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INTRODUCTION

General

14.1 This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development of a materials recovery and recycling facility and inert landfill at Ballinclare quarry on traffic and transportation and should be read in conjunction with the project description in Chapter 2. The aim of this Chapter is to provide the Planning Authority with sufficient roads and traffic related information to determine the current traffic characteristics of the existing development and based upon industry standard traffic forecasting to inform an assessment of the potential traffic impact arising from the proposed development.

14.2 This Chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the receiving road environment and should be read in conjunction with Chapter 10 ‘Noise and Vibration’ and Chapter 8 ‘Air Quality’.

Proposed Development

14.3 A full description of the proposed development is set out in Chapter 2 of this EIAR. Kilsaran Concrete Unlimited Company (hereinafter ’Kilsaran’) proposes to establish and operate a construction and demolition (C&D) waste recovery / recycling facilities at its quarry at Ballinclare, near Kilbride, Co. Wicklow and to backfill the void created by the previous rock extraction by importing and landfilling inert waste (principally soil and stone) and to restore the backfilled area thereafter.

14.4 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 the location of the existing site access is indicated with a yellow arrow.

Figure 14-1
Site Location and Receiving Road Network

14.5 The proposed development on a 32.6 hectare site at Ballinclare Quarry comprises three key elements

- a soil washing plant to win aggregate from imported soil and stone;
- a construction and demolition (C&D) waste recycling facility to produce aggregate from construction and demolition waste (principally concrete); and
- an inert engineered (i.e. lined) landfill to facilitate backfilling and restoration of the existing quarry void.

14.6 In essence, it will provide for the importation, re-use, recovery and/or disposal of by-product materials and inert wastes generated by construction and development projects in Counties Wicklow, Dublin and Wexford as well as the backfilling and long-term restoration of the former quarry to native woodland habitat.

14.7 The proposed development provides for the following:

- Installation and operation of a soil washing plant at the former concrete / asphalt yard to produce construction grade sand and gravel aggregate from imported excess soil and stone. The soil washing plant comprises a loading hopper, a number of soil screens in series with connecting conveyor systems, a primary wastewater treatment tank (thickener), a buffer tank holding sludge and recycled water, an elevated plate press and filter cake discharge area;
- Construction of a close-sided industrial shed (portal frame structure with roof mounted solar panels) at the existing paved area to the west of the access road 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 external paved and hardstanding areas surrounding the C&D waste processing shed for the external handling and storage of both unprocessed and processed C&D wastes;
- Separation of any intermixed solid 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;
- Substantial backfilling of the existing quarry void to a maximum level of 80mOD through disposal of imported inert soil and stone waste and residual fines from the soil washing process and the use of non-waste soil by-product for engineering, capping and/or landscaping purposes
- The progressive restoration of the completed landfill landform to long-term native woodland habitat;
- Continued use of established site infrastructure and services including, site / weighbridge office, staff welfare facilities, surface water run-off and wastewater treatment systems, weighbridge, garage / workshop, wheelwash, hardstand areas, fuel and water storage tanks to service the proposed development;
- Clearance of vegetation and felling of a number of mature trees to facilitate widening of the internal site access road and make provision for off-road queuing of inbound HGVs within the application site boundary;
- Decommissioning of any remaining fixed plant and infrastructure associated with former rock extraction or concrete / asphalt production activities;
- Off-site removal of any waste materials or bulky wastes associated with former quarrying or production activities;
- Installation of a new weighbridge along the inbound lane of the quarry access road;

- Installation of an additional wheelwash facility on the eastern side of the former concrete / asphalt yard;
- Modification / upgrade of existing drainage channel along the site access road, Installation of silt trap and hydrocarbon interceptor to treat run-off and provision of additional pumping capacity to transfer run-off from existing surface water pond at site entrance to quarry sump
- Installation of a silt trap and hydrocarbon interceptor at the proposed C&D waste recovery facility to treat run-off prior to being pumped to the soil wash plant or surface water ponds elsewhere on site.
- Installation of a sub-surface concrete wastewater holding tank;
- Construction and establishment of an on-site (passive) wetland treatment system and any associated drainage infrastructure to treat / polish water collected from the active backfilling / landfilling cells prior to its discharge off-site to the Ballinclare Stream;
- Re-use of an existing storage shed as a dedicated waste inspection and quarantine facility to inspect and store suspect waste consignments as required. Any waste which has been accepted at the facility and which is likely (on basis of visual inspection) or confirmed (on basis of compliance testing) to be non-compliant with waste acceptance criteria for the facility will be temporarily stored at this location pending results of further waste classification testing and a decision as to how and where they should ultimately be disposed of or recovered;
- Re-alignment, upgrading and ongoing maintenance of internal haul routes across the application site;
- Temporary stockpiling of topsoil pending re-use as cover material for final restoration of the inert landfill / backfilled quarry void;
- Implementation of a series of measures to enhance local biodiversity including the retention of habitats and features of biodiversity value (e.g. ponds, buildings), quarry face retention for nesting peregrine falcon, establishment of an artificial sand martin colony, creation of roost space / deployment of bird boxes for bats, creation of habitat / erection of bird nest boxes for breeding / roosting birds and erection of fence along the site perimeter to include access points for mammals.
- Environmental monitoring of noise, dust, surface water and groundwater for the duration of the landfilling and restoration works and C&D waste recovery / recycling activities and for a short period thereafter;
- All ancillary site works, landscaping and perimeter fencing.

14.8 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

Aspects Relevant to this Assessment

14.9 When considering a development of this nature, the potential traffic and transport impact on the receiving road network is considered for each of two distinct stages:

- Construction Phase;
- Operational Phase.

14.10 During the construction stage the main impact in relation to traffic and transport matters will arise from

- 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
- the construction of an industrial shed at the paved area to the west of the site access road to house crushing and screening equipment and process / recycle inert C&D waste.
- installation and operation of a soil washing plant in the former concrete / asphalt yard.

These activities have the potential to generate additional traffic to the receiving roads network. The construction phase impacts will be temporary to short-term in duration.

14.11 The primary potential sources of impact upon traffic and transport during the operational phase of the proposed development arise from staff travel together with deliveries of materials to the site and routine servicing of the development. All impacts during the operational phase are assessed as long-term.

Development Site History

14.12 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 issued 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.

14.13 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 Carrigmore.

14.14 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 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 Ref. 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 to traffic and transportation related matters. General conditions of operation are transcribed:

- Condition 5: “The movement of all types of products 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 developer’s 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.”:

14.15 Condition No.5 above specifies 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.

Methodology

14.16 This chapter has been prepared having regard to the following guidelines;

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Wicklow County Development Plan 2022–2028
- Transport Infrastructure Ireland (TII) Publication TII-PE-PDV-02045 ‘Traffic and Transport Assessment Guidelines’ (May 2014).
- Chartered Institution of Highways and Transportation (CIHT) ‘Guidelines for Traffic Impact Assessment’ (Sept 1994)
- Department of the Environment & Local Government (DoELG), Department of Transport (DoT) and the Dublin Transportation Office (DTO) ‘Traffic Management Guidelines’ (May 2022).
- TII Publication PE-PAG-02017 ‘Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections’ (Oct 2021).
- TII Publication PE-PAG-02039 ‘Project Appraisal Guidelines for National Roads Unit 16.1: Expansion Factors for Short Period Traffic Counts’ (Oct 2016);
- TII Publication PE-PAG-02016 ‘Project Appraisal Guidelines for National Roads Unit 5.2 - Data Collection’ (Dec 2023).
- TII Publication DN-GEO-03060 ‘Geometric Design of Junctions’. (May 2023)
- TII Publication DN-GEO-03031 ‘Rural Link Design’. (May 2023)

14.17 The assessment will be undertaken using the following methodology:

- Baseline traffic surveys have been undertaken in the vicinity of the proposed development site in order to characterise the existing receiving road network and traffic environment;

- A review of the most applicable standards and guidelines to set a range of acceptable threshold criteria for the construction and operational phases of the proposed development;
- Predictive calculations of traffic generation relating to construction phase activities have been undertaken;
- Predictive calculations of traffic generation have been undertaken to assess the potential impacts associated with the operational phase of the development on the receiving road network within the study area;
- A schedule of mitigation measures has been incorporated where required, to reduce, where necessary, the identified potential impacts relating to traffic and transport arising from the proposed development.

