0	3	4
14:45	3	0	0	1	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	8	2	0	1	0	11	12	2	0	0	0	0	2	2	7	1	1	1	0	10	12
15:00	0	1	1	0	0	2	3	0	0	0	0	0	0	0	3	1	0	0	0	4	4
15:15	3	0	0	0	0	3	3	1	0	0	0	0	1	1	2	0	0	0	0	2	2
15:30	1	0	0	0	0	1	1	0	0	0	0	0	0	0	3	2	0	0	0	5	5
15:45	1	0	0	1	0	2	3	0	0	0	0	0	0	0	2	1	0	1	0	4	5
H/TOT	5	1	1	1	0	8	10	1	0	0	0	0	1	1	10	4	0	1	0	15	16
16:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0	4	0	1	0	0	5	6
16:15	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	2	1	0	0	5	6
16:30	0	0	0	0	0	0	0	0	0	1	0	0	1	2	3	1	0	0	0	4	4
16:45	1	0	0	0	0	1	1	2	0	0	0	0	2	2	2	1	0	0	0	3	3
H/TOT	3	0	0	0	0	3	3	2	0	1	0	0	3	4	11	4	2	0	0	17	18
17:00	1	0	1	0	0	2	3	1	0	2	0	0	3	4	4	0	0	1	0	5	6
17:15	1	0	0	0	0	1	1	2	0	0	0	0	2	2	0	1	0	0	0	1	1
17:30	1	0	0	0	0	1	1	0	0	0	0	0	0	0	3	3	0	0	0	6	6
17:45	2	0	0	0	0	2	2	0	0	0	0	0	0	0	3	0	1	0	0	4	5
H/TOT	5	0	1	0	0	6	7	3	0	2	0	0	5	6	10	4	1	1	0	16	18
18:00	2	0	0	0	0	2	2	1	1	0	0	0	2	2	5	0	1	0	0	6	7
18:15	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	2	0	0	0	4	4
18:30	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	1
18:45	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	2	2
H/TOT	4	0	0	0	0	4	4	1	2	0	0	0	3	3	10	2	1	0	0	13	14
P/TOT	93	5	5	10	0	113	129	21	6	4	0	0	31	33	109	25	9	5	0	148	159

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 7							MOVEMENT 8							MOVEMENT 9						
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	7	0	0	0	0	7	7	8	1	0	0	0	9	9	0	0	0	0	0	0	0
13:15	2	0	0	0	0	2	2	6	0	0	0	0	6	6	0	0	0	0	0	0	0
13:30	1	1	0	0	0	2	2	6	1	1	0	0	8	9	0	0	0	0	0	0	0
13:45	3	0	0	0	0	3	3	11	1	0	0	0	12	12	0	0	0	0	0	0	0
H/TOT	13	1	0	0	0	14	14	31	3	1	0	0	35	36	0	0	0	0	0	0	0
14:00	1	1	0	1	0	3	4	14	3	0	0	0	17	17	1	0	0	0	0	1	1
14:15	1	0	0	0	0	1	1	14	1	0	0	1	16	17	0	0	0	0	0	0	0
14:30	5	0	0	0	0	5	5	8	0	0	0	0	8	8	1	0	0	0	0	1	1
14:45	0	1	0	0	0	1	1	4	1	0	0	0	5	5	1	0	0	0	0	1	1
H/TOT	7	2	0	1	0	10	11	40	5	0	0	1	46	47	3	0	0	0	0	3	3
15:00	5	1	0	2	0	8	11	5	1	0	0	0	6	6	0	0	0	0	0	0	0
15:15	1	0	0	0	0	1	1	10	0	0	0	0	10	10	0	0	0	0	0	0	0
15:30	2	1	0	0	0	3	3	8	0	1	0	0	9	10	0	0	0	0	0	0	0
15:45	2	0	0	0	0	2	2	4	2	0	0	1	7	8	2	0	0	0	0	2	2
H/TOT	10	2	0	2	0	14	17	27	3	1	0	1	32	34	2	0	0	0	0	2	2
16:00	3	0	1	0	0	4	5	8	0	2	0	0	10	11	0	0	0	0	0	0	0
16:15	0	1	1	1	0	3	5	2	1	1	0	1	5	7	0	0	0	0	1	1	2
16:30	4	1	0	0	0	5	5	11	2	0	0	2	15	17	0	0	0	0	0	0	0
16:45	1	0	0	0	0	1	1	15	1	1	0	0	17	18	0	0	0	0	0	0	0
H/TOT	8	2	2	1	0	13	15	36	4	4	0	3	47	52	0	0	0	0	1	1	2
17:00	3	0	0	0	0	3	3	7	2	0	1	0	10	11	1	0	0	0	0	1	1
17:15	6	0	0	0	0	6	6	9	0	1	0	0	10	11	0	0	0	0	0	0	0
17:30	2	0	0	0	0	2	2	10	1	1	0	0	12	13	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	6	0	0	0	0	6	6	0	0	0	0	0	0	0
H/TOT	11	0	0	0	0	11	11	32	3	2	1	0	38	40	1	0	0	0	0	1	1
18:00	1	0	0	0	0	1	1	6	0	0	0	0	6	6	0	0	0	0	0	0	0
18:15	5	0	0	0	0	5	5	5	1	0	0	1	7	8	0	0	0	0	0	0	0
18:30	3	0	0	0	0	3	3	5	2	0	0	0	7	7	0	0	0	0	0	0	0
18:45	2	0	0	0	0	2	2	6	0	0	0	0	6	6	0	0	0	0	0	0	0
H/TOT	11	0	0	0	0	11	11	22	3	0	0	1	26	27	0	0	0	0	0	0	0
P/TOT	112	21	10	6	0	149	162	504	56	20	5	18	603	638	9	0	0	0	1	10	11

TRAFFINOMICS LIMITED

KILSARAN BALINCLARE TRAFFIC COUNTS
MANUAL CLASSIFIED JUNCTION TURNING COUNTS

APRIL 2019
TRA/19/076

SITE: 03

DATE: 4th April 2019

LOCATION: R772/L1157/Ballykippogue

DAY: Thursday

TIME	MOVEMENT 10							MOVEMENT 11							MOVEMENT 12							
	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1	1
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1
H/TOT	0	0	0	0	0	0	0	2	0	0	0	0	2	2	2	0	0	0	0	2	2	2
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	1	0	0	0	0	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
14:30	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
H/TOT	1	0	1	0	0	2	3	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	2
15:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	1	0	1	2	2
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1
H/TOT	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2	2	0	1	0	5	6	6
16:00	1	1	0	0	0	2	2	1	1	1	0	0	3	4	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1
H/TOT	1	1	0	0	0	2	2	2	1	1	0	0	4	5	1	0	0	0	0	1	1	1
17:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	1	1	0	0	0	2	2	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1	1
18:45	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0
H/TOT	1	1	0	0	0	2	2	4	0	1	0	0	5	6	1	0	0	0	0	1	1	1
P/TOT	8	3	1	0	0	12	13	23	1	3	0	0	27	29	18	7	1	1	0	27	29	29

TRAFFINOMICS LIMITED

**KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
AUTOMATIC TRAFFIC COUNT**

**SUMMARY
SITE 01**

**WEEK COMMENCING: Thursday 4 April 2019
TRA/19/076**

LOCATION: L1157 immediately South of Kilsaran Quarry Entrance (Google Maps Ref: 52.934726, -6.136169)

SPEED SURVEY SUMMARY:

NORTHBOUND	85% Speed = 79.74 km/h, 95% Speed = 87.75 km/h, Median = 68.31 km/h	Maximum = 106.2 km/h, Minimum = 0.0 km/h, Mean = 67.0 km/h
SOUTHBOUND	85% Speed = 79.61 km/h, 95% Speed = 87.35 km/h, Median = 66.24 km/h	Maximum = 119.2 km/h, Minimum = 15.2 km/h, Mean = 65.0 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Thursday 4 April 2019	Friday 5 April 2019	Saturday 6 April 2019	Sunday 7 April 2019	Monday 8 April 2019	Tuesday 9 April 2019	Wednesday 10 April 2019	No. Vehicles 7 day Mean
NORTHBOUND	07-19	150	153	170	181	153	162	160	1129
SOUTHBOUND	07-19	147	175	157	164	160	191	168	1162
NORTHBOUND	00-00	173	185	204	218	175	191	185	1331
SOUTHBOUND	00-00	170	203	187	185	181	219	190	1335

PEAK FLOW SUMMARY:

Peak	AM	IP	PM
Most Frequent Peak Hour	0800	1300	1700
Average Vehicles per Peak Hour	14	19	17

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
 Thursday 4 April 2019
 TRA/19/076

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
 Thursday 4 April 2019
 TRA/19/076

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
 Thursday 4 April 2019
 TRA/19/076

SITE 01
 SOUTHBOUND

SITE 01
 NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU	TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0	0000	0	0	0	0	0	0	0	0
0100	0	0	0	0	0	0	0	0	0100	0	0	0	0	0	0	0	0
0200	0	1	0	0	0	0	1	1	0200	0	0	1	0	0	0	1	1
0300	0	1	0	0	0	0	1	1	0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0	0500	0	0	0	0	0	0	0	0
0600	0	2	2	0	0	0	4	4	0600	0	1	0	0	0	0	1	1
0700	0	6	5	0	2	0	13	16	0700	0	5	1	0	0	0	6	6
0800	0	10	6	0	0	0	16	16	0800	0	15	3	0	1	0	19	20
0900	0	14	2	0	0	0	16	16	0900	0	6	0	1	1	0	8	10
1000	0	8	0	0	0	0	8	8	1000	0	8	0	0	0	0	8	8
1100	0	8	0	0	0	0	8	8	1100	0	11	3	0	1	0	15	16
1200	0	10	2	1	0	0	13	14	1200	0	6	0	1	0	0	7	8
1300	0	16	2	1	1	0	20	22	1300	0	10	2	0	0	0	12	12
1400	0	9	0	0	1	0	10	11	1400	0	7	4	0	0	0	11	11
1500	0	12	2	0	1	0	15	16	1500	0	13	2	0	0	0	15	15
1600	0	11	2	0	0	0	13	13	1600	0	9	5	1	0	0	15	16
1700	0	8	0	0	0	0	8	8	1700	0	13	5	0	1	0	19	20
1800	0	10	0	0	0	0	10	10	1800	0	8	4	0	0	0	12	12
1900	0	4	2	0	0	0	6	6	1900	1	6	1	0	0	0	8	7
2000	0	5	2	0	0	0	7	7	2000	0	4	0	0	0	0	4	4
2100	0	2	0	0	0	0	2	2	2100	0	5	0	0	0	0	5	5
2200	0	2	0	0	0	0	2	2	2200	0	1	0	0	0	0	1	1
2300	0	0	0	0	0	0	0	0	2300	0	1	2	0	0	0	3	3
07-19	0	122	21	2	5	0	150	158	07-19	0	111	29	3	4	0	147	154
06-22	0	135	27	2	5	0	169	177	06-22	1	127	30	3	4	0	165	171
06-00	0	137	27	2	5	0	171	179	06-00	1	129	32	3	4	0	169	175
00-00	0	139	27	2	5	0	173	181	00-00	1	129	33	3	4	0	170	176

TRAFFINOMICS LIMITED

Friday 5 April 2019
TRA/19/076

Friday 5 April 2019 KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
TRA/19/076 AUTOMATIC TRAFFIC COUNT

SITE 01
SOUTHBOUND

TRAFFINOMICS LIMITED

Friday 5 April 2019 KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
AUTOMATIC TRAFFIC COUNT

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU	TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0	0000	0	1	0	0	0	0	1	1
0100	0	1	0	0	0	0	1	1	0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0	0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0	0500	0	0	0	0	0	0	0	0
0600	0	4	1	0	0	0	5	5	0600	0	2	2	0	0	0	4	4
0700	0	10	3	0	0	0	13	13	0700	0	2	1	0	0	0	3	3
0800	0	9	5	0	0	0	14	14	0800	0	12	4	0	0	0	16	16
0900	0	10	2	1	0	0	13	14	0900	0	11	1	0	2	0	14	17
1000	0	9	3	1	1	0	14	16	1000	0	12	1	1	1	0	15	17
1100	0	7	1	0	1	0	9	10	1100	0	3	4	0	3	0	10	14
1200	0	4	0	1	0	0	5	6	1200	0	10	0	0	1	0	11	12
1300	0	8	0	0	1	0	9	10	1300	0	9	2	0	3	0	14	18
1400	0	11	1	1	1	0	14	16	1400	0	11	2	0	0	0	13	13
1500	0	12	2	2	0	0	16	17	1500	0	21	6	1	1	0	29	31
1600	0	11	2	0	0	0	13	13	1600	0	11	1	0	0	0	12	12
1700	0	16	1	0	1	0	18	19	1700	0	15	5	1	0	0	21	22
1800	1	12	2	0	0	0	15	14	1800	1	15	1	0	0	0	17	16
1900	1	7	1	0	0	0	9	8	1900	0	7	1	0	1	0	9	10
2000	0	7	0	0	0	0	7	7	2000	0	8	1	0	0	0	9	9
2100	0	4	0	0	0	0	4	4	2100	0	2	0	0	0	0	2	2
2200	0	2	0	0	0	0	2	2	2200	0	1	0	0	0	0	1	1
2300	0	4	0	0	0	0	4	4	2300	0	2	0	0	0	0	2	2
07-19	1	119	22	6	5	0	153	162	07-19	1	132	28	3	11	0	175	190
06-22	2	141	24	6	5	0	178	186	06-22	1	151	32	3	12	0	199	215
06-00	2	147	24	6	5	0	184	192	06-00	1	154	32	3	12	0	202	218
00-00	2	148	24	6	5	0	185	193	00-00	1	155	32	3	12	0	203	219

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
 Saturday 6 April 2019
 TRA/19/076

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
 Saturday 6 April 2019
 TRA/19/076

SITE 01
 SOUTHBOUND

SITE 01
 NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU	TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0	0000	0	0	0	0	0	0	0	0
0100	0	2	1	0	0	0	3	3	0100	0	0	1	0	0	0	1	1
0200	0	0	0	0	0	0	0	0	0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0400	0	1	0	0	0	0	1	1
0500	0	0	0	0	0	0	0	0	0500	0	0	0	0	0	0	0	0
0600	0	3	0	0	0	0	3	3	0600	0	0	1	0	0	0	1	1
0700	0	4	2	0	0	0	6	6	0700	0	1	2	0	0	0	3	3
0800	0	7	1	0	0	0	8	8	0800	1	9	5	0	0	0	15	14
0900	1	8	1	0	0	0	10	9	0900	1	6	3	0	1	0	11	12
1000	1	11	2	0	0	0	14	13	1000	0	8	0	0	0	0	8	8
1100	2	14	2	0	1	0	19	19	1100	0	14	1	0	1	0	16	17
1200	0	23	2	1	2	0	28	31	1200	0	13	1	0	2	0	16	19
1300	0	8	0	0	1	0	9	10	1300	1	10	1	0	1	0	13	14
1400	0	15	0	0	1	0	16	17	1400	0	11	2	0	2	0	15	18
1500	0	12	3	0	1	0	16	17	1500	2	17	2	0	0	0	21	19
1600	0	18	1	0	0	0	19	19	1600	1	16	0	0	0	0	17	16
1700	1	15	0	0	1	0	17	18	1700	1	11	0	0	0	0	12	11
1800	0	7	0	1	0	0	8	9	1800	1	9	0	0	0	0	10	9
1900	0	9	0	0	1	0	10	11	1900	0	5	1	0	0	0	6	6
2000	0	5	1	0	0	0	6	6	2000	0	5	1	1	0	0	7	8
2100	0	6	0	0	0	0	6	6	2100	0	6	0	0	0	0	6	6
2200	0	4	0	0	0	0	4	4	2200	0	4	0	0	0	0	4	4
2300	0	2	0	0	0	0	2	2	2300	0	3	1	0	0	0	4	4
07-19	5	142	14	2	7	0	170	176	07-19	8	125	17	0	7	0	157	160
06-22	5	165	15	2	8	0	195	202	06-22	8	141	20	1	7	0	177	180
06-00	5	171	15	2	8	0	201	208	06-00	8	148	21	1	7	0	185	188
00-00	5	173	16	2	8	0	204	211	00-00	8	149	22	1	7	0	187	190

TRAFFINOMICS LIMITED

Sunday 7 April 2019
TRA/19/076

TRAFFINOMICS LIMITED

Sunday 7 April 2019 KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
TRA/19/076 AUTOMATIC TRAFFIC COUNT

SITE 01
SOUTHBOUND

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU	TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1	0000	0	2	0	0	0	0	2	2
0100	0	0	0	0	0	0	0	0	0100	0	1	0	0	0	0	1	1
0200	0	1	0	0	0	0	1	1	0200	0	0	0	0	0	0	0	0
0300	0	2	0	0	0	0	2	2	0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0	0500	0	0	0	0	0	0	0	0
0600	0	1	0	0	0	0	1	1	0600	0	0	0	0	0	0	0	0
0700	0	2	1	0	0	0	3	3	0700	0	1	0	0	0	0	1	1
0800	0	4	0	0	0	0	4	4	0800	0	9	0	1	0	0	10	11
0900	0	9	0	0	0	0	9	9	0900	1	7	1	1	0	0	10	10
1000	2	9	0	0	0	0	11	9	1000	0	9	1	0	0	0	10	10
1100	3	14	1	0	0	0	18	16	1100	3	10	0	0	1	0	14	13
1200	1	16	1	1	0	0	19	19	1200	1	13	0	0	0	0	14	13
1300	0	24	2	1	0	0	27	28	1300	1	15	0	0	0	0	16	15
1400	0	14	0	0	0	0	14	14	1400	0	20	0	0	0	0	20	20
1500	1	20	1	0	0	0	22	21	1500	0	17	0	0	0	0	17	17
1600	0	19	2	1	0	0	22	23	1600	0	19	2	0	0	0	21	21
1700	0	17	1	0	0	0	18	18	1700	0	21	1	0	0	0	22	22
1800	0	14	0	0	0	0	14	14	1800	0	9	0	0	0	0	9	9
1900	0	8	0	0	0	0	8	8	1900	0	4	2	0	0	0	6	6
2000	0	11	1	0	0	0	12	12	2000	0	5	0	0	0	0	5	5
2100	0	6	2	0	0	0	8	8	2100	0	2	0	0	0	0	2	2
2200	0	1	1	0	0	0	2	2	2200	0	2	1	0	0	0	3	3
2300	0	2	0	0	0	0	2	2	2300	0	2	0	0	0	0	2	2
07-19	7	162	9	3	0	0	181	177	07-19	6	150	5	2	1	0	164	162
06-22	7	188	12	3	0	0	210	206	06-22	6	161	7	2	1	0	177	175
06-00	7	191	13	3	0	0	214	210	06-00	6	165	8	2	1	0	182	180
00-00	7	195	13	3	0	0	218	214	00-00	6	168	8	2	1	0	185	183

TRAFFINOMICS LIMITED

Monday 8 April 2019
TRA/19/076

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
TRA/19/076 AUTOMATIC TRAFFIC COUNT

TRAFFINOMICS LIMITED

Monday 8 April 2019
TRA/19/076 AUTOMATIC TRAFFIC COUNT

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
AUTOMATIC TRAFFIC COUNT

SITE 01
SOUTHBOUND

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU	TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1	0000	0	1	0	0	0	0	1	1
0100	0	0	0	0	0	0	0	0	0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0	0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0400	0	0	0	0	0	0	0	0
0500	0	0	1	0	0	0	1	1	0500	0	2	0	0	0	0	2	2
0600	0	3	1	0	1	0	5	6	0600	0	2	1	0	0	0	3	3
0700	0	11	3	0	0	0	14	14	0700	0	2	1	0	2	0	5	8
0800	0	9	2	0	2	0	13	16	0800	1	17	2	0	0	0	20	19
0900	0	6	4	0	1	0	11	12	0900	0	12	0	0	4	0	16	21
1000	0	13	0	0	1	0	14	15	1000	0	8	4	0	3	0	15	19
1100	0	12	1	0	1	0	14	15	1100	0	9	1	0	2	0	12	15
1200	0	11	1	0	2	0	14	17	1200	0	8	1	1	0	0	10	11
1300	0	13	0	0	0	0	13	13	1300	0	7	2	0	0	0	9	9
1400	0	7	1	1	0	0	9	10	1400	0	7	2	1	2	0	12	15
1500	0	12	2	0	3	0	17	21	1500	0	16	2	0	3	0	21	25
1600	0	8	1	0	1	0	10	11	1600	0	12	3	1	0	0	16	17
1700	0	13	0	1	1	0	15	17	1700	0	10	4	0	0	0	14	14
1800	0	9	0	0	0	0	9	9	1800	0	10	0	0	0	0	10	10
1900	0	6	1	0	0	0	7	7	1900	0	5	0	0	0	0	5	5
2000	0	2	0	0	0	0	2	2	2000	0	6	0	0	0	0	6	6
2100	0	3	0	0	0	0	3	3	2100	0	2	0	0	0	0	2	2
2200	0	3	0	0	0	0	3	3	2200	0	0	0	0	0	0	0	0
2300	0	0	0	0	0	0	0	0	2300	0	2	0	0	0	0	2	2
07-19	0	124	15	2	12	0	153	170	07-19	1	118	22	3	16	0	160	182
06-22	0	138	17	2	13	0	170	188	06-22	1	133	23	3	16	0	176	198
06-00	0	141	17	2	13	0	173	191	06-00	1	135	23	3	16	0	178	200
00-00	0	142	18	2	13	0	175	193	00-00	1	138	23	3	16	0	181	203