Relevant Guidance

Traffic and Transport Assessment

14.18 The Transport Infrastructure Ireland (TII) Traffic and Transport Assessment Guidelines (TII Publication TII-PE-PDV-02045) provides a comprehensive framework for evaluating the impacts of developments on traffic and transportation. These guidelines are used by planners, engineers, developers, and government agencies to ensure that the traffic and transportation demands of projects are met whist minimizing negative effects on traffic flow and safety. Below is an overview of key elements involved in the preparation of a Traffic and Transport Assessment (TTA) and accordingly the key elements that underpin the information provided in this Chapter:

- Purpose and Scope: The objective is to ensure that new developments or changes to existing travel infrastructure are assessed for their impacts on traffic and transportation systems. The guidelines apply to various types of projects, including residential, commercial, industrial, and infrastructure developments.
- Assessment Process: Initially there is a screening process based upon various threshold and sub-threshold values to determine whether the predicted impacts are significant enough to warrant full traffic and transport assessment, the need for which is typically based on the scale, nature and traffic generation characteristics of the project.
- Scoping: Initial high-level assessment to the define the extent and focus of the assessment, including the geographical area, time periods, and specific issues to be studied.
- Data Collection and Analysis: This includes for surveys of current traffic volumes, accident records and other relevant traffic statistics. This is used to establish baseline data and includes the collation of data on current transportation network performance including traffic flows. Data collection includes future projections and estimation of future traffic conditions with and without the proposed development, taking into account population growth, economic trends, and other relevant factors.
- Impact Assessment: Calculation of trip generation and estimation of the number of trips generated by the development, including different modes of transport. Forecasting trip distribution and assignment to the receiving road network providing rationale for the analysis of where trips will originate and end, and the routes they will take.
- Capacity Analysis: Evaluation of forecast traffic impacts based upon assessment threshold values and criteria. Modelling assessments of whether existing or planned infrastructure can handle the additional traffic, including intersections, road segments, and public transport facilities in the case of urban development.

- Mitigation Measures: Where impacts are sufficiently significant to warrant infrastructure improvements, typically recommendations for road upgrades, intersection improvements, or new transport facilities are put forward. This may include traffic management strategies to optimize traffic flow, such as staff shift scheduling, new signage, or traffic management measures.

Traffic and Transport Assessment Guidelines – Thresholds

14.19 Traffic and Transport Assessment or Traffic Impact Assessment must accompany all planning applications for developments which could potentially generate significant traffic volumes. Initially there is a screening process based upon various threshold and sub-threshold values to determine whether the predicted impacts are significant enough to warrant full traffic and transport assessment. The following sets out the various relevant thresholds:

- Development traffic exceeds 10% of the traffic flow on the adjoining road.
- Development traffic exceeds 5% of the traffic flow on the adjoining road where congestion exists or the location is sensitive.
- Residential development in excess of 200 dwellings.
- Retail and leisure development in excess of 1,000m^2.
- Office, education and hospital development in excess of 2,500m^2.
- Industrial development in excess of 5,000m^2.
- Distribution and warehousing in excess of 10,000m^2.

14.20 Relevant thresholds for Traffic and Transport Assessment where the development has the potential to have an effect on national roads are as follows:

- 100 trips in / out combined in the peak hours for the proposed development
- Development traffic exceeds 10% of turning movements at junctions with and on National Roads.
- Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.
- Industrial development in excess of 5,000m^2.
- Distribution and warehousing in excess of 10,000m^2.
- 100 on-site parking spaces.

14.21 Sub threshold criteria for Traffic and Transport Assessment are as follows:

- The character and total number of trips per day is such that as to cause concern.
- Location of 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 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 trip patterns or raises other significant transport implications.

Assessment Criteria

14.22 TII PE-PDV-02045 Traffic and Transportation Assessment Guidelines May 2014, Table 2.1 'Traffic Management Guidelines Thresholds for Transport Assessments' sets out various threshold values and criteria that typically trigger that a TTA is required where national roads are affected by traffic arising from any proposed development. A general threshold value which is commonly used to identify whether a TTA including detailed junction capacity assessments is required is as follows:

- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road

14.23 It should be noted the 10% flow is generally a prompt for whether or not a TTA is recommended, it is not typically used to determine the significance of effects. It is nonetheless commonly used in TTA to reference the scale of increase in traffic flows when assessing the forecast long-term operational traffic effects of proposed developments. It is used herein as a preliminary measure of the potential magnitude of effect on the receiving road network.

14.24 The 10% threshold value helps planners, engineers, and local authorities assess when mitigation measures or further studies are necessary to manage traffic impacts. Over time, transportation studies have shown that increases in traffic volumes of less than 10% typically have minimal perceptible impact on congestion, travel times, or road safety. This has led to the general rule that increases below this level may not warrant significant infrastructure changes. In transport planning practice, the 10% threshold is often seen as a conservative baseline for determining when the impact of a development is likely to be noticeable and significant. It provides a clear, measurable trigger for when to conduct detailed assessments or implement mitigation measures. Road networks are typically designed with a certain level of spare capacity to accommodate fluctuations in traffic. A 10% increase is generally within this buffer, meaning that a road system can often handle this additional load without significant degradation in service levels, unless the network is already operating at or near capacity. Increases in traffic volume under 10% are often not noticeable by drivers and do not substantially change the level of service (LOS) of a road network. This is because variations in daily traffic patterns, such as seasonal fluctuations or changes in driving habits, can already cause similar increases or decreases without significantly altering the traffic flow. Using a percentage-based threshold like 10% makes traffic and transport assessments more straightforward. It provides a clear, objective criterion for when further investigation is required, reducing uncertainty in the planning process.

Scope of Assessment

14.25 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 a materials recovery / recycling facility and inert landfill which provides for the backfill of the existing quarry void and its restoration to a native woodland habitat.

14.26 This traffic assessment is based upon 2024 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 Ref. 07/45) and 2014 (Planning 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).

14.27 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.

14.28 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.

14.29 This Chapter provides an evaluation of the relative level of impact that the pre-existing quarry development would have on the local road network whilst operating at current maximum 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 existing permitted development and this is then compared with the forecast potential traffic arising from the proposed recovery / recycling facility and inert landfill when operating at planned maximum capacity.

14.30 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, traffic control and other related mitigation measures.

14.31 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 an adverse impact upon existing or future national road schemes.

Consultations / Consultees

14.32 As the development constitutes Strategic Infrastructure Development (SID), a formal pre-application consultation exercise was undertaken with a number of prescribed bodies on the advice / direction of An Bord Pleanála, including TII.

14.33 Consultations were also held with nearby residents and members of the general public in August and September 2024. Details of these consultations and the feedback obtained therefrom is provided in a separate consultation report submitted in support of the SID application to An Bord Pleanála. Any specific feedback provided in respect of traffic and transport impacts has been considered and addressed as appropriate in drafting this Chapter of the EIAR.

14.34 Insofar as it relates to the generation of traffic, the development proposal provides for C&D waste recovery / recycling and landfilling operations at the application site that will generate a lesser overall volume of HGV traffic, but HGV with similar characteristics to those arising from the previous operation of the quarry development permitted by Planning Ref. 14/2118.

14.35 When preparing the EIAR for the previous (2021) SID application in respect of planned development at the application site (An Bord Pleanála Ref. No ABP-309991-21), there was extensive consultation with the Planning Authority's Roads Department including on-site measurement supporting an assessment of the existing and proposed haul route so as to determine suitable strengthening and improvement requirements. For that SID application, the Applicant provided Wicklow County Council (WCC) with a detailed topographical survey of the haul route in digital format together with a detailed road condition survey and also engaged in a joint inspection of the proposed haul route. WCC Roads Department ultimately had no objection to a grant of permission for the SID development at that time.

14.36 In preparing this study there has been further consultation with Arklow Municipal District Engineers. The project team met with Senior Executive Engineer and Executive Engineers on 4th September 2024. At the meeting the EIAR project team presented an overview of the project which outlined the proposed operation, the focus of the engagement was to present and to discuss the details of preliminary road improvement works which were grounded in the previous engagements regarding the earlier and similar proposed SID project. Roads specific feedback from the public consultation held on 21st August 2024 was also shared and discussed in the context of the preliminary road improvement measures.

14.37 Further to this consultation the Applicants Engineer carried out a joint walkover inspection of the proposed haul route with the Arklow Municipal District Senior Executive Engineer on 23rd September 2024. As for the previous SID application, the Applicant has provided Wicklow County Council with a detailed topographical survey of the haul route in digital format together with a new detailed road condition survey carried out in July 2024. The final suite of road strengthening, road improvement works and other measures are set out in detail in the 'Mitigation Measures' section of this Chapter.

14.38 In pre-application discussions with An Bord Pleanála, it was recommended that pre-application consultations in respect of the proposed development at Ballinclare Quarry be held with 12 No. Prescribed Bodies, including Transport Infrastructure Ireland (TII), in advance of submitting the SID planning application. The initial consultation invited TII to review and respond to outline information in respect of the proposed development provided in an accompanying briefing document. TII responded to the initial invitation by email.

14.39 **Figure 14-2** below shows the principal haul route to and from the M11 Motorway associated with the quarry development permitted under Planning Ref. 14/2118. This is an informal one-way system which includes an anti-clockwise route incorporating Local Road L1113 (from M11 Junction 18), Local Road L1157 and Regional Road R772 back to M11 Junction 18.

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

14.40 As noted above, this development proposal will generate a lesser overall volume of HGV traffic than the quarry development permitted under Planning Ref. 14/2118. In preparing the EIAR for the previous SID application (under Ref No. ABP-309991-21), it had initially been proposed to the Planning Authority that HGV traffic at the proposed development would continue to use the same informal one-way haul route regime associated with the quarry and development currently permitted under Planning Ref. 14/2118.

14.41 The Planning Authority acknowledged that the informal one-way haul route had had advantages when the N11 Rathnew to Arklow Road Improvement Scheme was under construction in 2014 but considered that the traffic patterns on the local roads had changed in the interim such that it was the Planning Authority's preference that the traffic management regime at Ballinclare Quarry should be revised principally to benefit traffic flows locally, and on L1113 Coolbeg Road in particular.

14.42 In consultations for SID considered previously (under Ref No. ABP-309991-21), the Planning Authority indicated a preference for all HGV traffic to and from the application site to use only the L1157 Local Road with development HGV traffic travelling in both directions. To accommodate the revised regime, it was acknowledged by Wicklow County Council and the Applicant 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 the EIAR in respect of previous SID application.

14.43 In brief the road improvement works in that case included a series of inter-visible passing bays along the 2km haul route together with road widening for more than half the length of the haul route between the R772 Regional Road and the existing site access. Notwithstanding the Area Engineer's initial objective of wishing to achieve a 6.0m road width for the full length of the haul route, Wicklow County Council was satisfied with the indicative road strengthening and widening works as was proposed at that time.

14.44 In recent consultations in September 2024 and October 2024 relating to the current proposed development, the Arklow Municipal District Senior Executive Engineer has confirmed the above opinion and recommendation to abandon the former informal one-way system to and from the quarry and confirmed the County Council preference to instead

strengthen and improve the L1157 and to use it as the principal haul route accommodating two-way traffic flow.

14.45 Motivated for the most part by submissions in the previous SID case and in response to further local consultation and engagement with Arklow Municipal District Council the current proposal seeks to enhance the previously identified road strengthening, widening and improvement scheme. The current road strengthening and improvement measures aim to achieve a 6.0m carriageway width over the full length of the haul route together with other traffic management improvements. The extent and nature of the road improvement works is described later in this Chapter under 'Mitigation Measures' and is detailed in the accompanying drawings.

14.46 The TTA prepared in support of WCC 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 for comparing the existing permitted traffic scenario with that proposed under the current planning application.

Contributors / Author(s)

14.47 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 34 years engineering experience with 29 years specialising in Roads Design and Transportation Planning.

Limitations / Difficulties Encountered

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

Planning Policy and Development Control

14.49 The Wicklow County Development Plan (WCDP) 2022-2028 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.

14.50 Chapter 12 of the WCDP covers *'Sustainable Transportation'*. Section 12.8 thereof relates to '*Sustainable Transportation Objectives'* and sets out various policies and objectives, whilst Appendix 1 addresses *Development and Design Standards*.

14.51 Policies and objectives of relevance to the assessment, as set out in Section 12.8 of the Wicklow CDP, are identified below.

- Objective 12.30 "Traffic Impact Assessments will be required for new developments in accordance with the thresholds set out in the 'Design Manual for Urban Roads and Streets' DMURS (DTTA-DHPLG) and the 'Traffic & Transport Assessment Guidelines' (TII)."
- Objective 12.29 "To improve public roads in the County as necessary, including associated bridges and other ancillary structures, as funding allows, having due regard to both the transportation needs of the County, the climate action goals of the plan and the protection of natural habitats."
- Objective CPO 12.54 "Rural local roads shall be protected from inappropriate development and road capacity shall be reserved for necessary rural development."

Guidelines

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

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Wicklow County Development Plan 2022–2028
- Transport Infrastructure Ireland (TII) Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014).
- Chartered Institution of Highways and Transportation (CIHT) 'Guidelines for Traffic Impact Assessment' (Sept 1994)
- Department of the Environment & Local Government (DoELG), Department of Transport (DoT) and the Dublin Transportation Office (DTO) 'Traffic Management Guidelines' (May 2022).
- TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).
- TII Publication PE-PAG-02039 'Project Appraisal Guidelines for National Roads Unit 16.1: Expansion Factors for Short Period Traffic Counts' (Oct 2016);
- TII Publication PE-PAG-02016 'Project Appraisal Guidelines for National Roads Unit 5.2 - Data Collection' (Dec 2023).
- TII Publication DN-GEO-03060 'Geometric Design of Junctions'. (May 2023)
- TII Publication DN-GEO-03031 'Rural Link Design'. (May 2023)

RECEIVING ENVIRONMENT

Study Area

14.53 Ballinclare Quarry is located in the townlands of Ballinclare and Carrigmore, 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.

14.54 Given the current permitted level of traffic generation from site activities, the duration of the current permission, the character of the existing road environment, and given the scope of the study and assessment agreed with the Local Authority at the time when previous traffic studies were prepared, including the earlier SID application (Ref. No. ABP-309991-21), the scope of this Chapter is consistent with those previous studies and covers the network that includes the existing site access and the operation of the existing approved informal one-way haul route. The study area comprises Local Road L1113, Local Road L1157 and Regional Road R772. **Figure 14-3** shows the current proposed principal haul route (in pink) between the application site and the M11 Motorway.

14.55 Consistent with the proposals considered under the earlier SID application (Ref. No. ABP-309991-21) and in response to previous pre-planning engagement at that time and more recent pre-planning engagement with the Planning Authority, it is again proposed to revise the traffic management system associated with the proposed development and to amend

the pre-existing informal one-way haul route regime previously in place for the extractive related development at Ballinclare Quarry permitted under Planning Ref. No. 14/2118.

14.56 In accordance with the stated preference of Wicklow County Council, the current development proposes that all HGV traffic will be required to use the L1157 Local Road to the east of the site to travel both to and from R772 Regional Road (the former N11 National Primary Road). This is the same regime as was proposed in respect of the previous SID application (Ref. No. ABP-309991-21).

14.57 To accommodate the two-way HGV traffic generated by the proposed materials recovery / recycling facility and inert landfill, significant road strengthening and widening works are required. The roadworks effectively include the entire length of L1157 between the R772 and the existing development site access.