TRAFFINOMICS LIMITED

Tuesday 9 April 2019
TRA/19/076

TRAFFINOMICS LIMITED

Tuesday 9 April 2019 KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
TRA/19/076 AUTOMATIC TRAFFIC COUNT

SITE 01
SOUTHBOUND

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU	TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0	0000	0	0	0	0	0	0	0	0
0100	0	0	0	0	0	0	0	0	0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0	0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0	0500	0	0	0	0	0	0	0	0
0600	0	3	1	0	1	0	5	6	0600	0	1	0	0	0	0	1	1
0700	0	10	1	1	1	0	13	15	0700	0	3	1	0	2	0	6	9
0800	0	12	4	0	1	0	17	18	0800	1	18	4	0	1	0	24	25
0900	0	8	1	1	0	0	10	11	0900	0	6	2	2	2	0	12	16
1000	0	15	2	0	3	0	20	24	1000	0	5	2	0	1	0	8	9
1100	0	3	1	1	2	0	7	10	1100	2	10	1	0	5	0	18	23
1200	0	17	1	0	0	0	18	18	1200	0	12	2	0	4	0	18	23
1300	0	8	2	1	2	0	13	16	1300	0	15	2	0	0	1	18	19
1400	0	11	1	0	2	0	14	17	1400	0	11	0	0	5	0	16	23
1500	0	9	1	0	2	0	12	15	1500	0	14	4	1	5	0	24	31
1600	0	15	0	1	0	0	16	17	1600	0	15	6	0	0	0	21	21
1700	0	14	1	2	0	0	17	18	1700	0	8	5	0	1	0	14	15
1800	0	4	1	0	0	0	5	5	1800	0	9	3	0	0	0	12	12
1900	0	7	0	0	0	0	7	7	1900	0	9	0	0	0	0	9	9
2000	0	3	1	0	0	0	4	4	2000	0	6	1	0	0	0	7	7
2100	0	4	2	0	1	0	7	8	2100	0	5	2	0	0	0	7	7
2200	0	5	0	0	0	0	5	5	2200	0	4	0	0	0	0	4	4
2300	0	1	0	0	0	0	1	1	2300	0	0	0	0	0	0	0	0
07-19	0	126	16	7	13	0	162	182	07-19	3	126	32	3	26	1	191	225
06-22	0	143	20	7	15	0	185	208	06-22	3	147	35	3	26	1	215	249
06-00	0	149	20	7	15	0	191	214	06-00	3	151	35	3	26	1	219	253
00-00	0	149	20	7	15	0	191	214	00-00	3	151	35	3	26	1	219	253

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WEDNESDAY 10 APRIL 2019
TRA/19/076

WEDNESDAY 10 APRIL 2019
TRA/19/076

WEDNESDAY 10 APRIL 2019
TRA/19/076

SITE 01
SOUTHBOUND

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGv**	OGV 1	OGV 2	BUS	TOTAL	PCU	TIME	PCL/MCL	CAR*	LGv**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0	0000	0	1	0	0	0	0	1	1
0100	0	0	0	0	0	0	0	0	0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0	0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0	0500	0	0	0	0	0	0	0	0
0600	0	1	1	0	1	0	3	4	0600	0	1	1	0	0	0	2	2
0700	0	8	2	0	1	0	11	12	0700	0	6	1	0	1	0	8	9
0800	0	15	4	1	0	0	20	21	0800	0	13	1	1	3	0	18	22
0900	0	10	4	0	0	0	14	14	0900	0	5	1	0	2	0	8	11
1000	0	11	1	1	0	0	13	14	1000	0	8	1	0	0	0	9	9
1100	0	9	0	0	1	0	10	11	1100	1	9	1	1	4	0	16	21
1200	0	10	0	0	0	0	10	10	1200	0	12	4	0	4	0	20	25
1300	0	11	0	1	1	1	14	17	1300	0	11	3	1	2	0	17	20
1400	0	10	2	0	2	0	14	17	1400	0	7	2	0	1	0	10	11
1500	0	10	3	1	0	0	14	15	1500	0	9	2	1	0	0	12	13
1600	0	8	1	1	0	0	10	11	1600	0	12	4	0	2	0	18	21
1700	0	15	3	0	0	0	18	18	1700	0	12	6	0	1	0	19	20
1800	0	11	1	0	0	0	12	12	1800	0	11	2	0	0	0	13	13
1900	0	7	0	0	0	0	7	7	1900	0	8	0	0	0	0	8	8
2000	0	5	0	0	0	0	5	5	2000	0	4	1	0	0	0	5	5
2100	0	5	1	1	0	0	7	8	2100	0	2	0	0	0	0	2	2
2200	0	2	0	0	0	0	2	2	2200	0	3	1	0	0	0	4	4
2300	0	1	0	0	0	0	1	1	2300	0	0	0	0	0	0	0	0
07-19	0	128	21	5	5	1	160	170	07-19	1	115	28	4	20	0	168	195
06-22	0	146	23	6	6	1	182	194	06-22	1	130	30	4	20	0	185	212
06-00	0	149	23	6	6	1	185	197	06-00	1	133	31	4	20	0	189	216
00-00	0	149	23	6	6	1	185	197	00-00	1	134	31	4	20	0	190	217

TRAFFINOMICS LIMITED

**Thursday 4 April 2019
TRA/19/076**

WEEK COMMENCING:

**SITE 01
NORTHBOUND**

**KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
AUTOMATIC TRAFFIC COUNT**

TIME PERIOD	Thursday 4 April 2019	Friday 5 April 2019	Saturday 6 April 2019	Sunday 7 April 2019	Monday 8 April 2019	Tuesday 9 April 2019	Wednesday 10 April 2019	Average
0000	0	0	0	1	1	0	0	0
0100	0	1	3	0	0	0	0	1
0200	1	0	0	1	0	0	0	0
0300	1	0	0	2	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	1	0	0	0
0600	4	5	3	1	5	5	3	4
0700	13	13	6	3	14	13	11	10
0800	16	14	8	4	13	17	20	13
0900	16	13	10	9	11	10	14	12
1000	8	14	14	11	14	20	13	13
1100	8	9	19	18	14	7	10	12
1200	13	5	28	19	14	18	10	15
1300	20	9	9	27	13	13	14	15
1400	10	14	16	14	9	14	14	13
1500	15	16	16	22	17	12	14	16
1600	13	13	19	22	10	16	10	15
1700	8	18	17	18	15	17	18	16
1800	10	15	8	14	9	5	12	10
1900	6	9	10	8	7	7	7	8
2000	7	7	6	12	2	4	5	6
2100	2	4	6	8	3	7	7	5
2200	2	2	4	2	3	5	2	3
2300	0	4	2	2	0	1	1	1
07-19	150	153	170	181	153	162	160	161
06-22	169	178	195	210	170	185	182	184
06-00	171	184	201	214	173	191	185	188
00-00	173	185	204	218	175	191	185	190

TRAFFINOMICS LIMITED

WEEK COMMENCING:
Thursday 4 April 2019
TRA/19/076

SITE 01
SOUTHBOUND

KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
AUTOMATIC TRAFFIC COUNT

TIME PERIOD	Thursday 4 April 2019	Friday 5 April 2019	Saturday 6 April 2019	Sunday 7 April 2019	Monday 8 April 2019	Tuesday 9 April 2019	Wednesday 10 April 2019	Average
0000	0	1	0	2	1	0	1	1
0100	0	0	1	1	0	0	0	0
0200	1	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	1	0	0	0	0	0
0500	0	0	0	0	2	0	0	0
0600	1	4	1	0	3	1	2	2
0700	6	3	3	1	5	6	8	5
0800	19	16	15	10	20	24	18	17
0900	8	14	11	10	16	12	8	11
1000	8	15	8	10	15	8	9	10
1100	15	10	16	14	12	18	16	14
1200	7	11	16	14	10	18	20	14
1300	12	14	13	16	9	18	17	14
1400	11	13	15	20	12	16	10	14
1500	15	29	21	17	21	24	12	20
1600	15	12	17	21	16	21	18	17
1700	19	21	12	22	14	14	19	17
1800	12	17	10	9	10	12	13	12
1900	8	9	6	6	5	9	8	7
2000	4	9	7	5	6	7	5	6
2100	5	2	6	2	2	7	2	4
2200	1	1	4	3	0	4	4	2
2300	3	2	4	2	2	0	0	2
07-19	147	175	157	164	160	191	168	166
06-22	165	199	177	177	176	215	185	185
06-00	169	202	185	182	178	219	189	189
00-00	170	203	187	185	181	219	190	191

TRAFFINOMICS LIMITED

**KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
AUTOMATIC TRAFFIC COUNT**

**WEEK COMMENCING: Thursday 4 April 2019
TRA/19/076**

**SITE 01
NORTHBOUND**

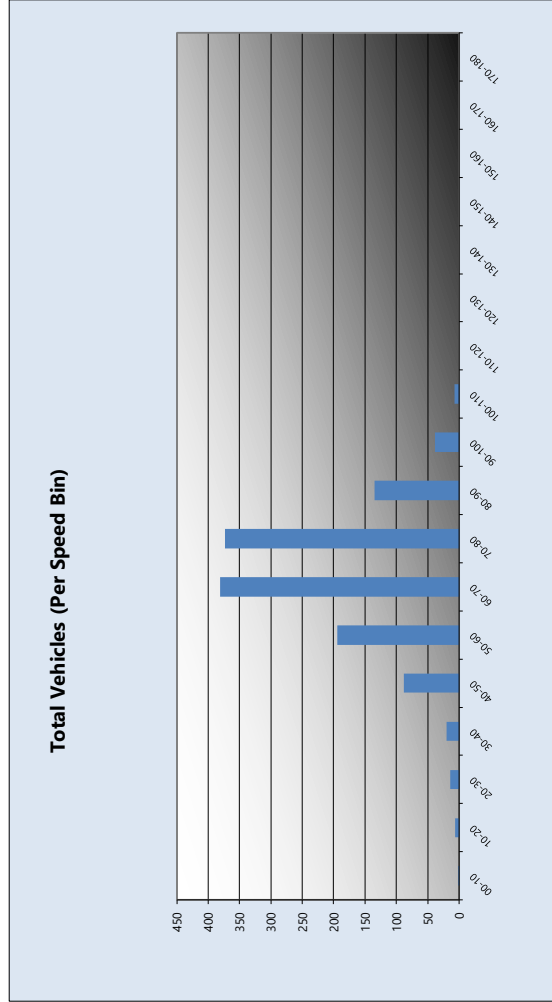
Profile:

Filter time: 00:00 4th April 2019 => 23:59 10th April 2019
 Speed range: 0 - 200 km/h.
 Separation: Greater than 4.00 seconds. - (Headway)
 Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 1257
 Maximum = 106.2 km/h, Minimum = 0.0 km/h, Mean = 67.0 km/h
 85% Speed = 79.74 km/h, 95% Speed = 87.75 km/h, Median = 68.31 km/h
 20 km/h Pace = 58 - 78, Number in Pace = 755 (60.06%)
 Variance = 186.90, Standard Deviation = 13.67 km/h

Speed Bins:

Speed KPH	No.	Bin	%
00-10	1		0.1
10-20	6		0.5
20-30	14		1.1
30-40	20		1.6
40-50	88		7.0
50-60	194		15.4
60-70	381		30.3
70-80	373		29.7
80-90	135		10.7
90-100	38		3.0
100-110	7		0.6
110-120	0		0.0
120-130	0		0.0
130-140	0		0.0
140-150	0		0.0
150-160	0		0.0
160-170	0		0.0
170-180	0		0.0



TRAFFINOMICS LIMITED

**KILSARAN BALLINCLARE TRAFFIC COUNT/SPEED SURVEY
AUTOMATIC TRAFFIC COUNT**

**WEEK COMMENCING: Thursday 4 April 2019
TRA/19/076**

**SITE 01
SOUTHBOUND**

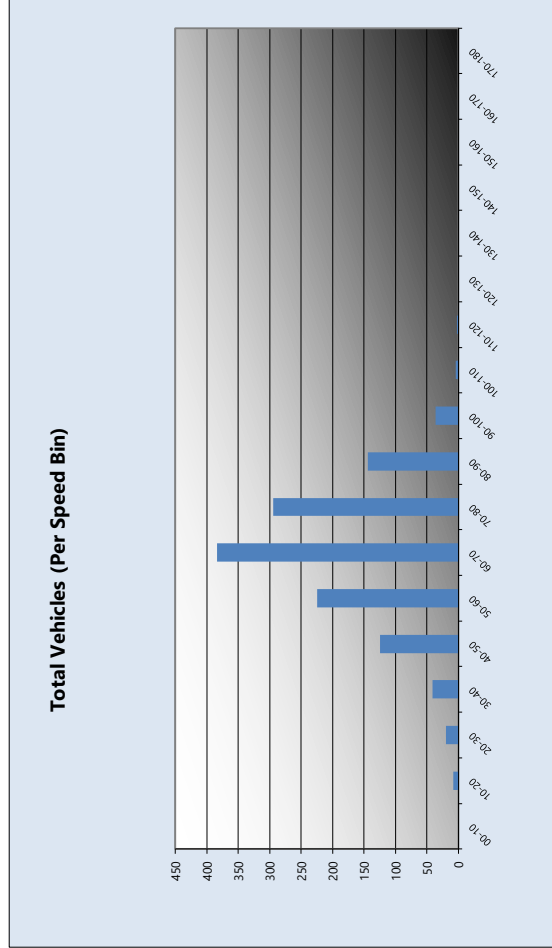
Profile:

Filter time: 00:00 4th April 2019 => 23:59 10th April 2019
 Speed range: 0 - 200 km/h.
 Separation: Greater than 4.00 seconds. - (Headway)
 Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 1284
 Maximum = 119.2 km/h, Minimum = 15.2 km/h, Mean = 65.0 km/h
 85% Speed = 79.61 km/h, 95% Speed = 87.35 km/h, Median = 66.24 km/h
 20 km/h Pace = 57 - 77, Number in Pace = 693 (53.97%)
 Variance = 217.96, Standard Deviation = 14.76 km/h

Speed Bins:

Speed KPH	Bin	
	No.	%
00-10	0	0.0
10-20	8	0.6
20-30	20	1.6
30-40	41	3.2
40-50	125	9.7
50-60	225	17.5
60-70	384	29.9
70-80	295	23.0
80-90	144	11.2
90-100	36	2.8
100-110	4	0.3
110-120	2	0.2
120-130	0	0.0
130-140	0	0.0
140-150	0	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



APPENDIX 14-B

Planning Reg. Ref. 14/2118

Clarification of RFI Response

Item 4: Road Strengthening, Widening and Overlay Measures



2nd November 2015

BY REGISTERED POST

The Planning Section
Wicklow County Council,
County Buildings, Wicklow

Our Ref: 501.00036.00026

Your Ref: P. Ref. 14/2118

Dear Sir / Madam,

RE: KILSARAN CONCRETE (trading as KILSARAN BUILD)

**PLANNING APPLICATION FOR THE DEVELOPMENT ON 36.0 HECTARE SITE
AT BALLINCLARE & CARRIGMORE, KILBRIDE, COUNTY WICKLOW**

**P. REF. 14/2118 – CLARIFICATION RESPONSE TO REQUEST FOR FURTHER
INFORMATION (CRFI)**

We refer to your letter dated 25th August 2015 in relation to Planning Application Ref. 14/2118. Kilsaran Concrete have reviewed the clarification request for further information (RFI) and the response(s) to each RFI item is provided below, in the same order as your letter, for the development within an overall application area of 36.0 hectares, and all for a period of 25 years, will consist of:

1. Permission for continued use of the permitted development under P. Reg. Ref. No. 07/45 for a period of 25 years including the existing quarry, stone extraction and processing, concrete and asphalt manufacturing facilities, and related ancillary buildings and facilities
2. Permission for extension to the permitted quarry by extraction to a quarry floor level of +1 mOD over an extraction area of 16.5 hectares.
3. Permission for a concrete block manufacturing plant (13.6m high approximately) (c. 362.1 sqm) and a concrete block manufacturing yard (c. 6225 sqm).
4. Permission for an aggregate washing plant (c. 142.6 sqm).
5. Permission for replacement of the existing septic tank with a proprietary effluent treatment system (Aeration Treatment Unit and two modular Puraflo).
6. Permission to increase product output from the quarry, from 70 to 150 loads per day, in line with market demand.
7. And all associated site works at Ballinclare & Carrigmore, Kilbride, Co. Wicklow

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Directors: R. O'Dowd, N. O'Neill, T. Paul (Managing), N. Penhall (British), I. Roberts (British). Secretary: R. O'Dowd
Registered in Ireland as: SLR Environmental Consulting (Ireland) Limited. Registered No.253332. VAT No. 8253332J

1.

(a) *The details submitted with respect to Item 1(i) of the Further Information request dated the 4th February 2015 is noted and the contention that the replacement of the asphalt plant and replacement of aggregates processing plant is exempted development having regard to Class 21: Part 1 : Schedule 2 of the Planning and Development Regulations 2001(as amended). However this exemption class would not it is considered apply to the replacement of the Asphalt plant. In this regard it is considered that the processes undertaken in the Asphalt plant are materially different to the quarrying operations on site. In this regard it is highlighted that An Bord Pleanála in their Section 5 Declaration Reference Number 04.RL.2223 clearly concludes that the construction/ operation of Asphalt plant is separate operations to the quarrying i.e. therefore it is considered that the replacement of such plant requires permission, and would not be exempted development. Accordingly as this element does not have permission, and has not been included within the application you are requested to address this matter.*

Response:

The An Bord Pleanála Section 5 Declaration case (04.RL.2223) quoted in the clarification of further information request relates to the Eurostone Quarry at Carrigcleena More in County Cork. In that case the asphalt plant for which the exemption was being sought had never been the subject of a grant of planning permission. The quarry was being operated under a planning permission for quarrying (1863/75) which included items of plant such as crushers, bins, silos etc. for the processing of quarried rock and not for the manufacture of asphalt/macadam products, which is a materially different process.

At paragraph 5.6 of the An Bord Pleanála Inspectors Report in that case (04.RL.2223 copy enclosed), the Inspector clearly outlines this differential:

‘As a separate industrial process, which is materially different from the permitted use of the carrying out of quarrying operations, the exempted development provisions under Class 21 (Development for Industrial Purposes) of Schedule 2 to the Planning and Development Regulations 2001 do not apply. Instead, the asphalt plant constitutes a material change of use for which a further permission is required.’

Unlike the Eurostone plant, the asphalt plant at Ballinclare has the benefit of two separate planning permissions as follows:

P.Reg.Ref.No.: **07/45** granted 04/12/2007.

Development Description – existing stone quarry (13.414 ha) including extraction areas, processing areas, stockpiling areas, concrete products manufacturing plant **macadam and asphalt manufacturing plant**, stone crushing and screening plant, waste recovery facility, car parking areas and ancillary buildings including offices, toilets, laboratory, maintenance workshop, control towers and cabins, aggregate screening and aggregate storage buildings, electricity substations and ancillary buildings (total 2088.28 sqm) together with septic tanks, weighbridge, truck wheelwash bay, floodlighting, oil and fuel storage tanks and water storage tanks. Proposed extension of a stone extraction area below the level of existing quarry floor to a level of 25 m o.d. within existing quarry (6.634 ha). Proposed extension of existing quarry towards the west (10.605 ha) to a level of 25m o.d. into the townland of Carrigmore, Kilbride.

P.Reg.Ref.No.: **93/369** granted 19/01/1994.

SLR

Development Description – a **macadam/asphalt manufacturing plant** and the retention of a septic tank at Ballinclare, Kilbride.

In the Eurostone case exemption was being sought for a plant that that was not authorised, the plant had never been approved and the industrial process was materially different from the quarrying operations granted under the extant permission. In the Ballinclare case the asphalt plant has two valid planning permissions so can avail of the exempt development provisions of Schedule 2 provided it complies with the conditions and limitations for exemption.

The first condition and limitation is that any such development shall not materially alter the external appearance of the premises of the undertaking. The old and new plants are comprised of the same elements e.g. dryer, mixing plant and hot storage bins, with associated bitumen tanks etc., and the location of the plants are within the same quarry yard area. An asphalt plant was replaced with an asphalt plant, so we maintain that the external appearance has not been materially altered.

The height of the plant replaced was 17.441m, the replacement plant is 17.190m high so it complies with the second condition and limitation that relates to height of the machinery or structure replaced.

(b) With respect to the replacement of the existing aggregates plant, please confirm that this structure would meet the height limitation set out in Class 21: Part 1: Schedule 2 of the Planning and Development Regulations 2001(as amended) i.e.

Limitation 2. The height of any plant or machinery, or any structure in the nature of plant or machinery, shall not exceed 15 metres above ground level or the height of the plant, machinery or structure replaced, whichever is the greater.

Response:

The height of the existing aggregates plant (now removed) was 17.050m. The replacement plant is 16.710m high, so the replacement meets the height limitations (Limitation 2) set out in Class 21: Part 1: Schedule 2 of the Planning and Development Regulations 2001 (as amended).

2. **The details submitted with respect to Item 1 (vii) of the Further Information request dated the 4th February 2015 are noted. From inspection on the 11th August 2015 it was evident that whilst some structures have been removed, not all have been, and there are structures in place that are delineated on Drawing RFI 2 to be removed. Your submission indicated that the removal was to take place by the end of July 2015. Please confirm that these structures are to be removed, this is also of relevance with respect to your reply to Question 2(vi), given that these structures contain high level lights.**

Response:

All of the steel framed and clad high level structures delineated on Drawing RFI 2 to be removed have now been removed. All that remains are the mass concrete low level walls, which are scheduled to be removed by a licensed demolition contractor in due course. All these remaining mass concrete structures earmarked for demolition are located on the proposed quarry extraction area so need to be removed before rock extraction can commence.