14.58 All HGV traffic importing materials 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, will travel south along Regional Road R772 as far as the Junction 18 Coffee Shop and Green Angel Skincare (former Tap Restaurant) at Kilbride. Traffic from the south will use M11 Junction 19 at Jack Whites Inn to access the R772. From the R772 Regional Road, all HGV will travel northwest along L1157 to the existing access to Ballinclare Quarry approximately 2 km northwest.

Figure 14-3
Proposed Haul Route

14.59 There are no weight, height or vehicle width restrictions on Local Road L1157.

14.60 The load bearing capacity of any bridges, culverts or structures along the haul route has not been measured as the proposed development will not require any abnormal loads and will generate traffic with similar characteristics to those permitted to service the existing quarry. As such, any bridges on the proposed haul route and the main connecting regional and national transport network are reasonably expected to be capable of continuing to carry general traffic together with the vehicles transporting materials to and from the proposed development site.

14.61 Development generated HGV traffic leaving through the existing quarry access will turn left and travel southeast along the L1157 Local Road to the junction with the R772 Regional

Road at the former Tap Restaurant. At the L1157 / R772 junction, most traffic will head north toward the M11 Motorway at Junction 18 and from there, head in the direction of North Wicklow and Dublin. Only a relatively minor proportion (estimated to be no more than 5%) is expected to turn south from L1157 to R772 to head in the direction of Arklow and M11 Junction 19 at Jack White's Inn.

Receiving Road Network

14.62 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**.

14.63 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.

14.64 Local Road L1157 intersects the existing R772 (former N11 National Primary Road) at a priority junction adjacent to Green Angel Skincare premises (the former Tap Restaurant), 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, which is a grade separated motorway interchange in a dumbbell configuration spanning over the motorway near the Beehive Inn (formerly Coolbeg Crossroads).

14.65 The travel distance along the L1157 and L1113 Coolbeg Road from M11 Junction 18 at the Beehive Inn to the existing site access is approximately 4.5 km, refer to **Figure 14-2**.

14.66 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 southeast and then following R772 (the reclassified former N11 National Primary Road) from its junction beside the Green Angel Skincare premises, north to the Beehive Inn Interchange M11 Junction 18 where it can join the M11 Motorway. L1157 traffic travelling south can similarly follow the R772 as far as M11 Junction 19, located at what was previously Jack Whites Crossroads.

14.67 Reference to TII Traffic Counter[1] data for count site N11-17 Jack Whites, located on the N11 approx. 11km north of Arklow, shows the former N11 carried an Annual Average Daily Traffic flow (AADT) in 2012 in the order of 17,925 vehicles with a 5.9% HGV content, the figures for the preceding years are;

- 18,841(5.8%) in 2011;
- 19,560(5.8%) in 2010;
- 20,281(5.8%) in 2009;
- 20,944(6.0%) in 2008;
- 20,300(6.5%) in 2007 and;
- 18,948(6.6%) in 2006.

14.68 An informal one-way local haulage route had historically been used by HGV travelling to and from Ballinclare Quarry and that is the regime that had been considered for

[1] https://www.tii.ie/en/roads-tolling/operations-and-maintenance/traffic-count-data/

implementation to accommodate HGV traffic generated by the current permitted development for extractive operations and associated processing of stone derived product at the site. The historic and informal one-way 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 southeast to the junction beside the Green Angel Skincare premises.

14.69 Notwithstanding the existence of other commercial developments and Local Authority sites that generate HGV traffic locally, the objective of the Ballinclare Quarry one-way haul route had been to reduce, insofar as practicable, the opposed passage of quarry generated traffic with other quarry generated traffic, through the use of an informal 'development specific' one-way HGV routing system.

14.70 From discussions with senior Roads Authority staff around the time when the 2014 planning application was submitted (Planning 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 movements were generally significantly higher throughout the receiving local road network and at Ballinclare Quarry.

14.71 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 or obstruction of L1157 and L1113 at different time over the course of the M11 construction. It is understood that the haul route had been informally agreed in order to cater for just such eventualities and to permit the quarry to deliver product locally when the need arises.

14.72 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. For example, either road could potentially be obstructed by a fallen tree during inclement weather or might be subject to closure during road maintenance / improvement works.

14.73 Following pre-planning engagement in respect of the previous SID application (Ref. No ABP-309991-21), the Wicklow County Council 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. Wicklow County Council indicated a preference for a shorter haul route along the L1157 directly to and from the R772 highlighting that such a proposal would be subject to appropriate road strengthening and improvement works to accommodate the safe opposed passage of HGV traffic. This recommendation has been confirmed in recent consultation with Arklow Municipal District Council specific to the current proposed development.

14.74 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 Wicklow County Council in its capacity at Roads Authority for the area.

14.75 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.

Resulting from these recommendations, it is understood from consultation with the Roads Authority that the speed limit on L1157 will be reduced to 60km/h. It is understood that the reduced 60km/h speed limit will be implemented before Q1, 2025 and so well within the decision-making period for determining the current proposed SID development.

14.76 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.

14.77 The current 80kph speed limit is not considered the relevant design consideration in the standards and accordingly, since it is to be reduced to 60km/h, it is not considered 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. The traffic survey data from 2014 that accompanied the application for Planning Ref. 14/2118 showed the 85th percentile speed of traffic on L1157 near the existing quarry entrance was in the order of 83km/h. For the previous SID application (Ref. No. ABP-309991-21), the submitted EIAR provides traffic survey data from 2019 (in EIAR Appendix 14-A) which shows 85th percentile traffic speeds along L1157 near the access at 79 km/h. The most recent traffic surveys that underpin the assessment in this Chapter were conducted in April 2024, with the traffic counter located in the same place as the previous surveys. The latest records show the 85th percentile speed to have reduced further to 75kp/h.

14.78 The reason for the apparent downward trend in speeds on L1157 is not immediately clear, some of the factors that can reduce traffic speeds include increased traffic volume, road wear, changes in land use, driver behaviour adaptation, enforcement perception and other external factors such as the national campaigns of road safety awareness.

14.79 The Road Safety Authority (RSA) of Ireland runs several road safety awareness programs aimed at reducing road accidents, educating the public, and promoting safer driving practices across the country. These programs target different road users using a combination of media campaigns, educational resources, and practical safety initiatives.

14.80 The RSA has been running campaigns to reduce speeding for many years, but a significant national push for reduced speed started around 2007, coinciding with the creation of the RSA itself in 2006. This period marked a shift toward a more focused and data-driven approach to road safety, with speeding recognised as a major contributor to road deaths and serious injuries.

14.81 The RSA's speed reduction campaigns, are recognised to have made a substantial impact on road safety. By using emotional messaging, legislative enforcement, and public awareness efforts, the campaigns have contributed to a significant reduction in road fatalities and injuries. The national roll-out of reduced rural speed limits are expected to contribute positively to the rural road environment.

Baseline Traffic Survey

14.82 Traffic turning count surveys are conducted to understand traffic patterns at junctions and interchanges specifically to track the number and direction of vehicles turning left, right, or continuing straight. The typical method involves CCTV cameras that are installed at strategic locations to capture clear views of the intersection. Depending on the complexity of the junction, multiple cameras may be used to cover all approaches and movements and the cameras are typically mounted on poles, traffic signals, or existing infrastructure at a height that allows a complete view of the traffic flow. After the survey, video footage is reviewed manually or with the help of video analytics software to detect and classify vehicles (cars, trucks, buses, etc.) and log the turning movements (left, right, straight).

CCTV allows for a precise record of vehicle movements, with the ability to reanalyse footage if necessary, and since cameras are positioned off-road, they do not interfere with traffic flow, making the method non-intrusive.

14.83 Traffinomics Transportation Surveys Ltd. carried out classified turning count surveys on the public road network in the vicinity of the application site using CCTV over a one-week period in April 2024. A copy of the survey data is provided in Appendix 14-A. The traffic turning count data was collected mid-week to reflect typical weekday traffic patterns and includes the commuter peak periods. The weekday commuter peak periods typically tend to have the heaviest hourly network flows.

14.84 In addition to the short-term turning count surveys Traffinomics Transportation Surveys Ltd. also undertook Automatic Traffic Counter (ATC) surveys spanning 1 week. These were undertaken using Pneumatic Tube Counters which are the most common type of ATCs for short-term studies. Rubber tubes are laid across the road, and when vehicles pass over them, air pulses are generated and recorded, providing a count of the number of vehicles. They can count vehicles and classify them by type (e.g., cars, vans, trucks, buses) based on their size and axle count. ATCs also capture the speed of each vehicle. Traffic volume and vehicle classification data are used together with road condition surveys to estimate road wear and inform decisions on maintenance schedules and upgrades. Typically, a one-week study provides enough data to capture traffic variations across different days of the week, including weekdays and weekends allowing Road Authorities to understand daily traffic peaks and off-peak patterns without the need for long-term data collection. The ATC surveys were undertaken on L1113 Coolbeg Road, Local Road L1157 and on Regional Road R772. The locations are identified in Figure 14-4 below.

14.85 The traffic flow data from the April 2024 surveys, combined with the traffic flows arising at the permitted quarry development constitute the baseline and the basis of the assessments of road network capacity and the assessment of the likely impact of the proposed development on the operation of the receiving road network.

Existing Traffic Flows on Local Road Network

14.86 In relation to general roads geometry, the principal 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 turning traffic generated at junctions and accesses.

14.87 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). The ATC recorded traffic data for one week starting at midnight on Thursday 11th April 2024 and ending at midnight on Thursday 18th April 2024. In addition, classified turning count surveys were undertaken at the existing site access, at the L1113 / L1157 priority junction and L1157 / R772 priority junction on Thursday 18th April 2024. ATC equipment was installed as follows:

- ATC Site 1: L1113 Coolbeg Road
- ATC Site 2: L1157 to the east of the existing Ballinclare Quarry access
- ATC Site 3: R772 North of junction with L1157

14.88 The traffic survey locations are shown in **Figure 14-4**. The traffic data collected in April 2024 during the school term and being aged less than 2 years it is considered valid for use in these analyses.

14.89 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-A**.

14.90 Existing traffic flows along Local Road L1157 and Local Road L1113 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 CA185 'Vehicle Speed Measurement'.

Figure 14-4
Traffic Survey Locations

Local Road L1157

14.91 Analysis of the traffic flow data recorded at the ATC2 counter site on L1157 is summarised in the following graphical output summarised in **Figure 14-5** which shows the total daily traffic flow by direction for each day of the week.

14.92 By direction, the average weekday total daily traffic flow passing the existing site access location on Local Road L1157 is 225 No. vehicles per day northbound (toward L1113) and 211 No. vehicles per day southbound (toward R772).

14.93 **Figure 14-6** 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 follow a normal distribution with discernible but not significant morning or evening peak hour periods.

14.94 The average traffic flow recorded for each hour of the weekday over the course of the survey between the hours of 07:00 and 19:00 hrs is 16 No. vehicles northbound and 15 No. vehicles southbound per hour.

14.95 The weekday morning peak hour during the traditional commuter peak hour period of 08:00 to 09:00 hrs shows the road carries 16 No. vehicles northbound and 19 No. vehicles southbound.

14.96 The weekday evening peak hour period during the traditional commuter peak of 17:00 to 18:00 hrs shows the road carries 16 No. vehicles northbound and 18 No. vehicles southbound.

14.97 The traffic data shows similar flow on the road on Saturday but the highest daily flows are shown to occur on Sunday. In response to feedback from public consultations, Kilsaran has given a commitment that no work other than general housekeeping (site management) activities and plant maintenance will take place at the application site on Saturdays. The facility will be closed on Sundays and Public / Bank Holidays.

Figure 14-5
2024 Surveyed Daily Total Traffic Flows L1157 (ATC2)

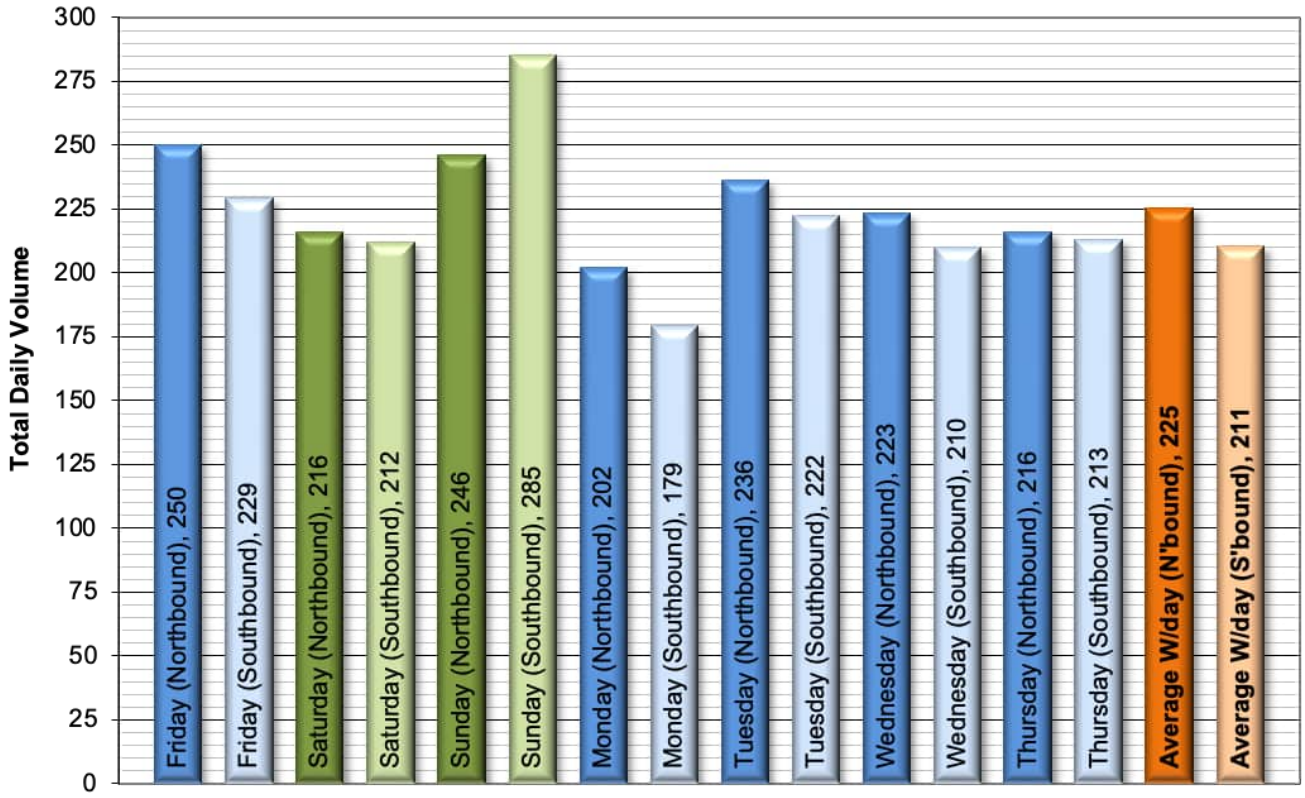
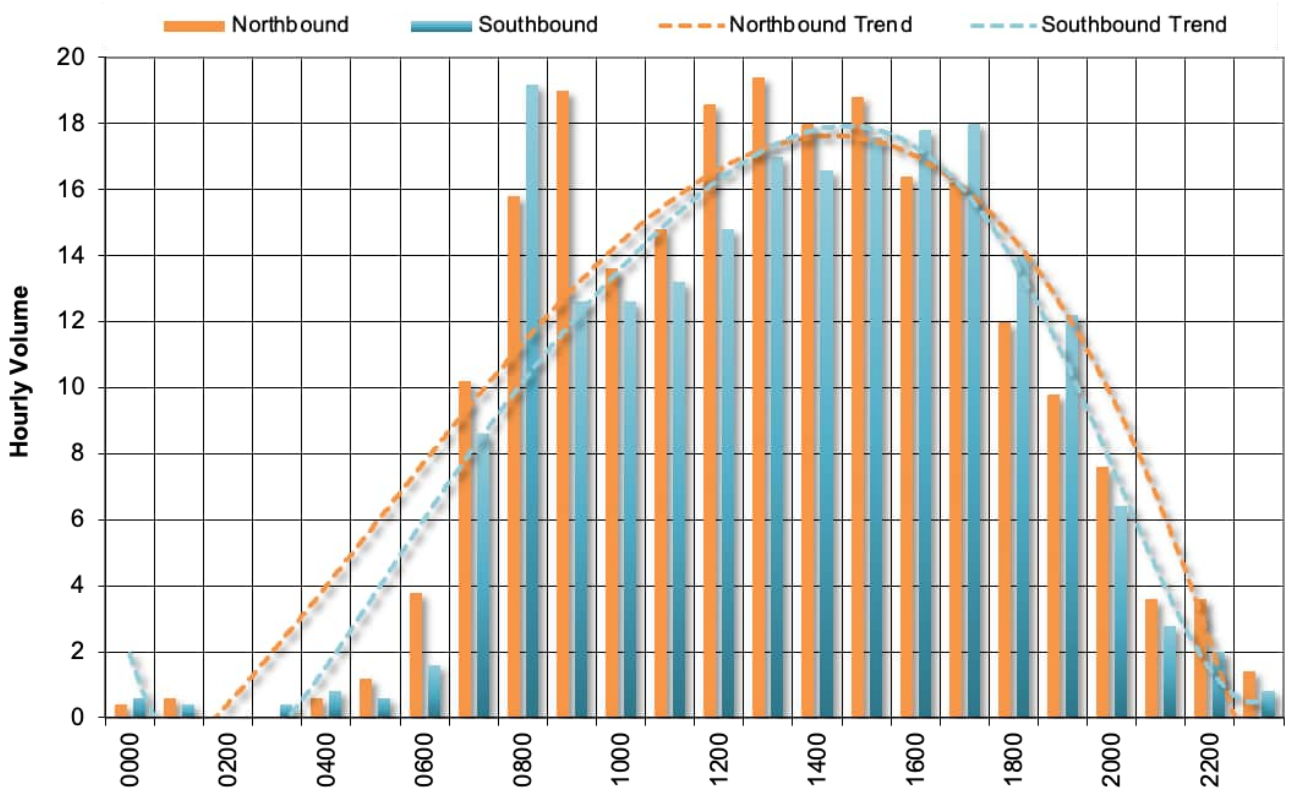