SLR

The high level lighting pylon (lights 8 to 13) has been removed and all the lighting described in reply to Question 2(vi) to be removed has been removed including lights 24 and 27 as described below in response to item 3.

3. ***In reference to your response to Question 2(vi) of the further information request, the Planning Authority is still concerned that lighting may cause disturbance. In particular lights 24 and 27 are located to the highest point on the structures which they are on, and are invariable lighting a wider area given the high level location, and could therefore notwithstanding your comment be resulting in light disturbance outside of the site. You should therefore submit appropriate night-time photographs from higher points outside the site so the lighting can be assessed.***

Response:

To alleviate any concerns remaining regarding the potential for disturbance from lighting and particularly relating to lights 24 and 27 located on top of the cement silos, Kilsaran has now removed these lights. "Before" and "After" photographic evidence is enclosed to verify their removal.

Night-time photographs were taken at two higher points outside the site on 02/09/15, lights 24 and 27 were not switched on when the photographs were taken (and have since been removed as detailed above). The photographs with accompanying assessment are presented on the attached Figures CRFI 1 and CRFI 2.

Viewpoint 1 is located at the residence of Mr & Mrs Corbett in the Townland of Ballygannon More east of the quarry and Viewpoint 2 is located on the local road just east of the south-eastern corner of Kilmacurragh Arboretum in the Townland of Westaston Hill, south of the quarry.

The level of lighting from the quarry is now comparable to surrounding farm buildings and residential areas. Notably there are no point sources visible that could cause glare to an observer, the light visible is reflected of the quarry plant and surrounding vegetation. With the removal of all the high level lighting associated with the old aggregates plant, the lighting pylon and lights 24 & 27 disturbance from lighting associated with the quarry is negligible.

4. ***It is noted from your response to item 2 (vii), which is contained in the submitted "Haul Route Structural Analysis" report, that you in effect conclude that the L-1113 & the L-1157 are structurally capable of catering for the additional traffic generated by the proposed development subject to standard maintenance and strengthening works. You have also proposed to carry out maintenance works on behalf of the Council and that 90% of the cost of these works should be deducted from the contributions that would be payable were permission to be granted. The 90% reduction appears to be based on your assertion that a 50mm overlay is required, 5mm of which is required to cater for the additional traffic generated by the proposed development. In this regard, you are requested to submit the following information:***

- ***Clarification of the apparent anomaly between paragraphs 2.1.2.6 and 2.1.3.4 of the "Haul Route Structural Analysis" report. Paragraph 2.1.2.6***

SLR

states that "the increase in traffic arising from the proposed development would increase the design thickness of the overlay on the identified sections by 5mm or less" (identified sections are 2850m) and paragraph 2.1.3.4 states that "no specific road strengthening works are required for the proposed increase in traffic volume arising from the development".

- *Clarification as to why it is proposed to overlay only 600m of the road when it is identified that strengthening works are required over 2850m of the road to cater for the additional traffic generated by the proposed development. (as per paragraph 2.1.2.6).*
- *Full pavement design calculations to support the contention that the traffic generated by the proposed development would only increase the pavement overlay requirements by 5mm.*
- *Basis for equating the cost to the developer of the 5mm extra over thickness as being 10% of the cost of the 50mm overlay.*

In relation to the above, the Planning Authority would note the following:

- *The Planning Authority has not indicated that it requires the applicant to carry out maintenance works for the Council. The Planning Authority requested the submission of a structural analysis of the road network and for the applicant to submit proposals where such analysis showed that sections of the road were not capable of receiving the additional traffic generated by the proposed development.*
- *If it is contended, and adequately supported, that a 5mm overlay is required to cater for the additional traffic generated by the proposed development, then the cost of the minimum pavement layer possible would be the relevant basis for calculating the % cost of a 50mm overlay, where the Council required a 50mm overlay to be provided.*
- *Development Contributions can only be used for Capital/Road Improvement works and cannot be used for maintenance works. On that basis, offsets for the cost of carrying out maintenance works cannot be granted.*

In responding to this item you should comment on the items noted by the Planning Authority above. It is also recommended that prior to responding to this item you should contact the Road Authority.

Response:

As recommended in the Clarification Request we made contact with the Roads Authority. A meeting was held on 3rd September last, attended on behalf of the Local Authority by Declan Marnane (Senior Engineer), Jack Kelly (Senior Executive Engineer) and Brian O'Sullivan (Roads Section) and on behalf of the developer by Fergus Gallagher (Kilsaran), Julian Keenan (Trafficwise).

A review of the further information requested under point 4 was undertaken and Julian Keenan explained the rationale put forward in the report he prepared for the response to the initial further information request. Mr. Keenan highlighted that the structural analysis report had shown that sections of the public road between the quarry entrance and the junction with the former N11 at the Tap was in the poorest state of repair and he suggested that the additional works required due to the proposed uplift in

SLR

quarry output should be concentrated along this section, as all other sections of the haul route were in an adequate condition.

On foot of this a follow up site meeting was held on Friday 11th September attended by Declan Marnane, Jack Kelly, Fergus Gallagher and Julian Keenan. A walk over assessment of the section of road highlighted at the previous meeting was conducted and the following strengthening, widening and overlay works were agreed between the parties.

Chainage +0.000 Centreline Quarry Access		Identified Carriageway Strengthening Works (Linear Metres)			
Start Chainage	End Chainage	South Edge	Full Width	North Edge	
61	101	40			
149	296			147	
272	300			28m Widening Outside of Bend	
314	339			25	
410	432	22			
466	492			26	
552	595			43	
611	667			56	
697	838		141		
838	871		33		
871	1306		435		
Total Length (for overlay & edge work)		62m	609m	297m	TOTAL
Total Area		124m (av. 2.0m)	3532m (av. 5.8m)	594m (av. 2.0m)	4250m

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Clarification Response to RFI for Ballinclare Quarry P. Ref. 14/2118
Ballinclare & Carrigmore, Kilbride, Co. Wicklow

Ref: 501-00036-00026
2nd November 2015

The following specification is proposed:

Full Width (Chainage 697m to 1306m)

- 20 to 25mm DBM Regulating Layer [€10,500]
- 45mm Polymer Modified Stone Mastic Asphalt (CI942 Thin Surface Course) [€35,320]

Edge Works (Area 718m²)

- 55mm Polymer Modified Stone Mastic Asphalt (CI942 Thin Surface Course) [€7,200]

Widening Outside Bend (28m linear length)

- 55mm Polymer Modified Stone Mastic Asphalt (CI942 Thin Surface Course) [€420]
- Dig out widened area supply & lay 300mm CI804, dig out edge strips etc. [€13,500]

The cost to carry out these works including materials supply, laying and labour is given for each item and totals €66,940.

Kilsaran Concrete agrees to supply the materials and carryout these works in lieu of planning contributions to the value of €66,940 should planning permission be granted.

5. ***The provision of bottled water as a drinking water supply on a development of this scale is not considered sustainable. In this regard you should submit further information to clarify why it is not possible to supply a potable water supply for the employees and visitors on site.***

Response:

We note the Planning Authorities concern that bottle water as a drinking water supply on a development of this scale is not considered sustainable. In light of this concern Kilsaran Concrete now proposes to provide a private potable water supply through a dedicated on site borehole well should planning permission be granted.

This well will be sited, drilled and constructed in accordance with the Water Well Guidelines published by the Institute of Geologist of Ireland (March 2007).

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Clarification Response to RFI for Ballinclare Quarry P. Ref. 14/2118
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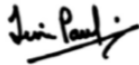
Ref: 501-00036-00026

2nd November 2015

We trust this response addresses all of the items raised in your Clarification Request for Further Information. Please contact Paula McCarthy or myself if you have any queries in relation to this application.

Yours faithfully

SLR Consulting Ireland



Tim Paul
Director

Enc.

Cc & Enc. Fergal Gallagher, Kilsaran Concrete

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APPENDIX 14-C

Haul Route Structural Analysis Survey – June 2015



Haul Route Structural Analysis Survey

Ballinclare Quarry – June 2015

Unit 2A, Kells Enterprise Centre, Cavan Road, Kells, Co. Meath

Ph. 086-7947688

Ballinclare Quarry

Haul Route Structural Analysis Survey

Client: Kilsaran Concrete

Address: Piercetown, Dunboyne, Co. Meath.

Site: Ballinclare Quarry Haul Route

Date: 03/06/2015

Contents:

1. Introduction
2. Description of testing
3. FWD Details
4. Survey Details
 - 4.1 Date of Survey
 - 4.2 Site Details
 - 4.3 Pavement Construction
 - 4.4 Tabulated Deflections
 - 4.5 Deflection Plots

Appendix A: Tabulated Deflections

Appendix B: Deflection Graphs

1. Introduction:

Falling Weight Deflectometer (FWD) surveys are carried out to assess the condition and load bearing capacity of pavement structures, to identify weaknesses, and in some cases to recommend strengthening requirements.

A FWD survey was requested by Kilsaran to assess the condition of the haul routes to Ballinclare Quarry. Pavement condition was considered based on deflection results, and coring to determine the pavement structure.

2. Description of testing

A load pulse is produced by dropping a known mass, and is transmitted to the pavement through the loading plate. The load cell measures the load imparted to the pavement surface. Geophones mounted radially from the centre of the load plate measure the pavement deflection in response to the load.

In this case the load level was set at 40Kn and the load pulse applied through a 300mm diameter plate. Deflections at each geophone were measured at a resolution of 1 micron. At each test point at least 3 drops were made, after an initial drop to settle the load plate.

Measurements were taken at 50 metre intervals in the left hand wheel track of the test lane.

3. FWD Details

Testing was carried out using a trailer mounted Primax FWD manufactured by Grontmij. The equipment is calibrated annually and attends the UK correlation trials as required by the National Roads Authority. The 9 geophones mounted radially from the centre of the load plate were positioned as follows:

Geophone Number	D1	D2	D3	D4	D5	D6	D7	D8	D9
Distance from centre of load(mm)	0	300	450	600	900	1200	1500	1800	2100

4. Survey Details

4.1. Date of Survey

The survey took place on June 2nd, 2015.

4.2. Site Details

Part of the L1113 Coolbeg Road approaching its junction with the N11 was recently realigned due to the construction of the new M11 motorway. Testing commenced at a new roundabout to the west of the motorway and proceeded south-westbound along the L1113 for 3800 metres to its junction with the L1157. Measurements were then taken from this junction south-eastbound along the L1157, past Ballinclare Quarry entrance (Chainage 4400 to 4435), to the junction with the N11 at the Tap Café (Chainage 6645).

Figure 1: Map of Road Section



4.3. Pavement Construction

Layer thickness and pavement material, determined by coring is shown in Table 1. Bituminous bound layers generally consisted of several layers of surface dressing. This type of limited pavement investigation can be helpful when interpreting FWD data.

Table 1: Pavement Structure

Chainage	1500	2700	3700	4850	5650
Layer 1 (Top)	130mm S.D.	240mm S.D.	130mm S.D.	100mm S.D.	25mm S.D.
Layer 2	65mm 0-40mm C.R.	130mm 0-60mm C.R.	85mm 0-40mm C.R.	75mm 0-40mm C.R.	70mm poorly bound material
Layer 3	Clay	Clay	Clay	70mm S.D.	65mm S.D.
Layer 4				75mm poorly bound material	155mm 0-75mm C.R.
Layer 5				60mm 0-40mm C.R.	Clay
Layer 6				Clay	

S.D. = Surface Dressing, C.R. = Crushed Rock

4.4. Tabulated Deflections

The deflection bowl created by the FWD load pulse is influenced by the stiffness of the different pavement layers. Tables of deflection values for each of the sections are provided as follows:

D1: Indication of overall pavement performance

D1-D2: Indicates condition of upper pavement layers

D9: Indication of sub-grade condition

Deflection values contained in the table are highlighted in colour as follows:

Central Deflection (D1)	SCI (D1-D2)	Comment
<300	<150	Good load spreading ability
300-500	150-250	Good to poor load spreading ability
501-800	251-400	Poor to bad load spreading ability
>800	>400	Bad load spreading ability

Ballinclare Quarry

Haul Route Structural Analysis Survey

Outer Deflection (D9)	Comment
<15	Stiff subgrade
15-30	Stiff to moderate subgrade
31-45	Moderate to weak subgrade
>45	Weak subgrade

The deflection values suggest some variation along the test section. Average values for sub-sections with deflections of similar magnitude are presented in Table 2. Individual values for each test point are tabulated in detail in Appendix A.

Table 2: Average Deflection Values

Chainage	D1	D1-D2	D9
0-650	116	21	21
650-2350	584	210	24
2350-3150	473	166	21
3150-4300	669	243	18
4300-5150	410	129	16
5150-5750	677	262	27
5750-6050	107	33	5
6050-6435	361	127	10

These deflections can be described as follows:

- The pavement structure is very strong for two sections of new construction from Chainage 0 to 650, and Chainage 5750 to 6050.
- (D1) and (D1-D2) values indicate only moderate strength from Chainage 650 to Chainage 4300, with good to poor load spreading ability in the upper layers. A stronger mid-section between Chainage 2350 and 3150 could be explained by the thicker layer of surface dressing.
- The overall pavement structure from Chainage 4300 to 5150 and from Chainage 6050 to 6435 shows minor weaknesses, but the upper layers for these sub-sections have good load spreading ability.
- The weakest section is between Chainage 5150 and Chainage 5750 where the upper layers appear to be in poor condition.
- The sub-grade is stiff to moderate based on the (D9) deflections.

4.5. Deflection Plots

For each road section the selected deflection parameters were plotted against distance and these graphs are illustrated in Appendix B. Deflection and deflection difference plots are useful for showing relative differences in the condition of the layers.

Ballinclare Quarry

Appendix A: Tabulated Deflections

Appendix A
Tabulated Deflections

Milestone Pavement Technologies

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Ballinclare Quarry

Appendix A: Tabulated Deflections

Table A1: Deflection values for Ballinclare Haul Route

Chainage	D1	D1-D2	D9
0	122	19	21
50	127	25	17
100	136	18	32
150	186	39	26
200	108	26	13
250	94	20	11
300	103	21	14
350	114	19	22
400	101	21	13
450	87	21	12
500	114	27	12
550	108	13	31
600	134	13	40
650	87	9	26
700	967	386	41
750	882	321	46
800	429	139	30
850	620	171	52
900	602	216	28
950	612	268	5
1000	354	162	6
1050	479	188	5
1100	630	259	8
1150	646	238	8
1200	701	289	12
1250	617	209	17
1300	482	166	15
1350	505	209	13
1400	504	192	12
1450	408	180	19
1500	490	167	38
1550	507	187	29
1600	678	236	23
1650	491	147	24
1700	473	224	14
1750	693	193	46
1800	420	97	62
1850	639	167	42
1900	733	298	11
1950	516	160	16
2000	491	194	11
2050	682	224	28
2100	487	133	37
2150	653	201	29
2205	764	267	24
2250	589	225	23
2300	407	174	11
2350	700	264	28
2400	405	161	12
2450	475	150	34
2500	469	187	22
2550	576	162	41
2600	488	195	17
2650	397	131	18
2700	318	68	24
2750	479	170	18
2800	369	128	9
2850	490	165	19
2900	480	157	27
2955	499	170	31
3000	543	170	25
3050	537	206	8
3100	640	239	16
3150	403	192	18

Ballinclare Quarry

Appendix A: Tabulated Deflections

Table A1: Deflection values for Ballinclare Haul Route (cont'd)

Chainage	D1	D1-D2	D9	Chainage	D1	D1-D2	D9
3200	754	338	2	4850	418	118	31
3250	740	341	7	4900	366	160	12
3300	709	253	20	4950	345	122	11
3350	458	134	32	5000	254	86	6
3400	577	186	24	5050	370	121	7
3450	661	222	30	5100	572	191	9
3500	881	293	26	5150	374	159	3
3550	594	235	12	5200	1456	547	37
3600	696	271	22	5250	544	133	73
3650	663	243	22	5300	539	191	40
3700	758	247	18	5350	818	275	52
3750	701	325	19	5400	670	277	38
3800	371	109	22	5450	465	167	17
3850	743	316	7	5500	633	283	15
3900	1007	295	24	5550	538	239	8
3955	588	176	14	5600	537	258	12
4000	574	189	8	5650	717	277	8
4050	367	137	8	5700	666	255	15
4100	779	324	5	5750	540	247	10
4150	754	307	14	5800	109	24	8
4200	498	191	21	5855	120	27	5
4250	777	233	16	5900	115	29	4
4300	740	212	34	5950	61	18	0
4350	507	144	13	6000	65	12	13
4400	468	132	6	6050	172	86	1
4450	224	50	2	6100	356	103	14
4500	442	148	13	6150	368	127	3
4550	400	107	27	6200	387	134	15
4600	415	122	31	6250	520	175	12
4650	455	160	20	6300	354	113	17
4700	377	120	19	6350	531	228	15
4750	305	75	20	6400	311	107	5
4800	344	102	23	6435	252	73	12

Ballinclare Quarry

Appendix B: Deflection Graphs

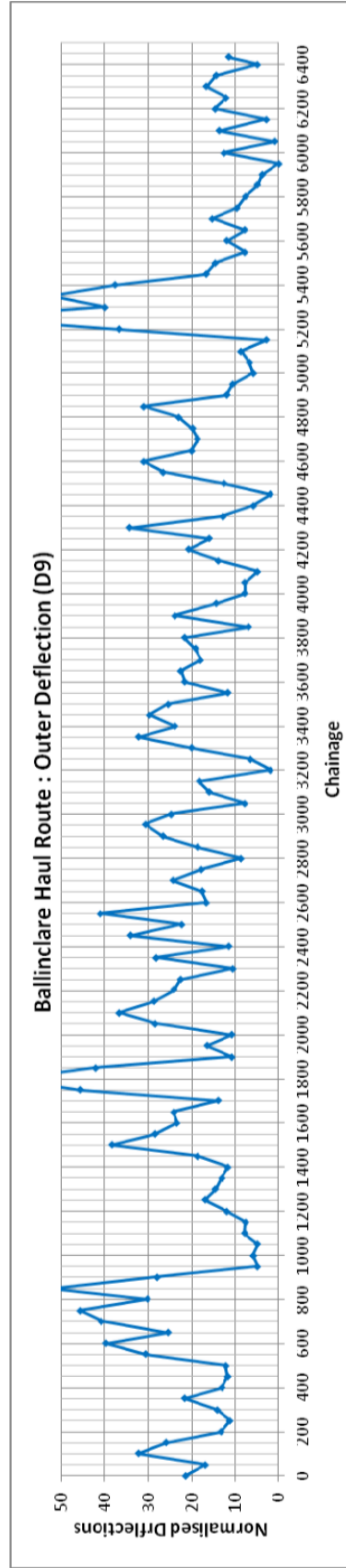
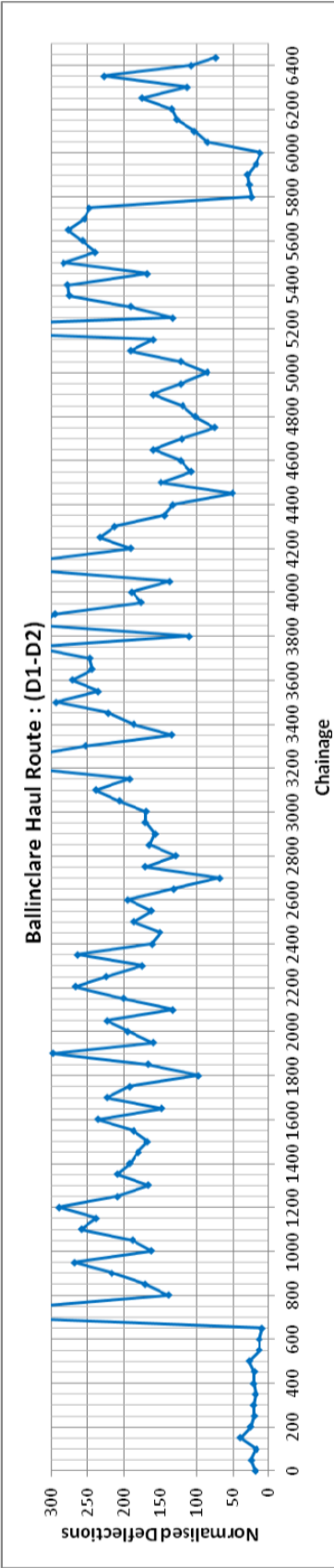
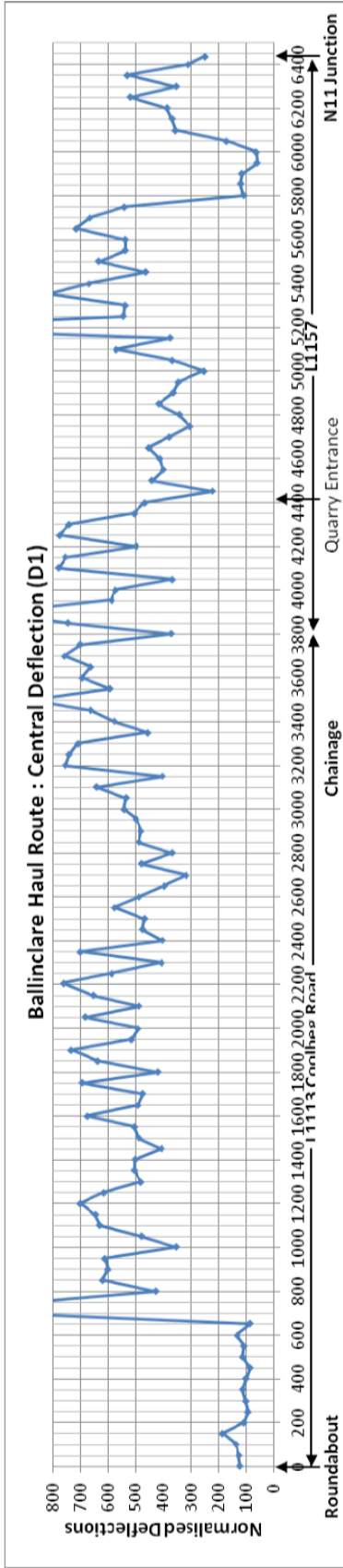
Appendix B
Deflection Graphs