Figure 14-6
2024 Surveyed Hourly Total Traffic Flows L1157 (ATC2)



14.98 The volume of HGV traffic recorded on Local Road L1157 in the 2024 surveys is summarised separately in the graphical output provided in **Figure 14-7** and **Figure 14-8**. It is noted that Ballinclare Quarry was closed and not operational at the time of the traffic surveys. The surveys therefore establish a traffic flow scenario where no development takes place. This data can be used to establish a baseline scenario from which comparable scenarios between the traffic generation of the current permitted extractive operation and the proposed SID development can be prepared and assessed.

14.99 **Figure 14-7** shows the average weekday daily HGV traffic flow is 17 No. vehicles per day northbound (toward L1113 Coolbeg Road) and 16 No. vehicles per day southbound (toward R772). The lowest daily traffic flow is Monday with 4 No. HGV in either direction in 24 hours whilst the highest daily flow occurred on Tuesday with 26 No. HGV northbound and 20 No. southbound.

14.100 **Figure 14-8** shows the profile for the average weekday daily HGV flow which 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). **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 19:00 hrs is 1 No. HGV northbound and 1 No. HGV southbound per hour.

14.101 The morning peak hour in HGV traffic occurs between 09:00 to 10:00 hrs which is after the traditional commuter peak hour period of 08:00 to 09:00 hrs. During the weekday HGV morning peak hour 09:00 to 10:00 hrs the road carries an average two-way flow of 4 No. HGV. The evening peak hour period occurs between 15:00-16:00 hrs when an average of 2 No. HGV are recorded in either direction.

Figure 14-7
2024 Surveyed Daily HGV Traffic Flows L1157 (ATC2)

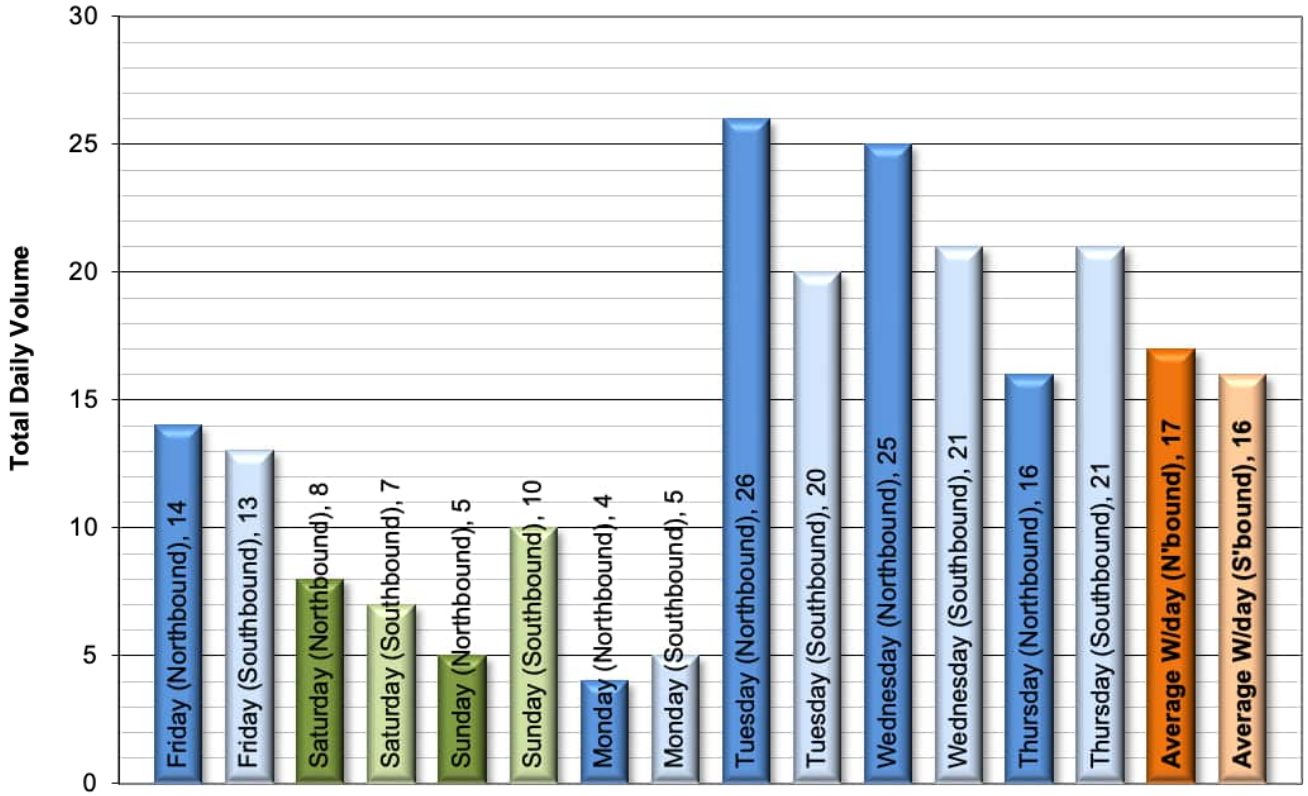
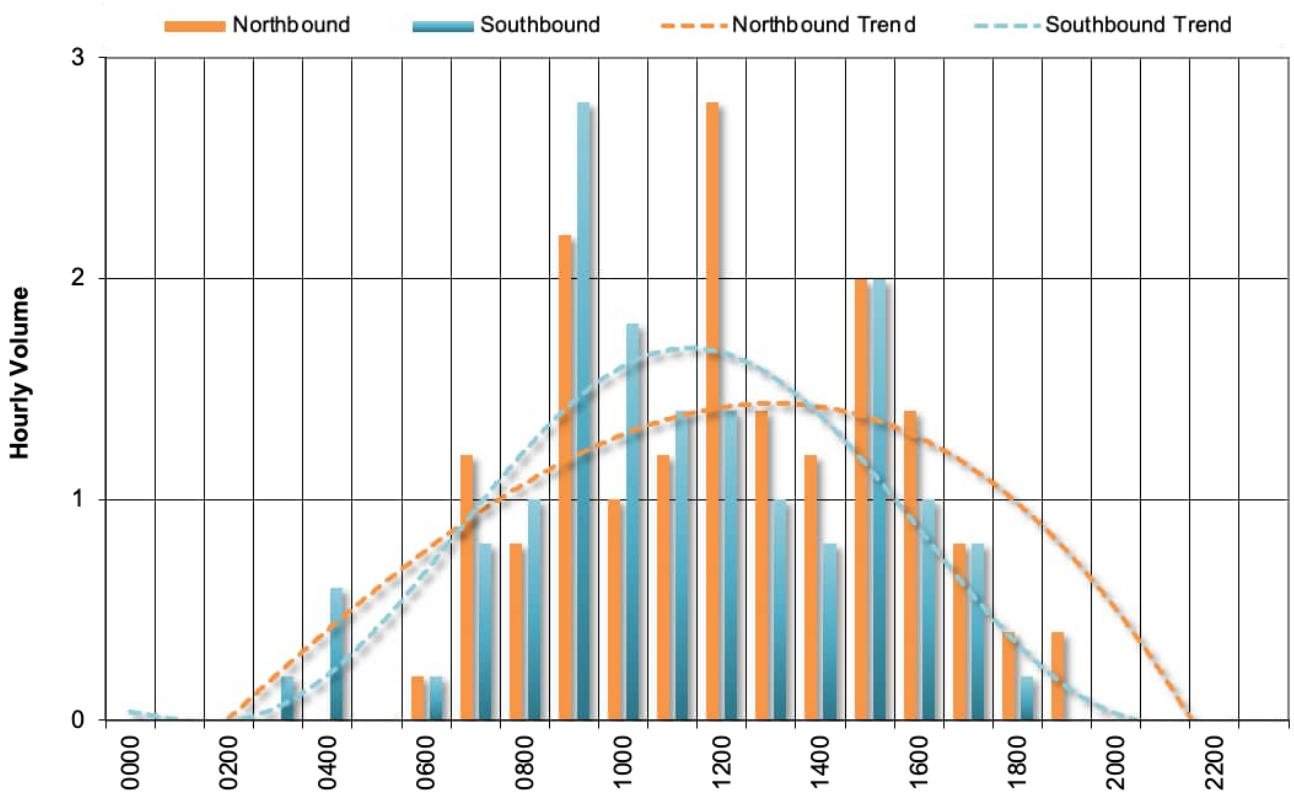


Figure 14-8:
2024 Surveyed Daily HGV Traffic Flows L1157 (ATC2)



Local Road L1113 – Coolbeg Road

14.102 Analysis of the traffic flow data recorded by the ATC1 on L1113 is summarised in the following graphical output in Figure 14-9 which shows the total daily traffic flow by direction for each day of the week.

14.103 By direction, the average weekday total daily traffic flow on Local Road L1113 Coolbeg Road to the north of the junction with Local Road L1157 is 629 No. vehicles per day northbound (toward Beehive) and 663 No. vehicles per day southbound. The lowest daily traffic flow occurred on Wednesday with 608 No. vehicles northbound and 620 No. southbound over a 24-hour period, whilst the highest daily flow occurred on Sunday with 794 No. vehicles northbound and 792 No. southbound. The average weekday two-way total traffic flow on L1157 is 436 No. vehicles in the period 07:00-19:00 hrs, the equivalent value for L1113 Coolbeg Road is 1,292 vehicles. In general terms the L1113 carries 3 times the total volume of traffic recorded on the L1157.

14.104 **Figure 14-10** shows the recorded average weekday hourly traffic flow over the course of the weeklong survey. The profile for the average daily weekday flows shows 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 shows a predominant northbound flow toward M11 Junction 18 in the morning and a reversal of flows in the evening.

Figure 14-9
2024 Surveyed Daily Total Traffic Flows L1113 (ATC1)

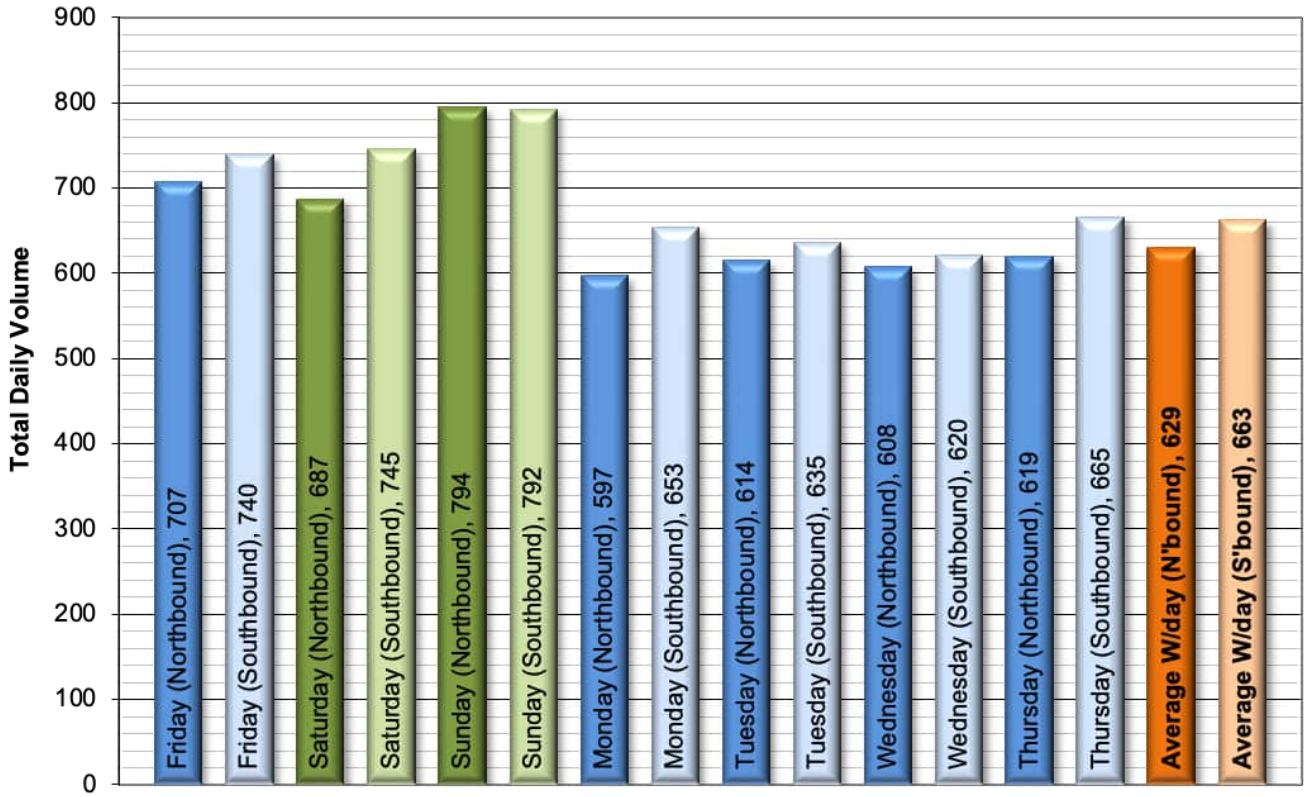
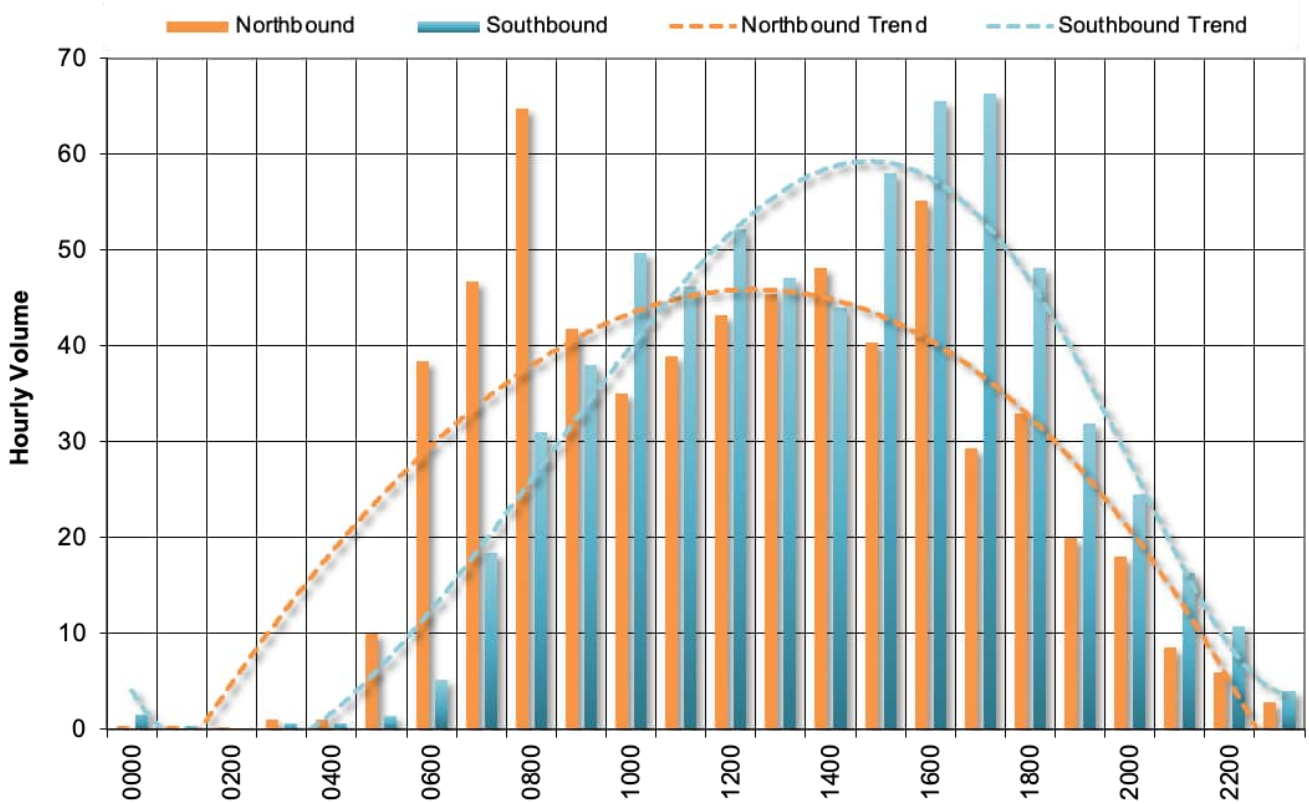