Milestone Pavement Technologies

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Appendix B: Deflection Graphs

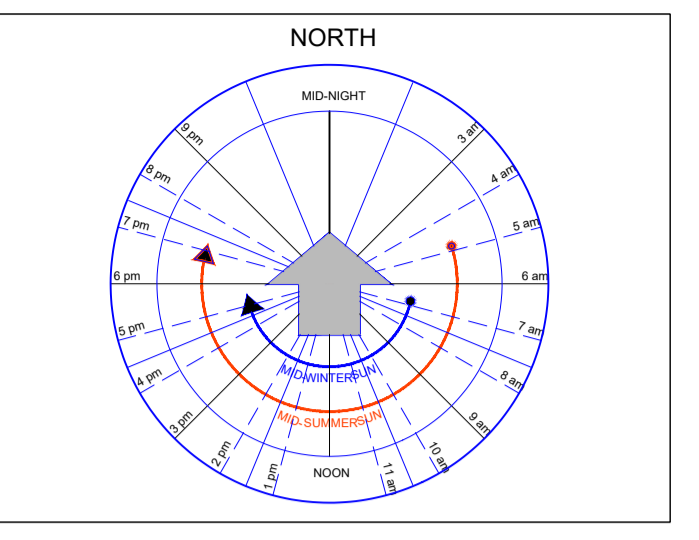
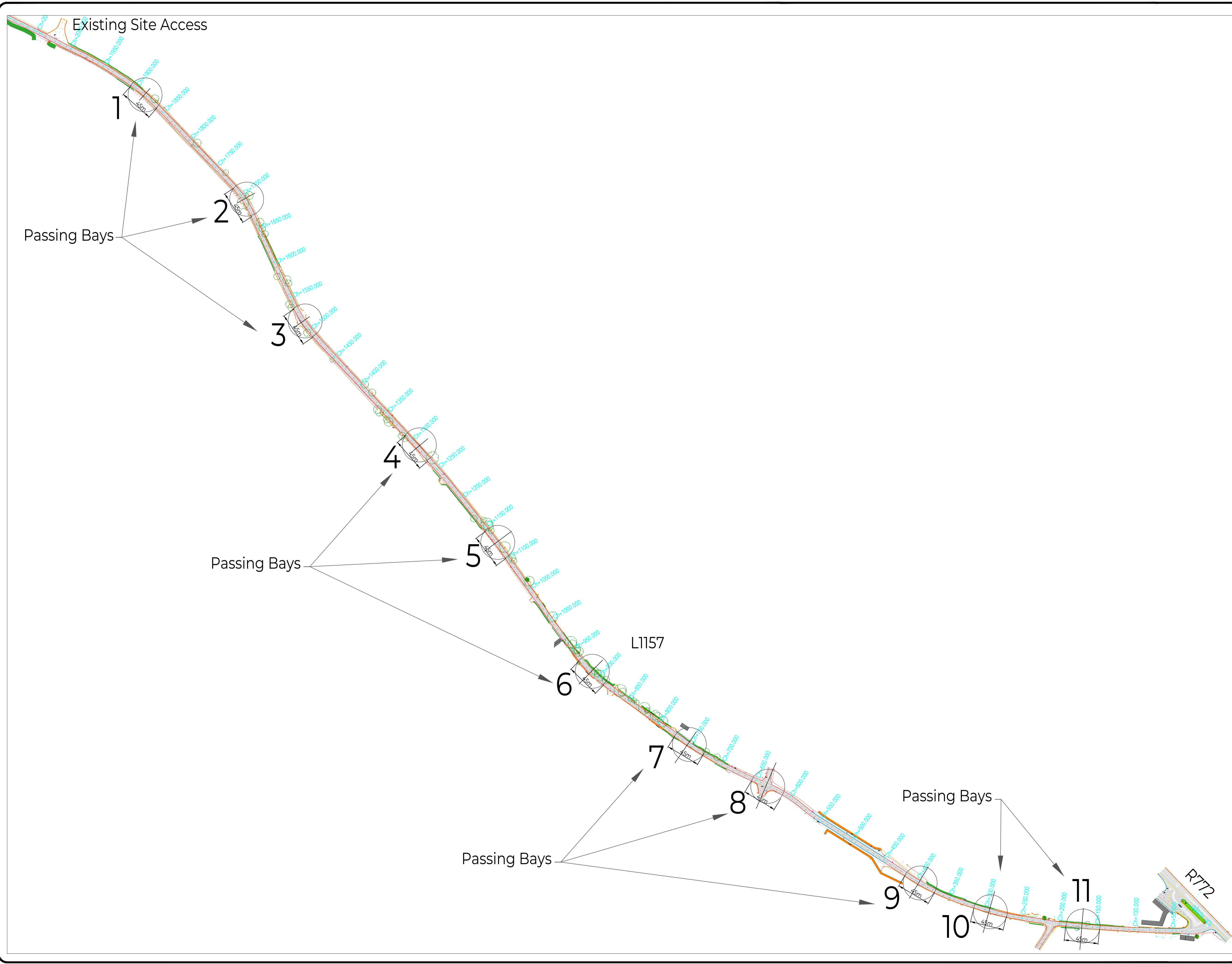
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APPENDIX 14-D

Haul Route Strengthening and Widening Scheme Drawings

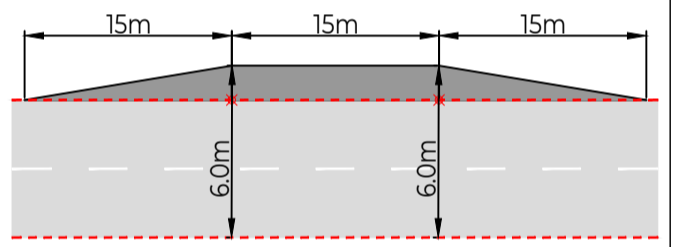


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Existing Edge of Road	
Existing Road Width	
Existing Road Surface	
Proposed New Road Construction	
Proposed Road Strengthening	
Existing Wall	
Electricity Pole/Cable	
Telegraph Pole/Cable	
Existing Hedgerow	
Existing Bottom of Bank	

Note:
80mm overlay to be applied over full length of L1157 between R772 and existing development site access

Note:
General arrangement of passing bay includes carriageway widened to 6.0m over a length of 15m together with 15m tapered carriageway leading to and from



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stage
Planning Application

title
Proposed Inter-visible Passing Bays

contents
Location Plan Showing Proposed Inter-visible 6.0m Passing Bays

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

scale Not to Scale



drawing no.	revision
02991-20-PB-00	

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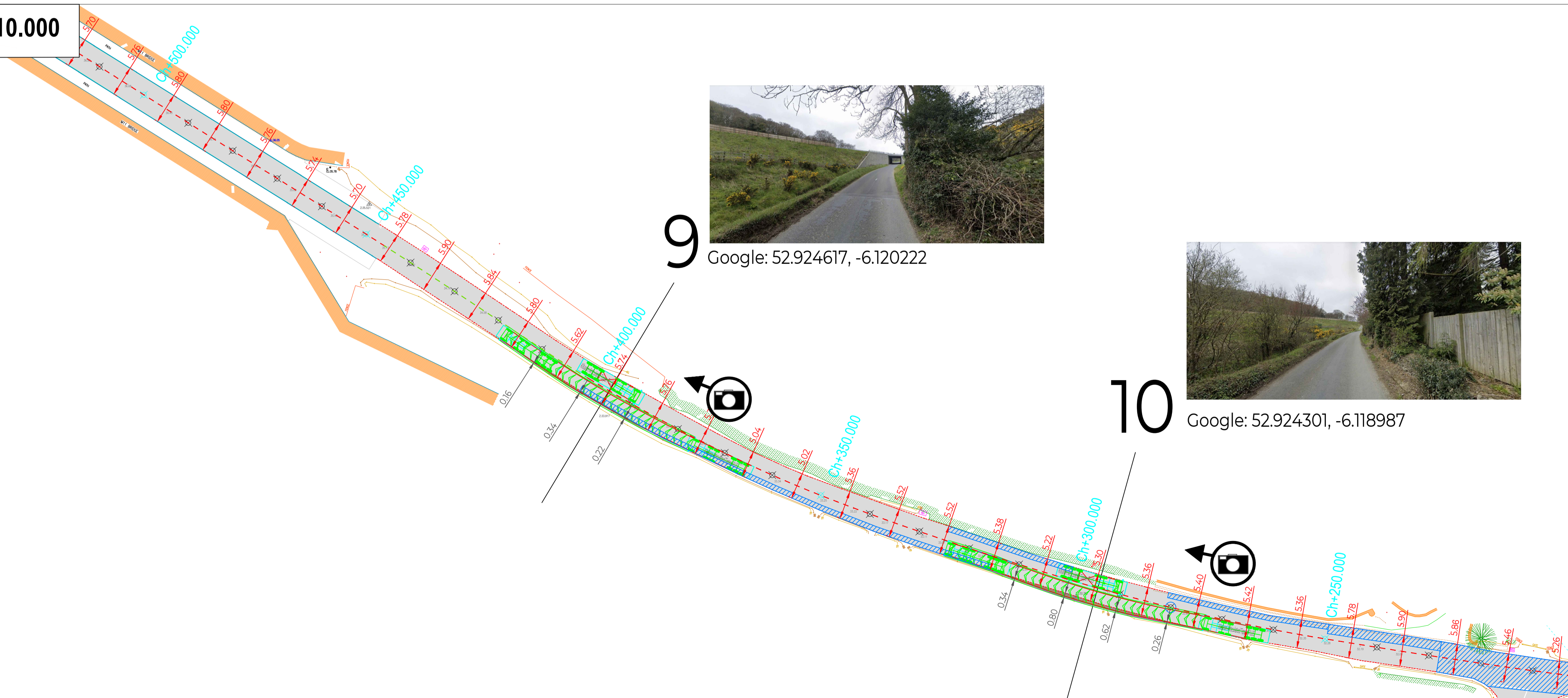
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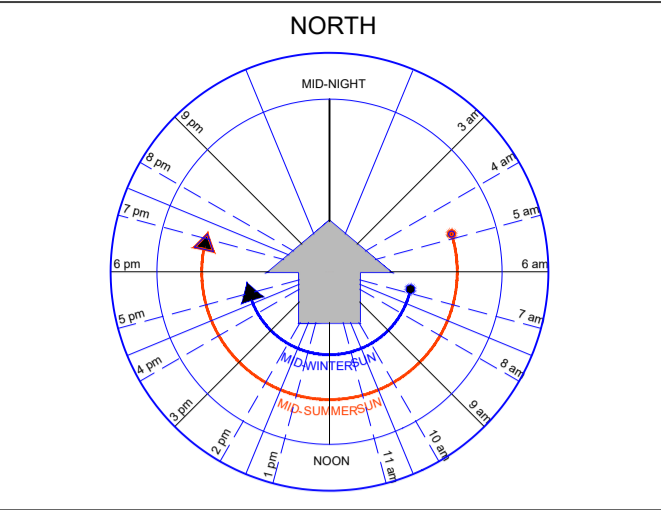
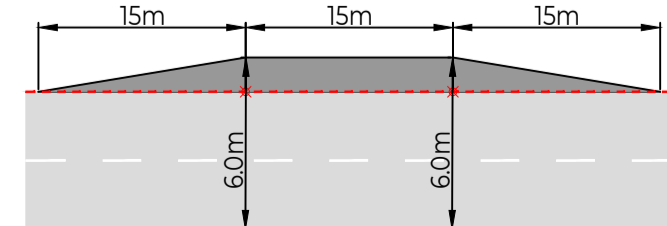
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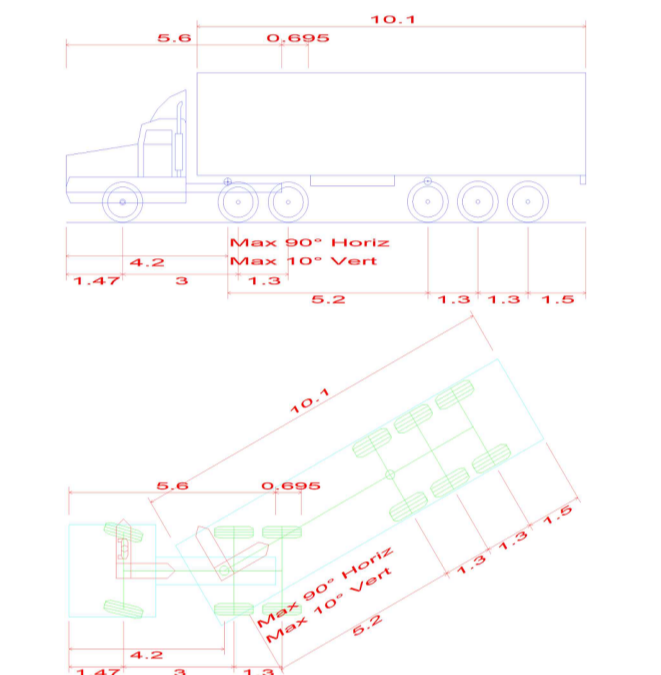
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Note:
General arrangement of passing bay includes carriageway widened to 6.0m over a length of 15m together with 15m tapered carriageway leading to and from



- KEY:**
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 - Existing Edge of Road
 - Existing Road Width
 - Existing Road Surface
 - Proposed New Road Construction
 - Proposed Road Strengthening
 - Existing Wall
 - Electricity Pole/Cable
 - Telegraph Pole/Cable
 - Existing Hedgerow
 - Existing Bottom of Bank



AutoTRACK Assessment Vehicle
Kilsaran Design Articulated Vehicle
Overall Length 13.500m
Overall Width 2.500m
Max Track Width 2.400m
Kerb to kerb Turning Radius 6.300m

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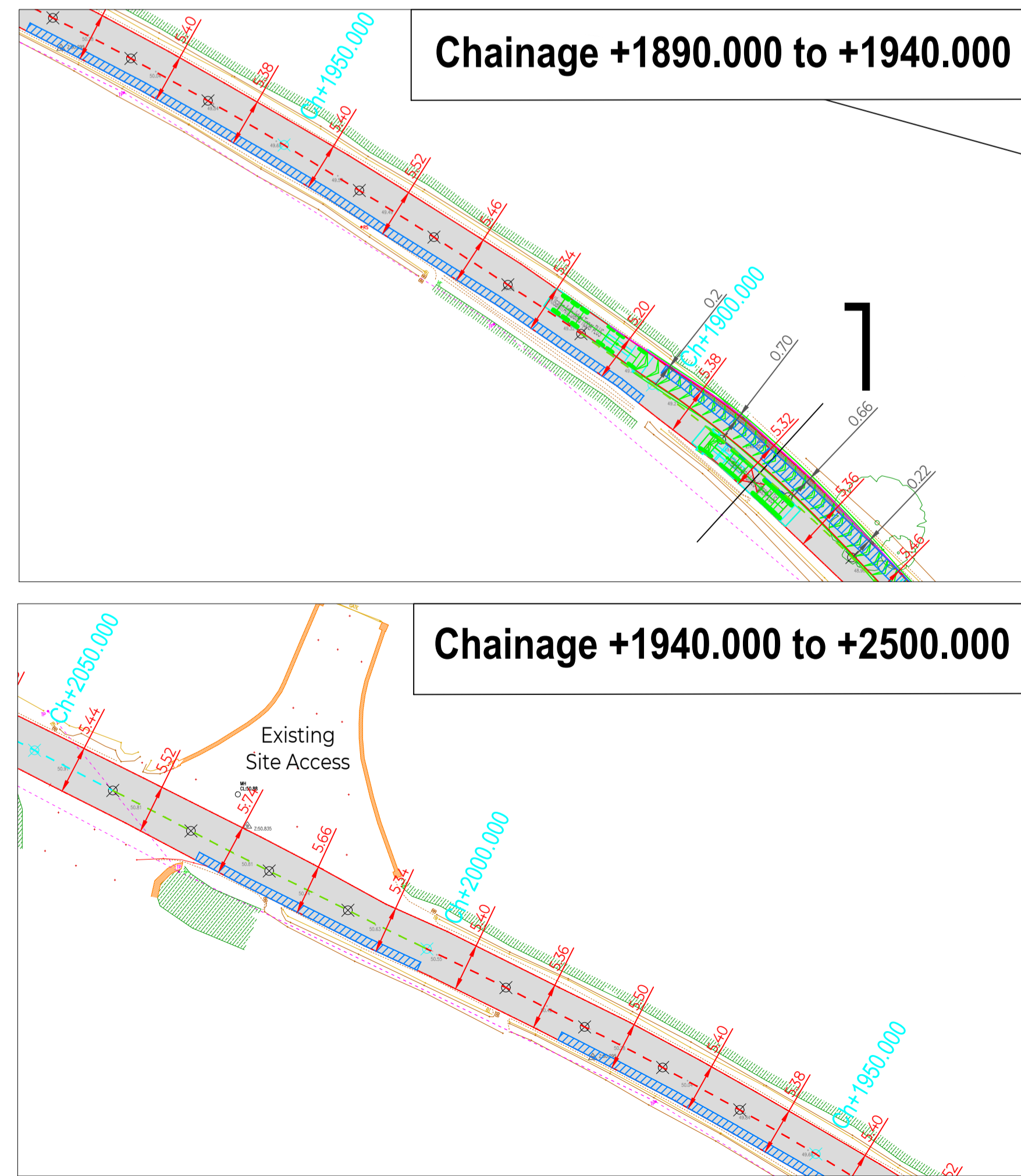
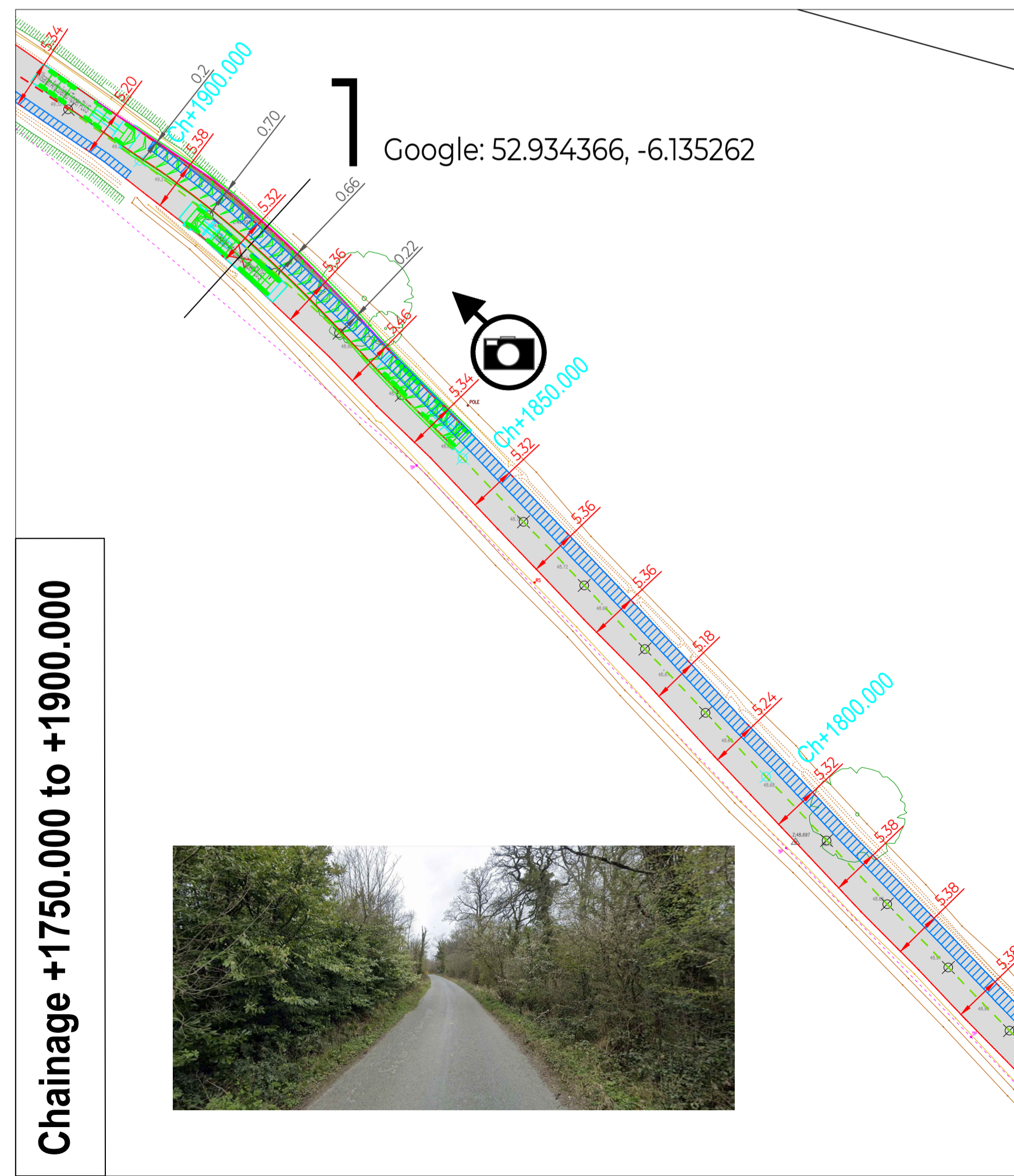
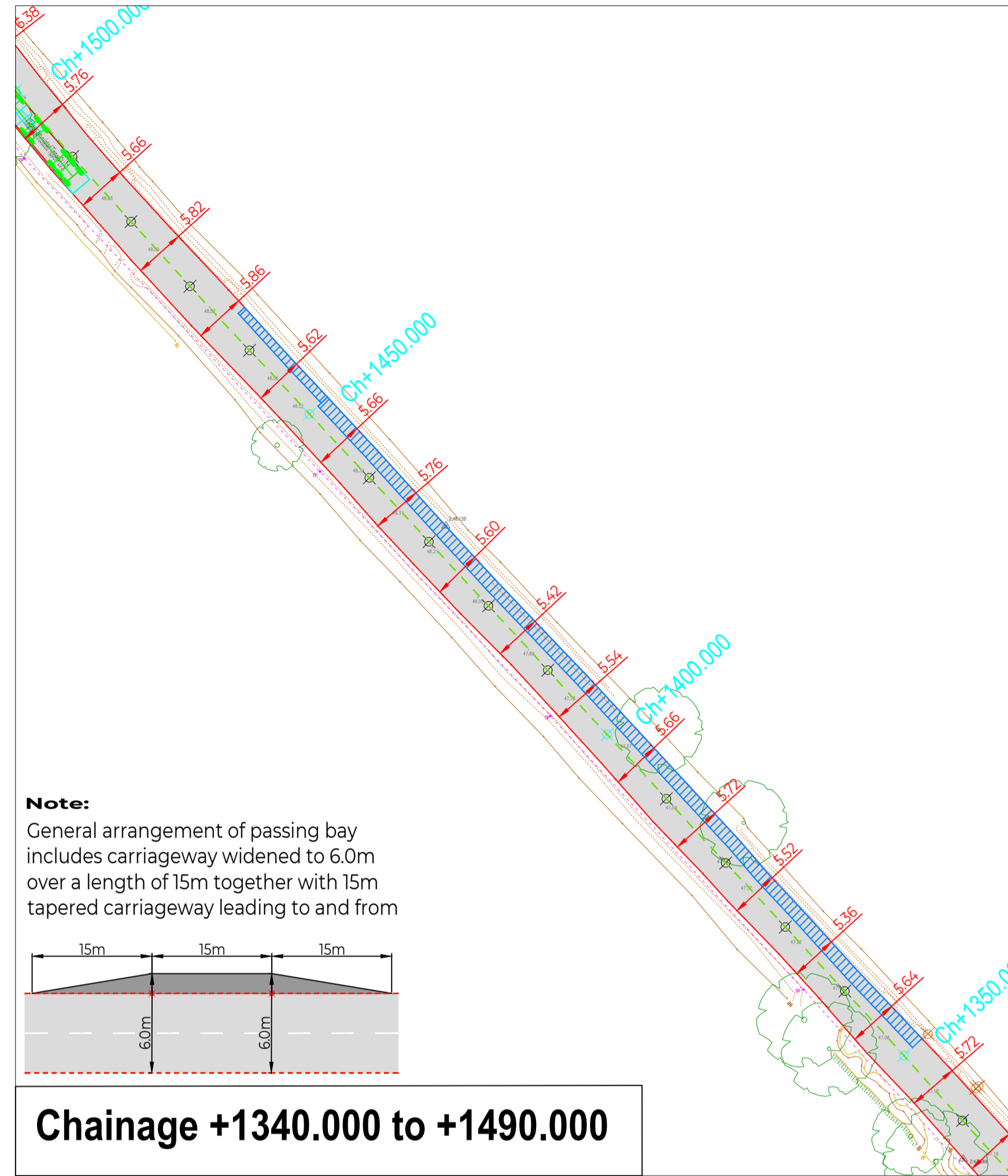
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(Proposed road strengthening works also shown ref. 02991-20-WD Drawing Series)

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Kilsaran

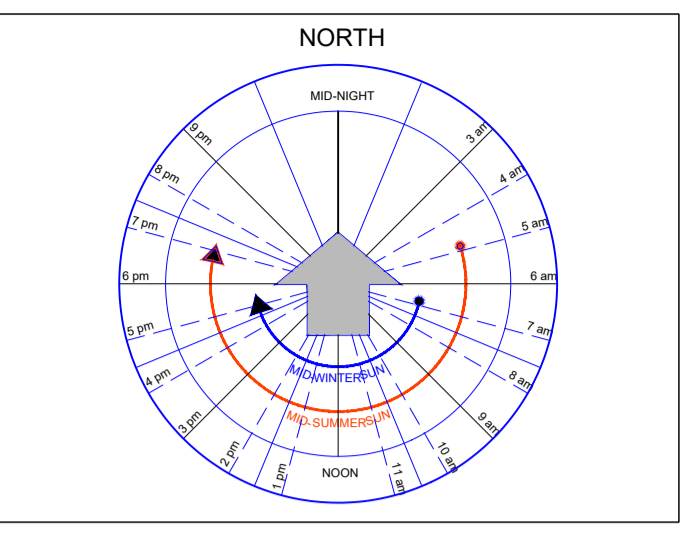
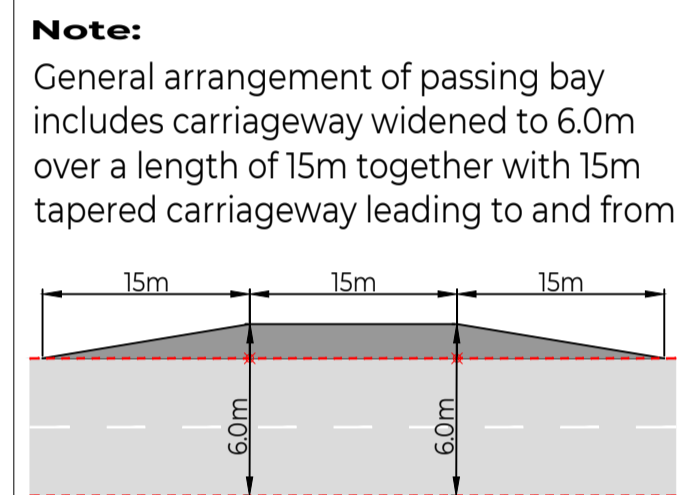
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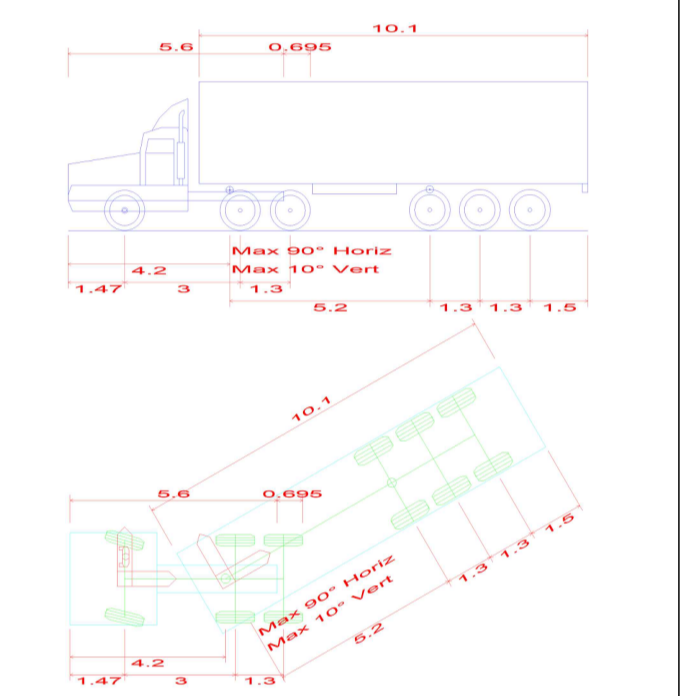
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- Existing Road Width
- Existing Road Surface
- Proposed New Road Construction
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- Electricity Pole/Cable
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- Existing Bottom of Bank



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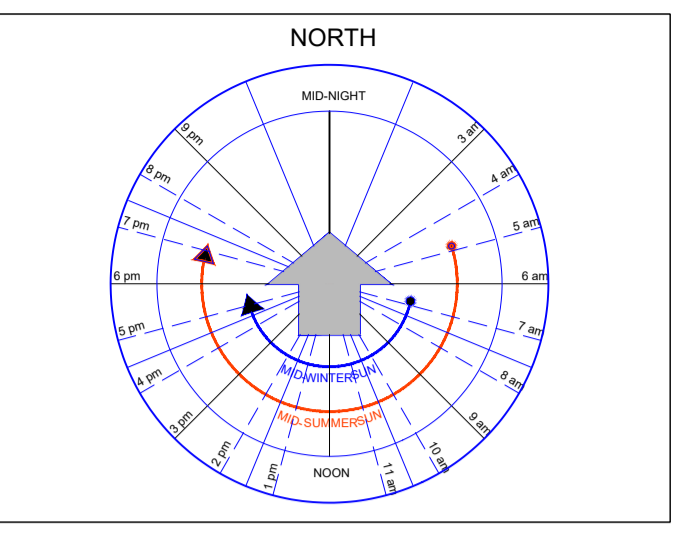
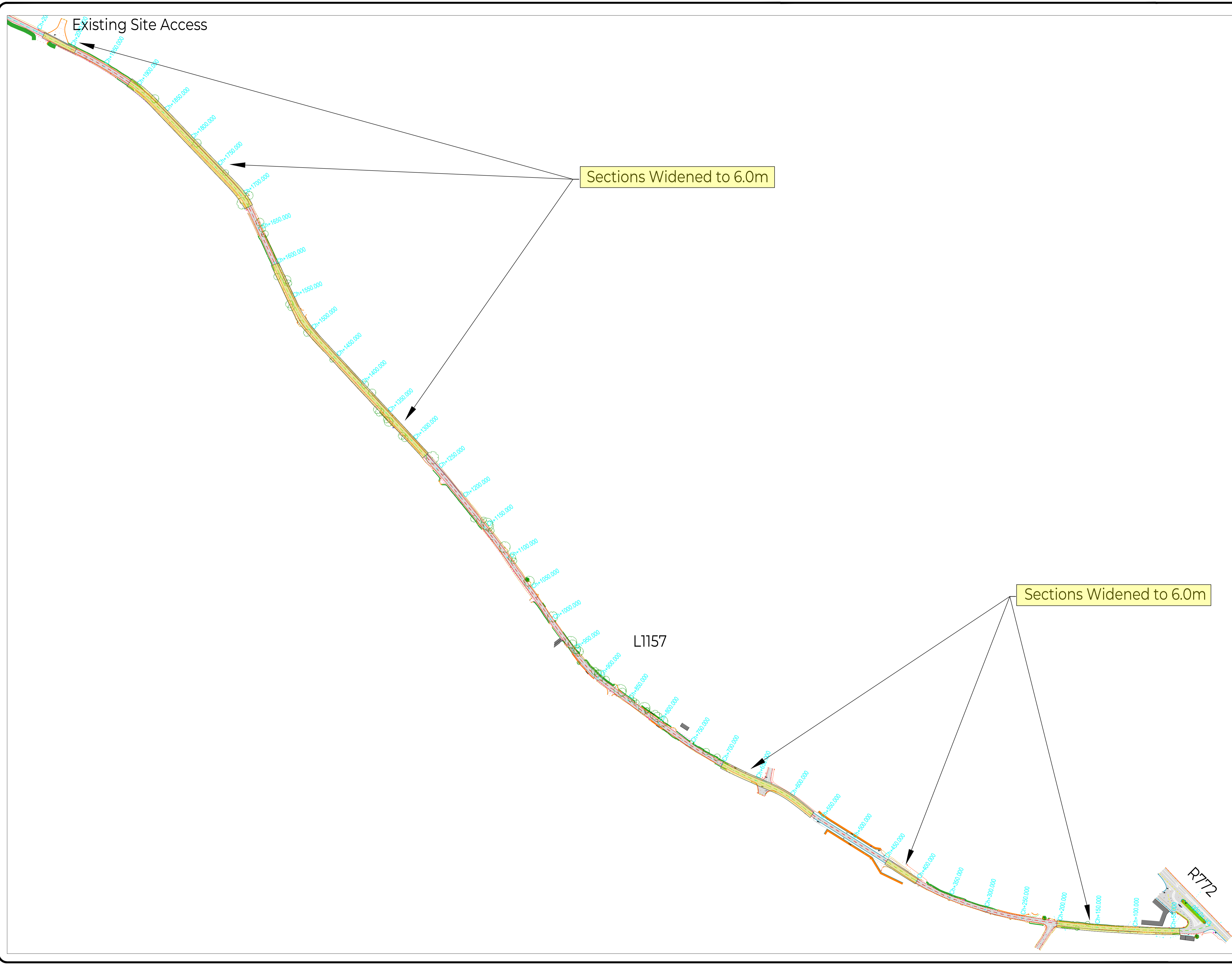
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drawing no.	revision
02991-20-PB-03	



KEY:

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Existing Road Width	
Existing Road Surface	
Proposed Passing Bays	
Proposed Road Strengthening	
Existing Wall	
Electricity Pole/Cable	
Telegraph Pole/Cable	
Existing Hedgerow	
Existing Bottom of Bank	
Existing Top of Bank	
Proposed Widening to 6m	
Centreline where 6m Achievable	
Centreline where 6m not Achievable	
Widening to 6m Proposed (General)	

Note:
80mm overlay to be applied over full length of L1157 between R772 and existing development site access



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Planning Application

title
Proposed 6.0m Widening

contents
Location Plan Showing Proposed Sections Widened to 6.0m

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

scale Not to Scale



drawing no.	revision
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Chainage +000.000 to +310.000



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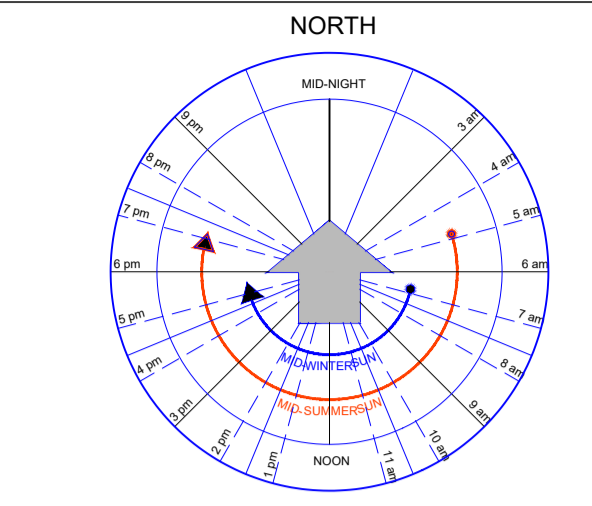
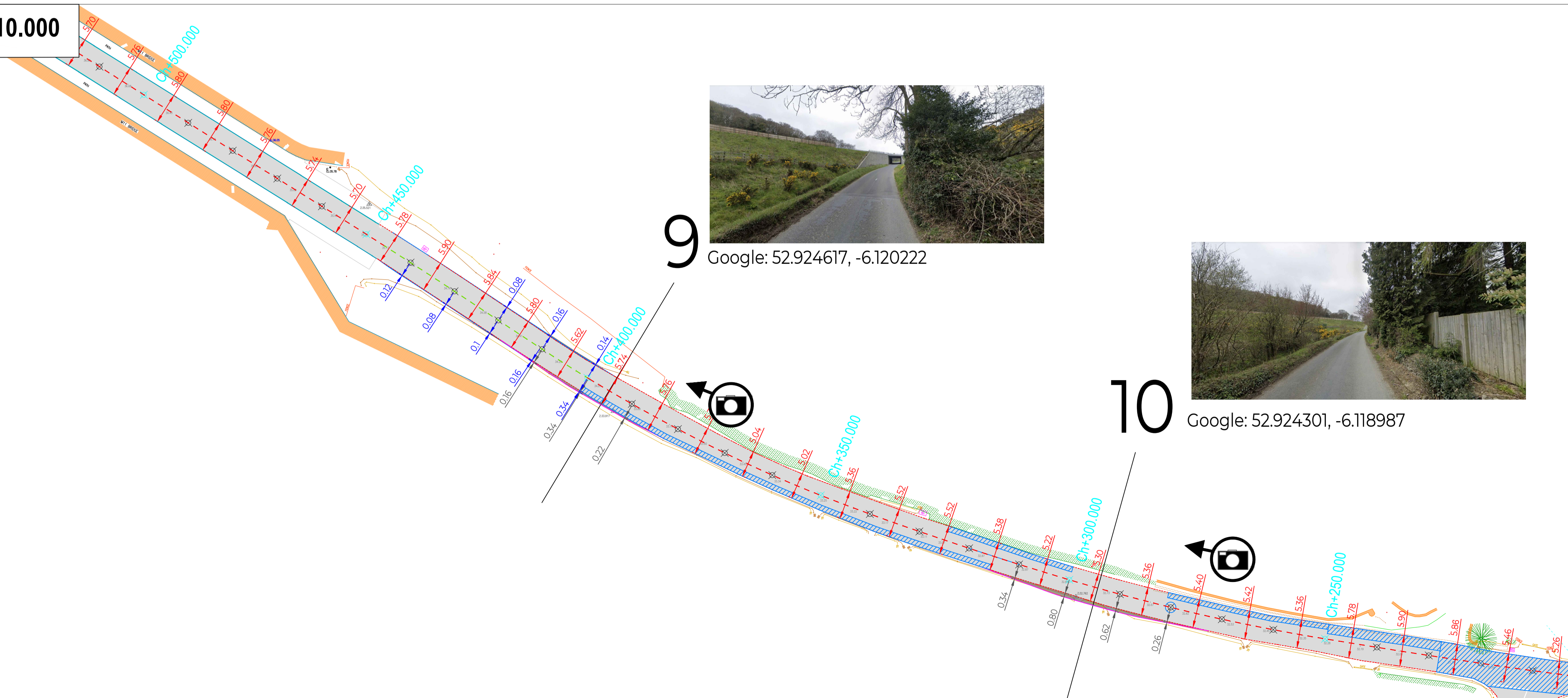
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KEY:

- Existing Fence
- Existing Edge of Road
- Existing Road Width
- Existing Road Surface
- Proposed Passing Bays
- Proposed Road Strengthening
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
- Existing Top of Bank
- Proposed Widening to 6m
- Centreline where 6m Achievable
- Centreline where 6m not Achievable
- Widening to 6m Proposed (General)

Note:
80mm overlay to be applied over full length of L1157 between R772 and existing development site access



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Proposed Backfill and Restore

stage
Planning Application

title
Proposed Road Widening to 6.0m

contents
Proposed Carriageway Widening to 6.0m in addition to Passing Bays
(Proposed road strengthening works also shown ref. 02991-20-WD Drawing Series)

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

scale 1:500 [Do not Scale, use figured dimensions]



drawing no.	revision
02991-20-WD-01	

Chainage +510.000 to +700.000

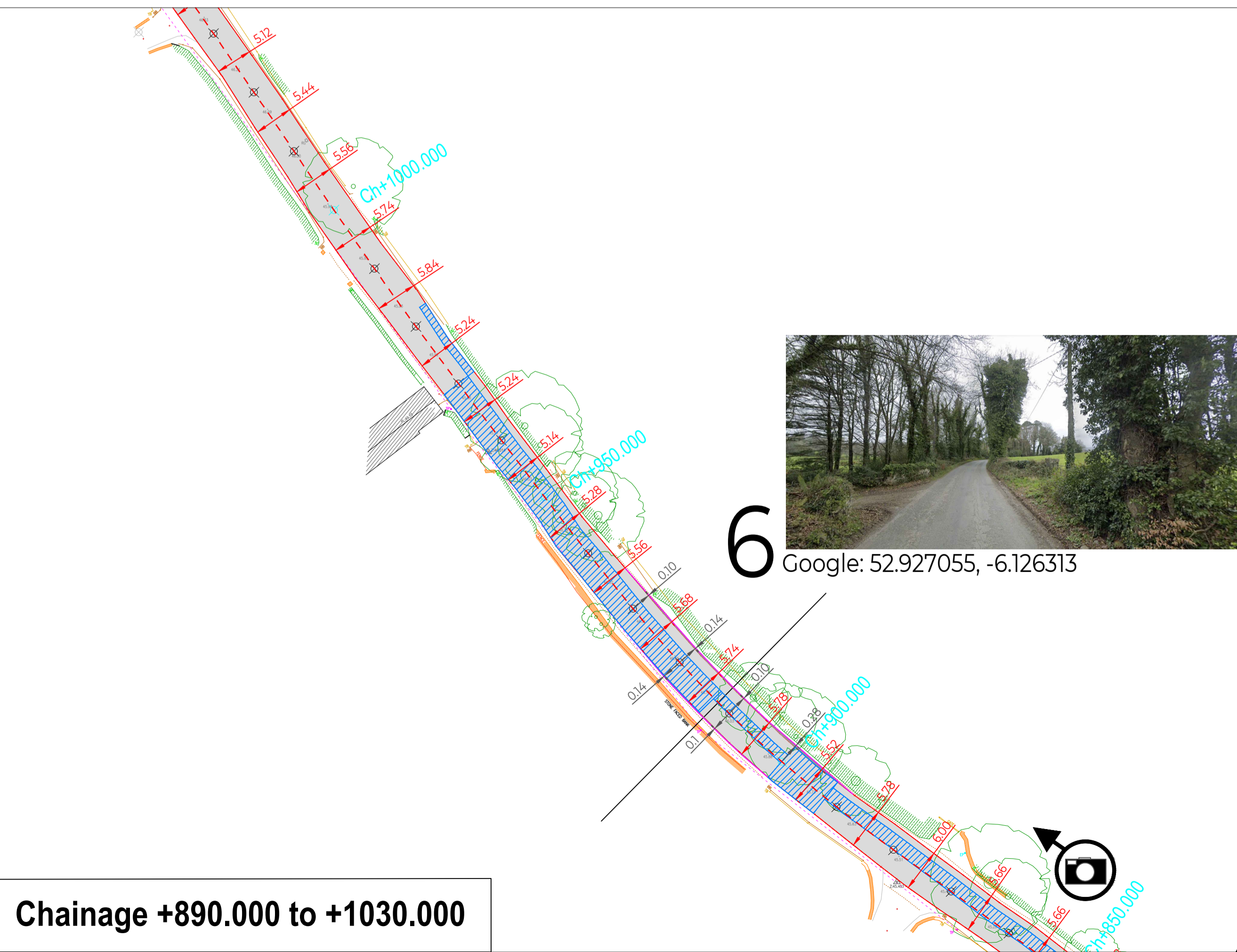


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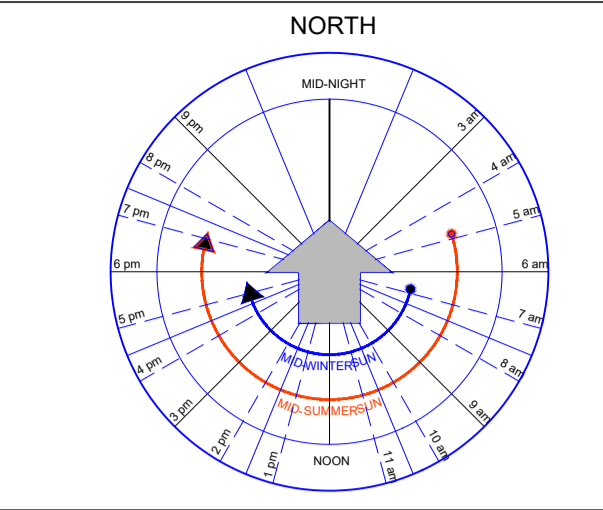
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Chainage +1030.000 to +1180.000



KEY:

Existing Fence	
Existing Edge of Road	
Existing Road Width	
Existing Road Surface	
Proposed Passing Bays	
Proposed Road Strengthening	
Existing Wall	
Electricity Pole/Cable	
Telegraph Pole/Cable	
Existing Hedgerow	
Existing Bottom of Bank	
Existing Top of Bank	
Proposed Widening to 6m	
Centreline where 6m Achievable	
Centreline where 6m not Achievable	
Widening to 6m Proposed (General)	

Note:
80mm overlay to be applied over full length of L1157 between R772 and existing development site access



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project
Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Proposed Road Widening to 6.0m

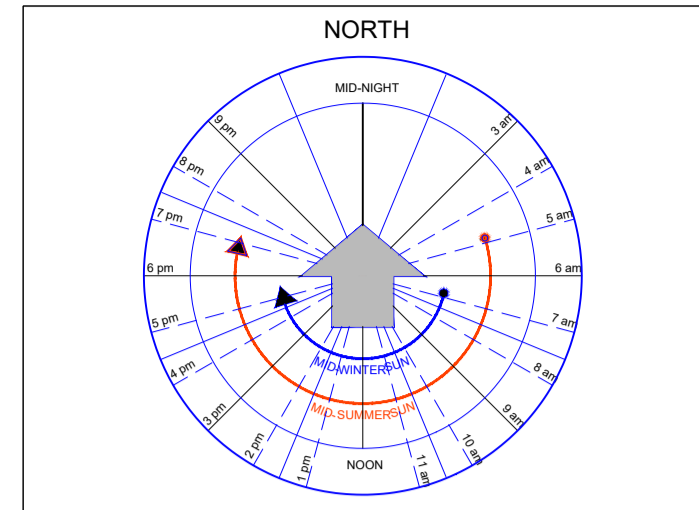
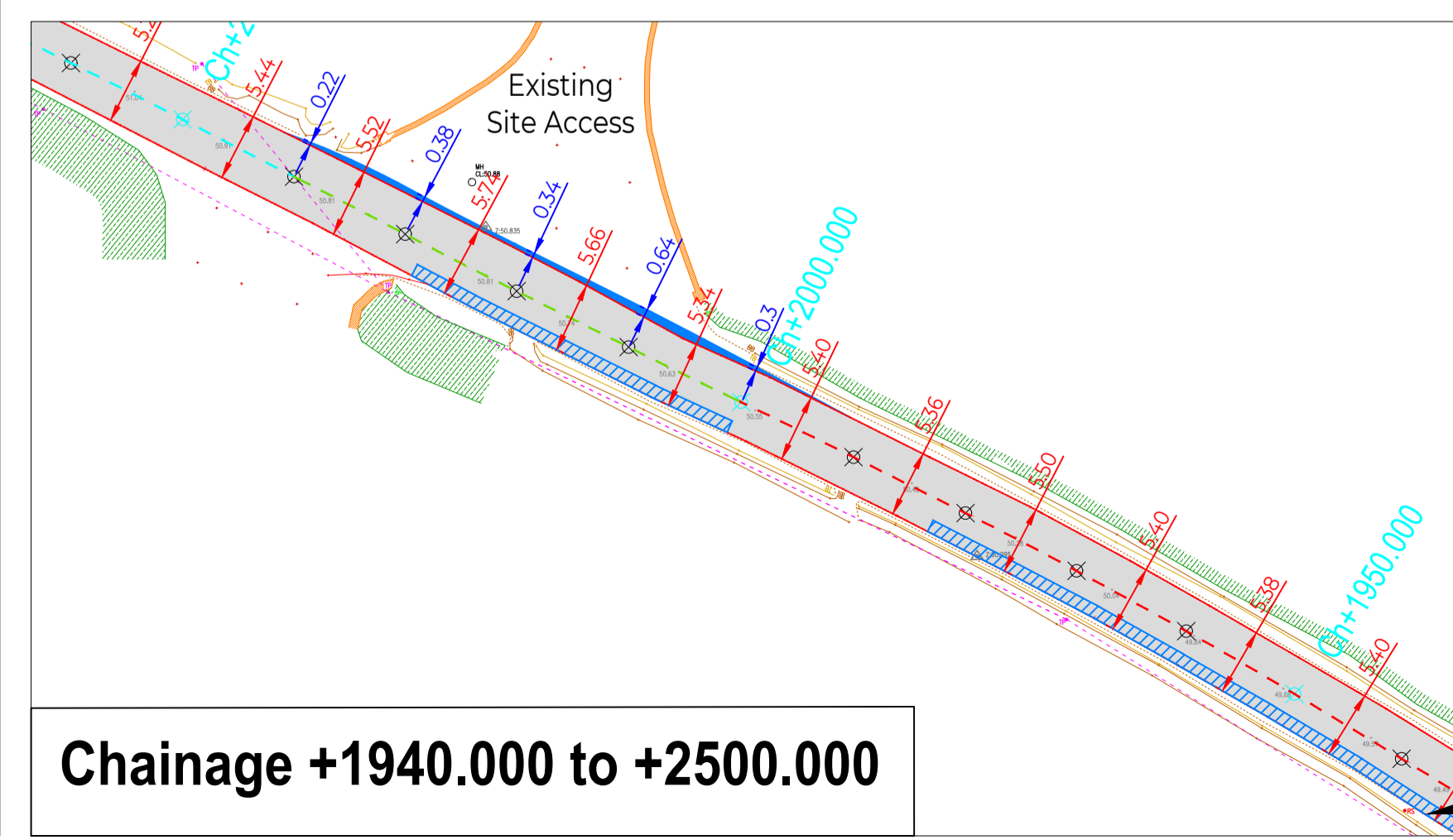
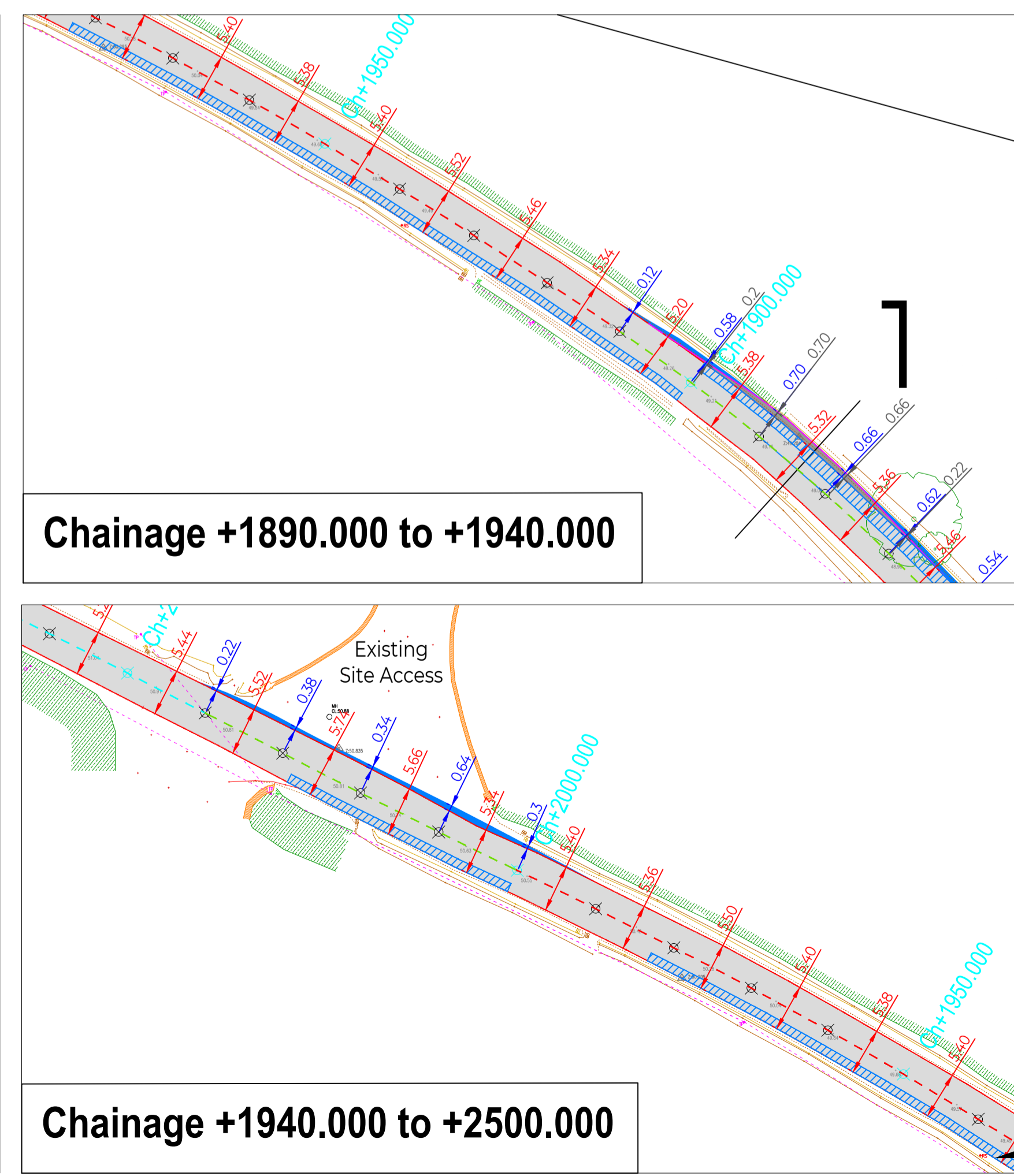
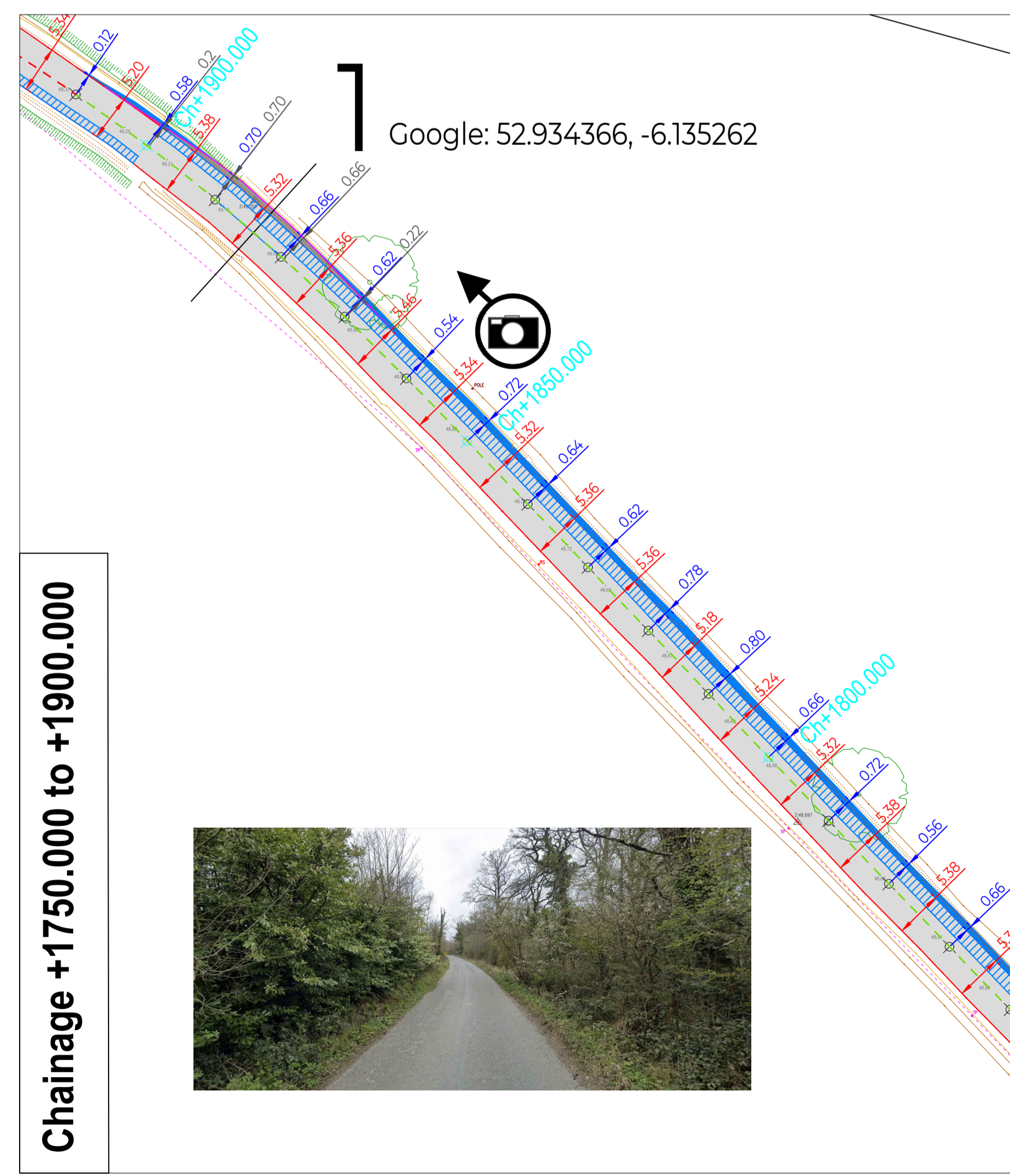
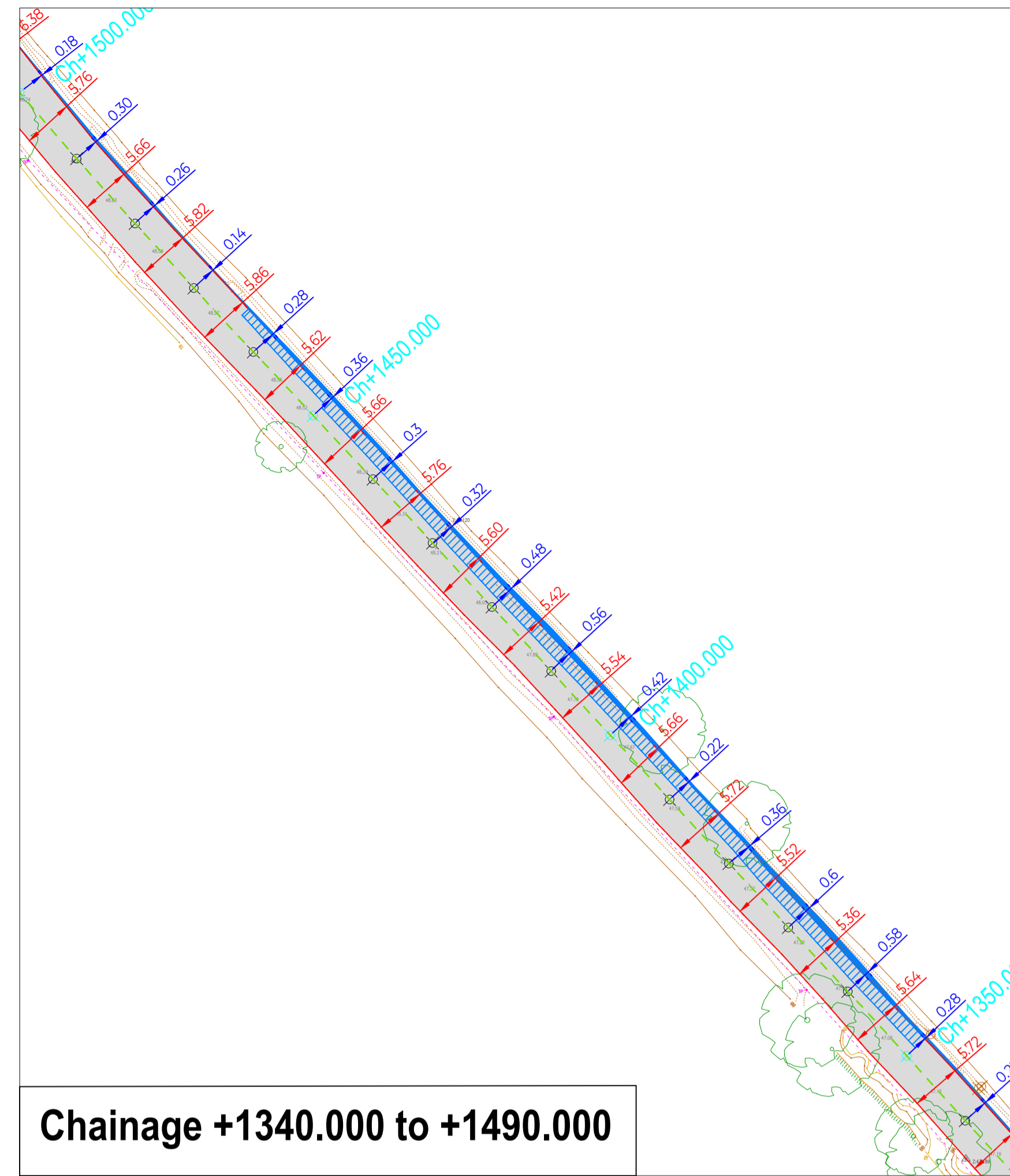
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Proposed Carriageway Widening to 6.0m in addition to Passing Bays
(Proposed road strengthening works also shown ref. 02991-20-WD Drawing Series)

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

scale 1:500 [Do not Scale, use figured dimensions]



drawing no.	revision
02991-20-WD-02	



KEY:

- Existing Fence
- Existing Edge of Road
- Existing Road Width
- Existing Road Surface
- Proposed Passing Bays
- Proposed Road Strengthening
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
- Existing Top of Bank
- Proposed Widening to 6m
- Centreline where 6m Achievable
- Centreline where 6m not Achievable
- Widening to 6m Proposed (General)

Note:
80mm overlay to be applied over full length of L1157 between R772 and existing development site access

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project
Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Proposed Road Widening to 6.0m

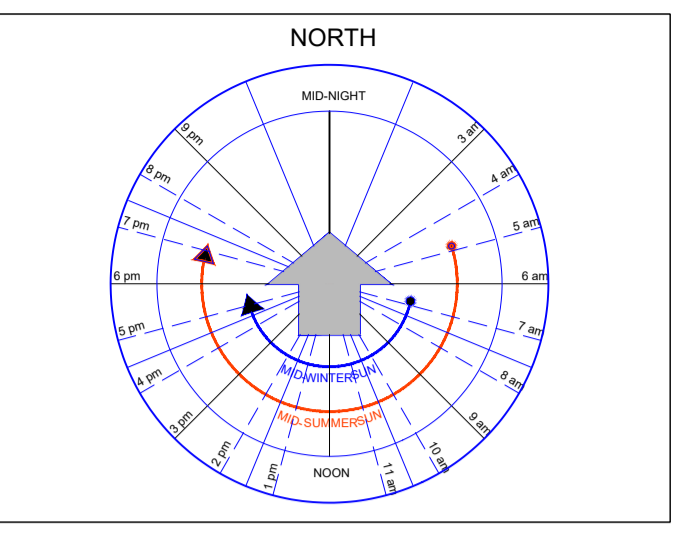
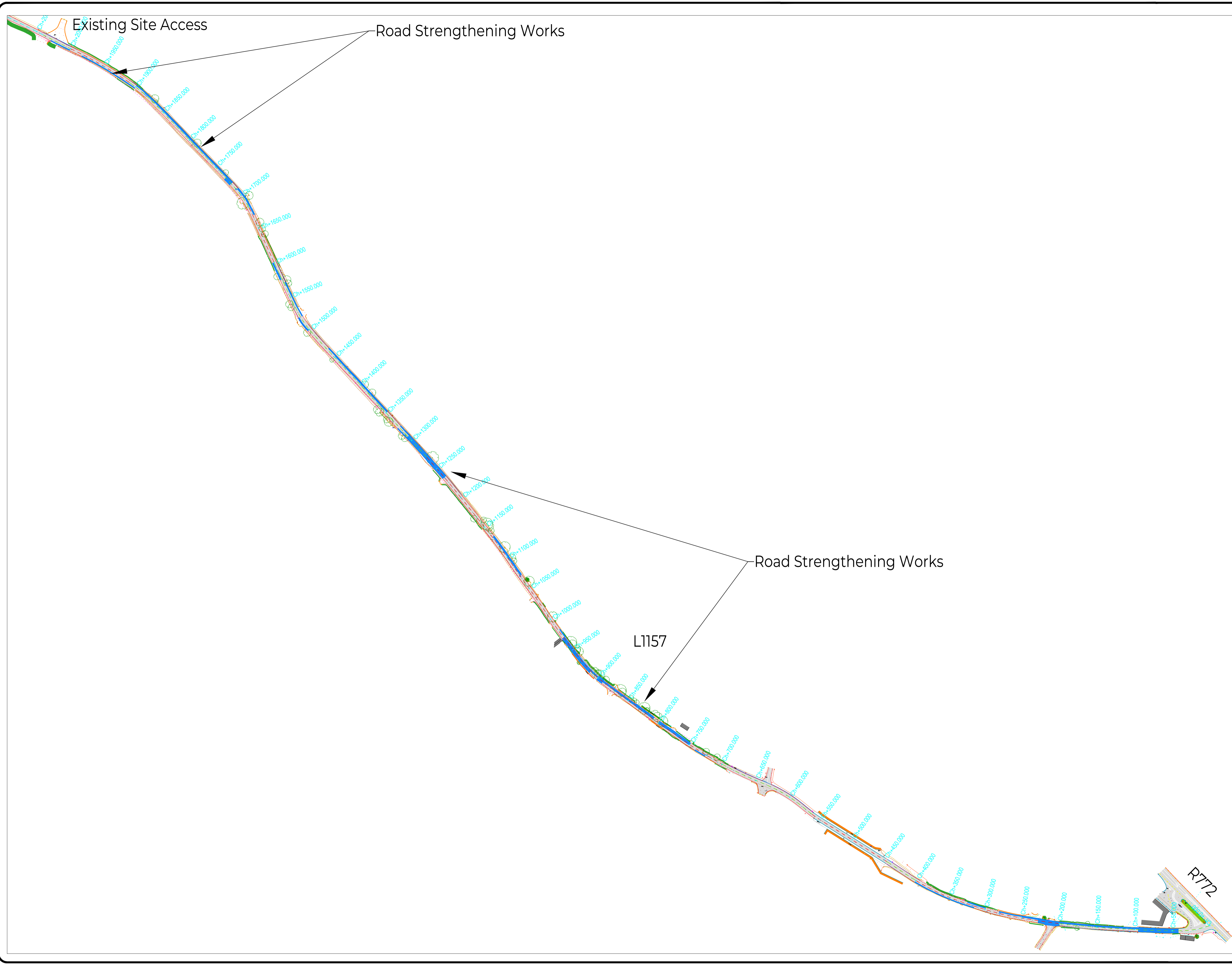
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Proposed Carriageway Widening to 6.0m in addition to Passing Bays
(Proposed road strengthening works also shown ref. 02991-20-WD Drawing Series)

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

scale 1:500 [Do not Scale, use figured dimensions]



drawing no.	revision
02991-20-WD-03	



KEY:

Existing Fence	
Existing Edge of Road	
Existing Road Width	
Existing Road Surface	
Proposed Passing Bays	
Proposed Road Strengthening	
Existing Wall	
Electricity Pole/Cable	
Telegraph Pole/Cable	
Existing Hedgerow	
Existing Bottom of Bank	
Existing Top of Bank	
Proposed Widening to 6m	
Centreline where 6m Achievable	
Centreline where 6m not Achievable	
Widening to 6m Proposed (General)	

Note:
80mm overlay to be applied over full length of L1157 between R772 and existing development site access

Note:
Where road strengthening works carried out the carriageway will be widened to a minimum width of 5.5m and 5.7m where achievable



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Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

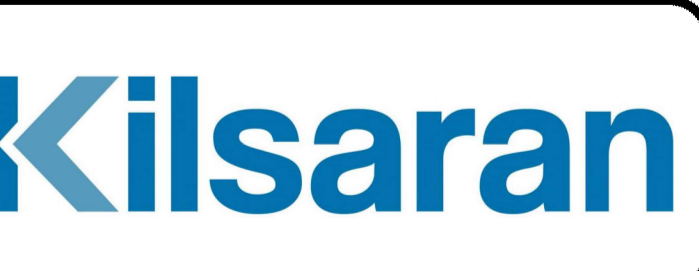
stage
Planning Application

title
Proposed Strengthening Works

contents
Locations of proposed carriageway strengthening works.
Note entire carriageway to receive final overlay 50mm-70mm wearing course.

surveyed TECHSOL June 2019	drawn TWL	checked JMK	date Aug 2020
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scale Not to Scale

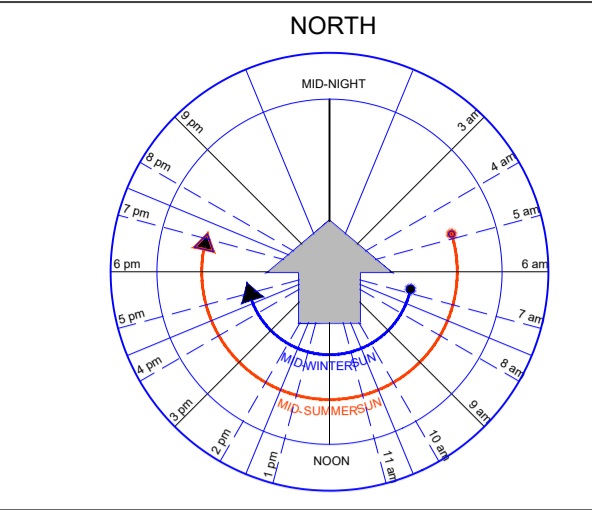
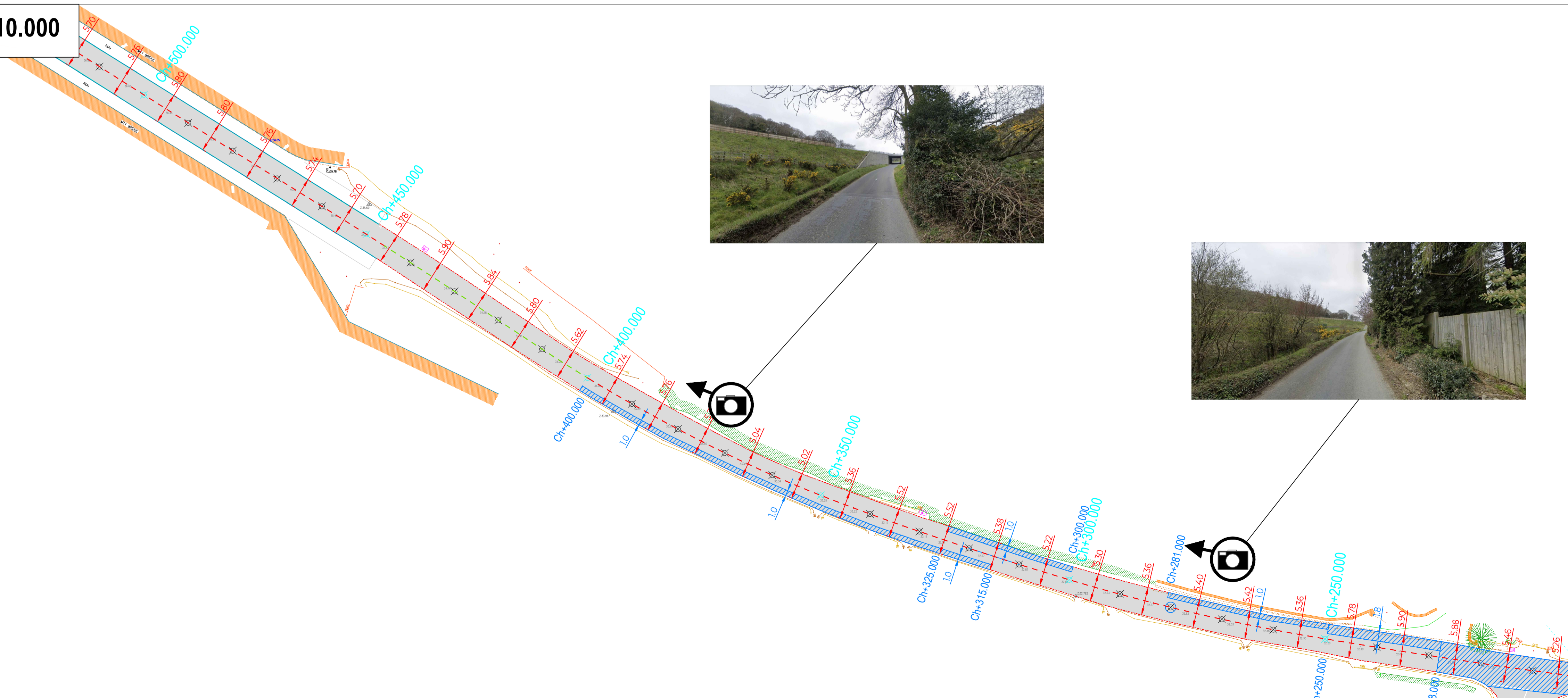


drawing no. 02991-20-ST-00	revision
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Chainage +000.000 to +310.000



Chainage +310.000 to +510.000



KEY:

- Existing Fence
- Existing Edge of Road
- Existing Road Width
- Existing Road Surface
- Proposed Passing Bays
- Proposed Road Strengthening
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
- Existing Top of Bank
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- Centreline where 6m Achievable
- Centreline where 6m not Achievable
- Widening to 6m Proposed (General)

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project
Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Proposed Strengthening Works

contents
Detailed sections of proposed carriageway strengthening works.
Note entire carriageway to receive final overlay 50mm-70mm wearing course.

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

scale 1:500 [Do not Scale, use figured dimensions]



drawing no.	revision
02991-20-ST-01	

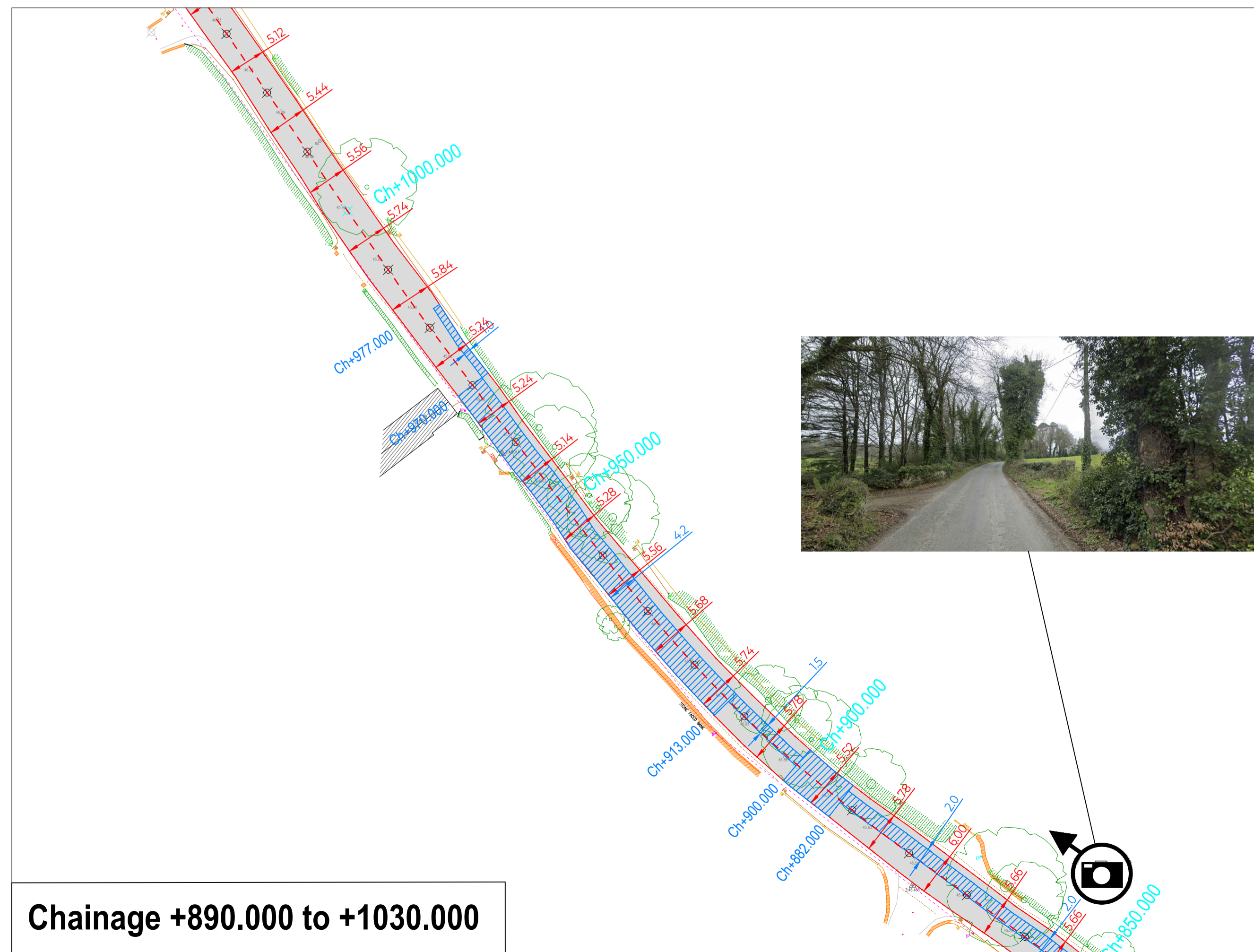
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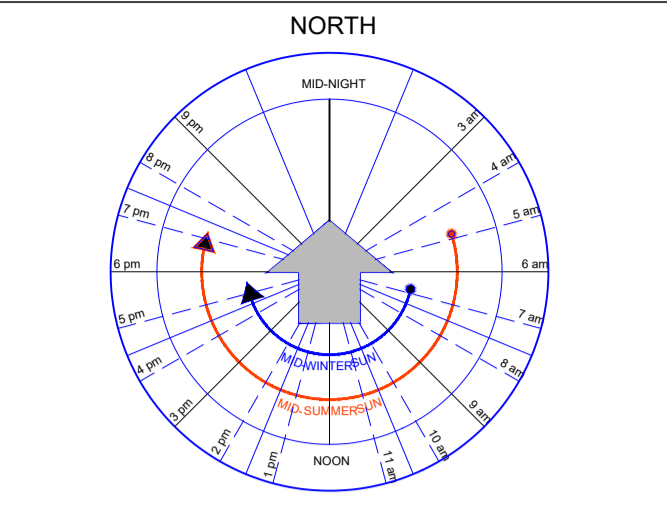
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Chainage +890.000 to +1030.000



Chainage +1030.000 to +1180.000



KEY:

Existing Fence	
Existing Edge of Road	
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Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
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contents
Detailed sections of proposed carriageway strengthening works.
Note entire carriageway to receive final overlay 50mm-70mm wearing course.

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

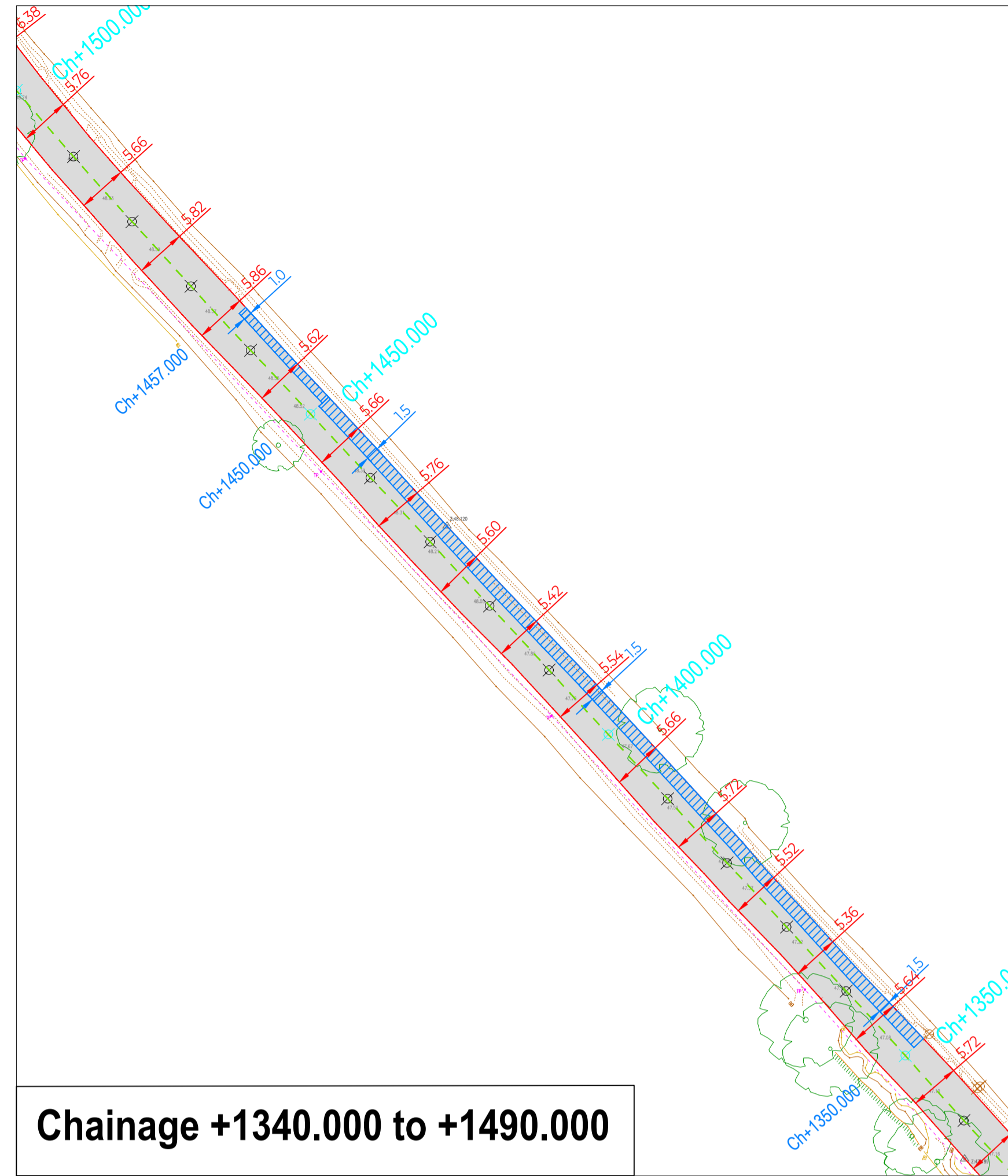
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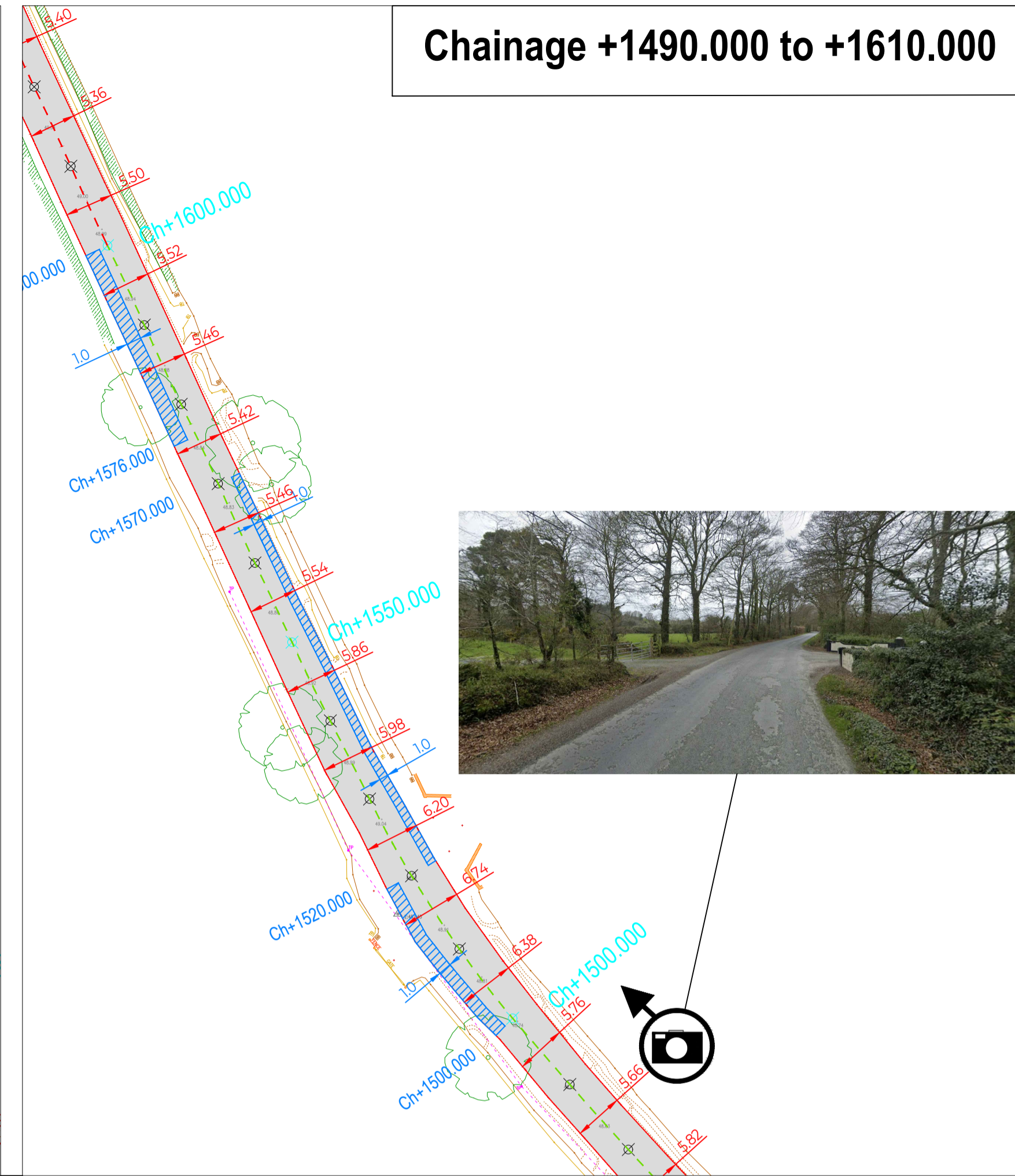
drawing no.	revision
02991-20-ST-02	



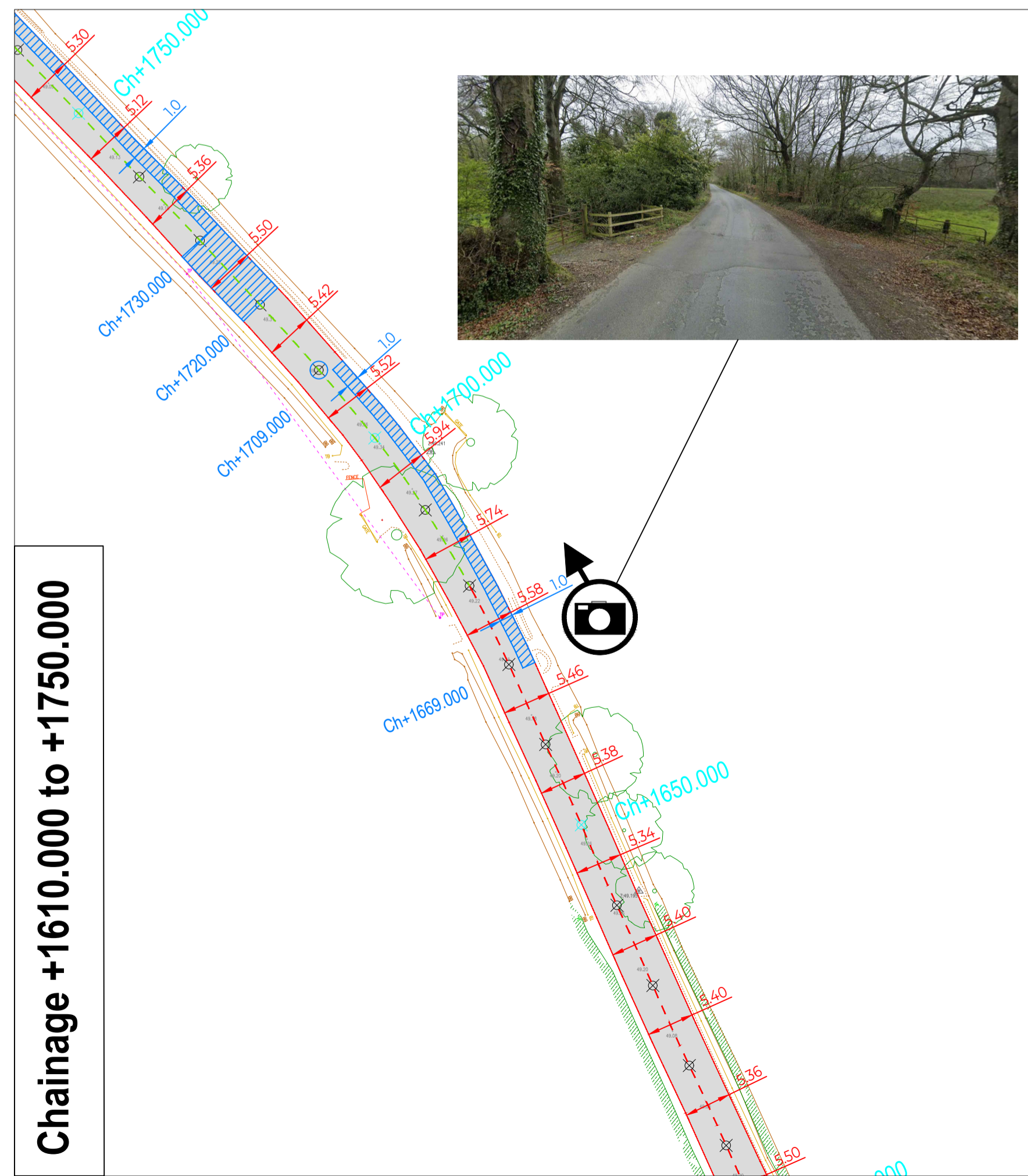
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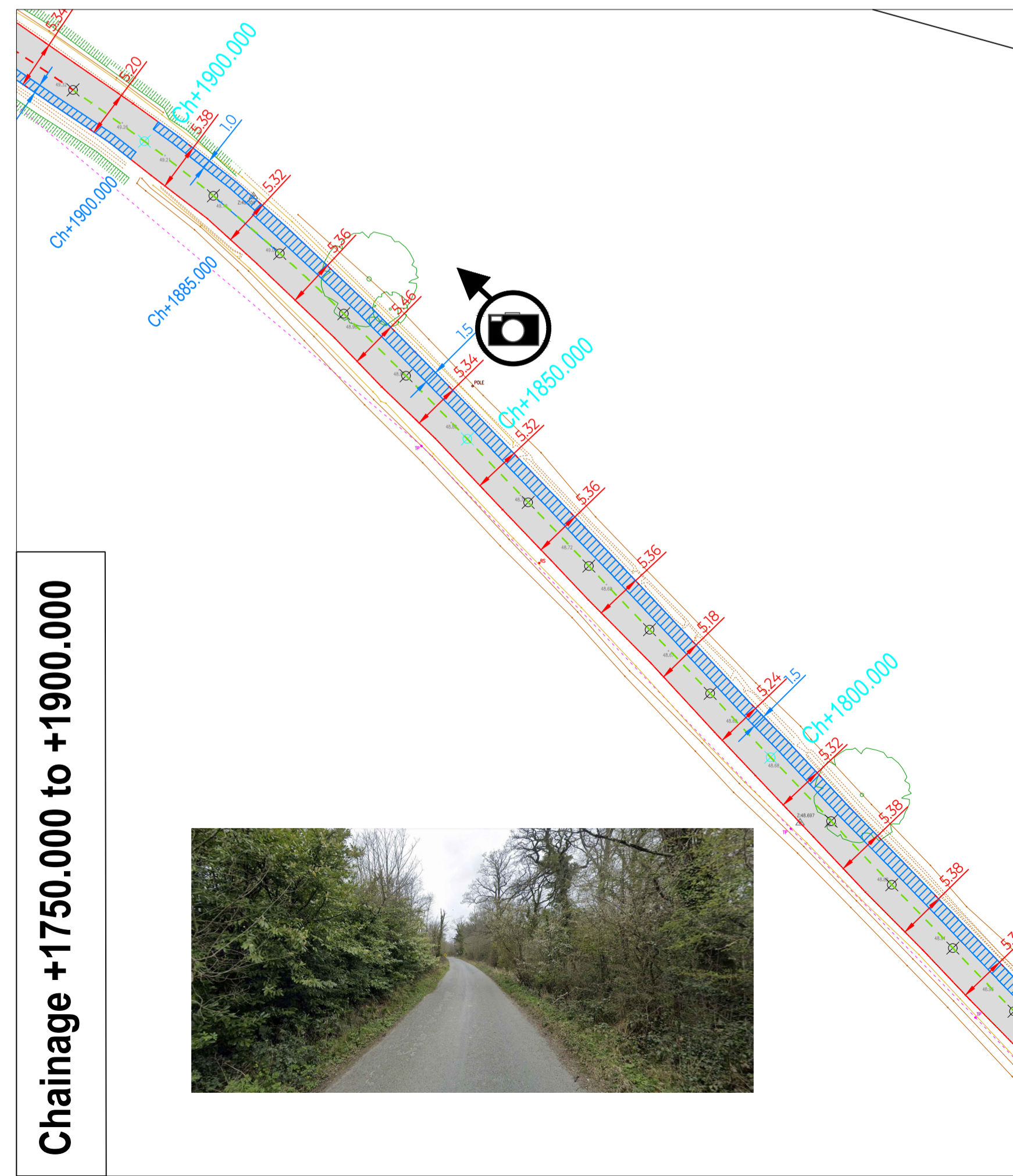
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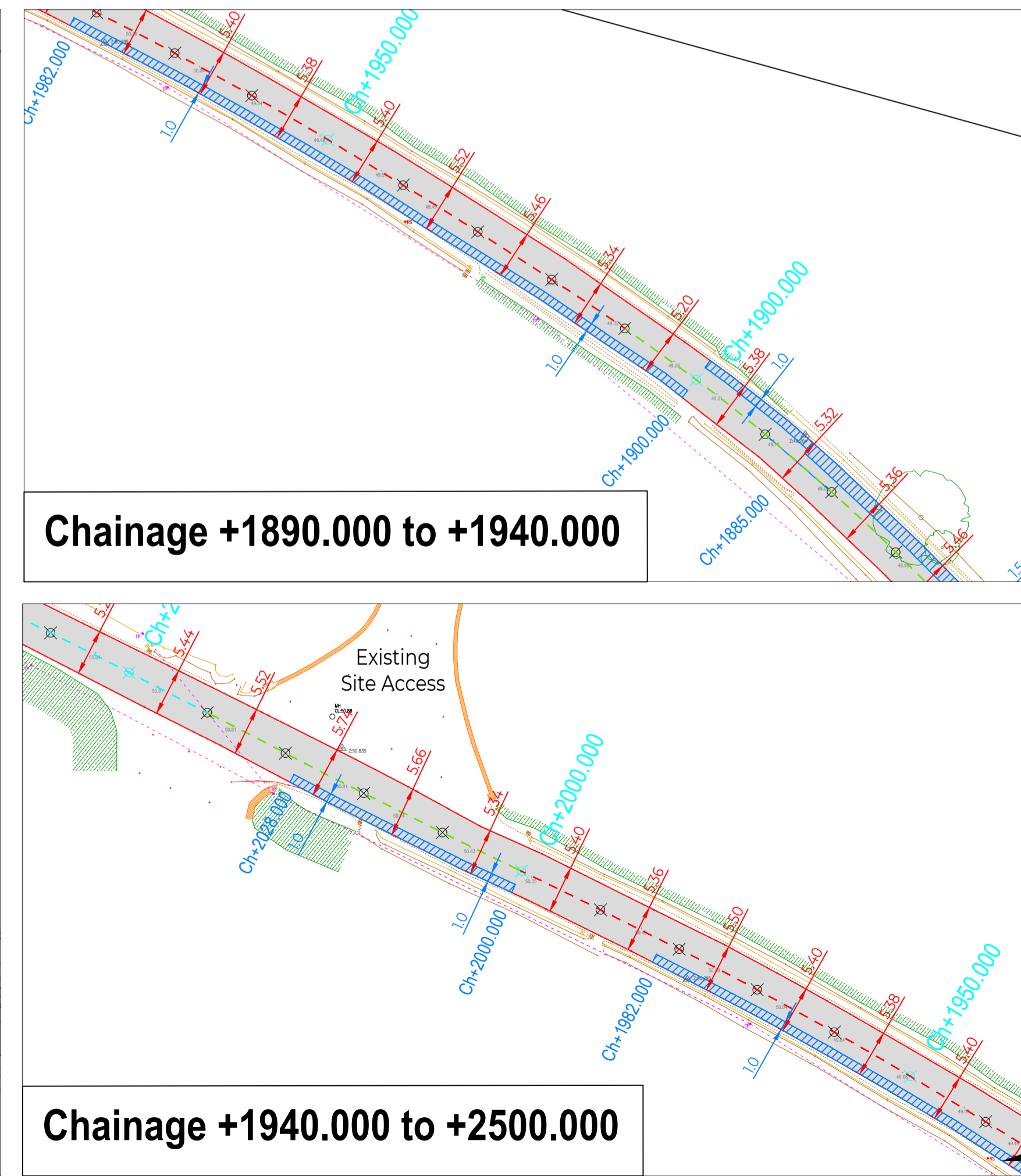
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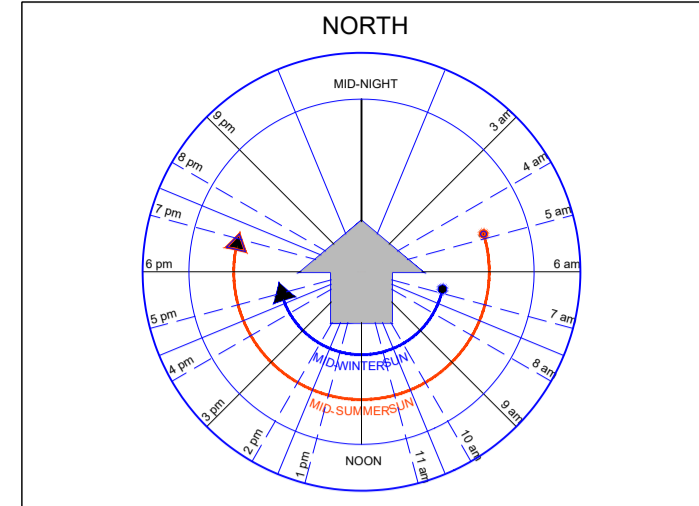


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Chainage +1890.000 to +1940.000

Chainage +1940.000 to +2500.000



KEY:

- Existing Fence
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project
Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Proposed Strengthening Works

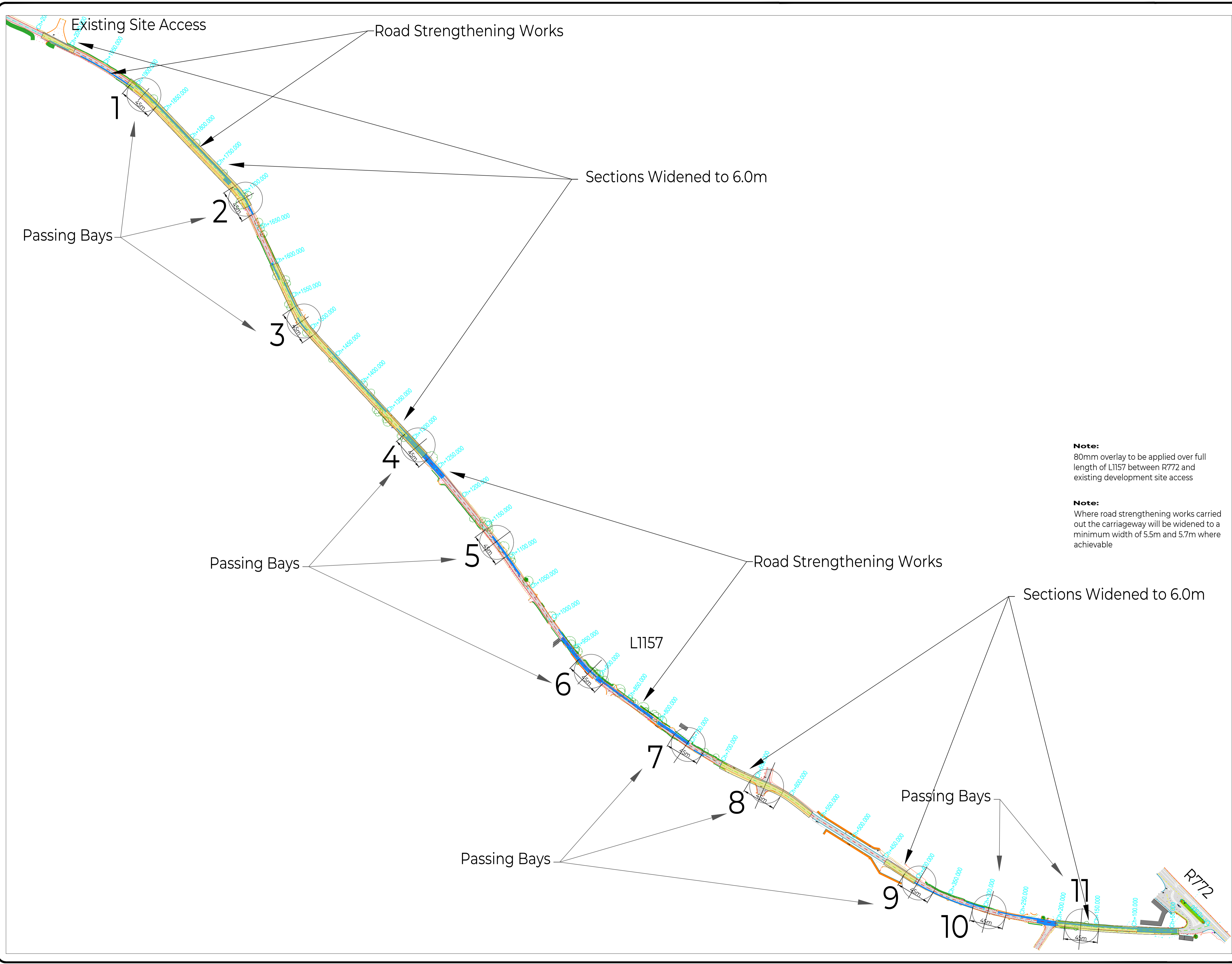
contents
Detailed sections of proposed carriageway strengthening works.
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surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Aug 2020

scale 1:500 [Do not Scale, use figured dimensions]

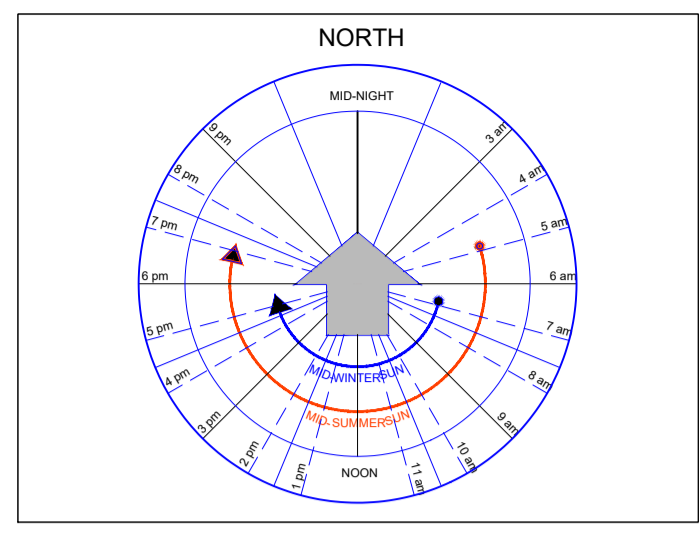


drawing no.	revision
02991-20-ST-03	



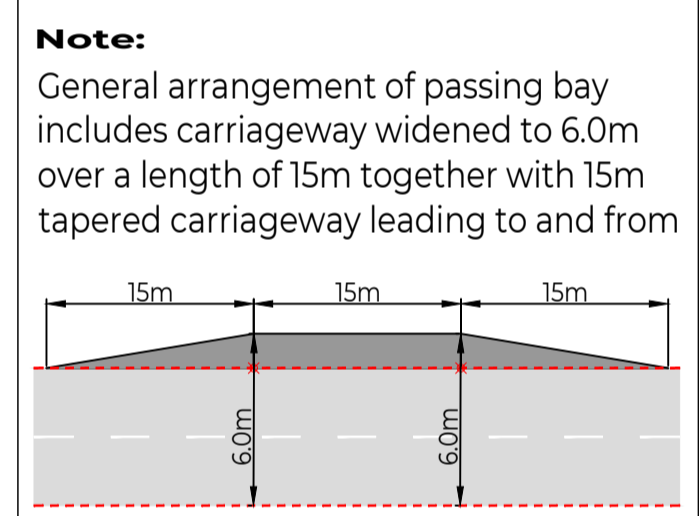
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KEY:

Existing Fence	
Existing Edge of Road	
Existing Road Width	
Existing Road Surface	
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Proposed Road Strengthening	
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Telegraph Pole/Cable	
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project
Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Proposed Road Works

contents
Location Plan Showing Proposed
- Passing Bays
- Sections Widened to 6.0m
- Carriageway Strengthening Works

surveyed TECHSOL June 2019	drawn TWL	checked JMK	date Aug 2020
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scale Not to Scale



drawing no. 02991-20-PB-WD-ST-00	revision
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