Figure 14-10
2024 Surveyed Hourly Total Traffic Flows L1113 (ATC1)



14.105 The average traffic flow recorded for each hour of the weekday over the course of the survey between the hours of 07:00 and 19:00 hrs is 42 No. vehicles northbound and 46 No. vehicles southbound per hour. The weekday morning peak hour during the traditional commuter peak hour period of 08:00 to 09:00 hrs shows the road carries 65 No. vehicles northbound and 31 No. vehicles southbound. The weekday evening peak hour period during the traditional commuter peak of 17:00 to 18:00 hrs shows the road carries 29 No. vehicles northbound and 66 No. vehicles southbound thus confirming the tidal nature of traffic flow.

14.106 The volume of HGV traffic recorded in the surveys is summarised separately in the graphical output provided in **Figure 14-11** and **Figure 14-12**. As before, it is noted that Ballinclare Quarry was closed and not operational at the time of the traffic surveys.

14.107 **Figure 14-11** shows the average weekday daily HGV traffic flow is 27 No. vehicles per day northbound (toward Beehive) and 29 No. vehicles per day southbound. The lowest daily traffic flow is Sunday with 5 No. HGV travelling northbound and no HGV travelling southbound in 24 hours whilst the highest daily flow occurred on Monday with 27 No. HGV northbound and 35 No. southbound.

14.108 **Figure 14-12** 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 19:00 hrs is 2 HGV northbound and 2 HGV southbound per hour.

14.109 The morning peak hour in HGV traffic occurs between 09:00 to 10:00 hrs which is after the traditional commuter peak hour period of 08:00 to 09:00 hrs. During the weekday HGV morning peak hour 09:00 to 10:00 hrs the road carries a flow of 3 No. HGV in either direction. The evening peak hour period is for HGV precedes the commuter peak hour and occurs closer to 16:00 hrs when there is 2 No. HGV travelling in either direction.

Figure 14-11
2024 Surveyed Daily HGV Traffic Flows L1113 (ATC1)

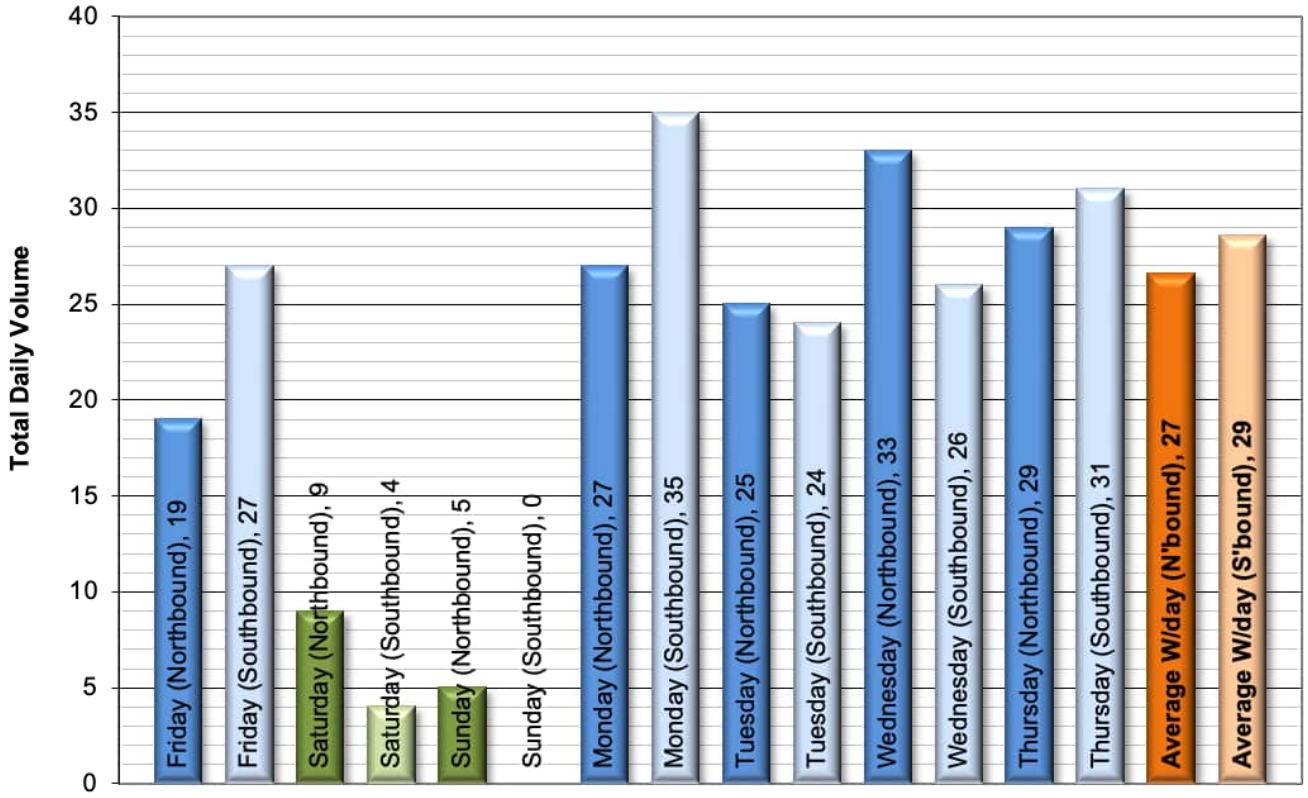
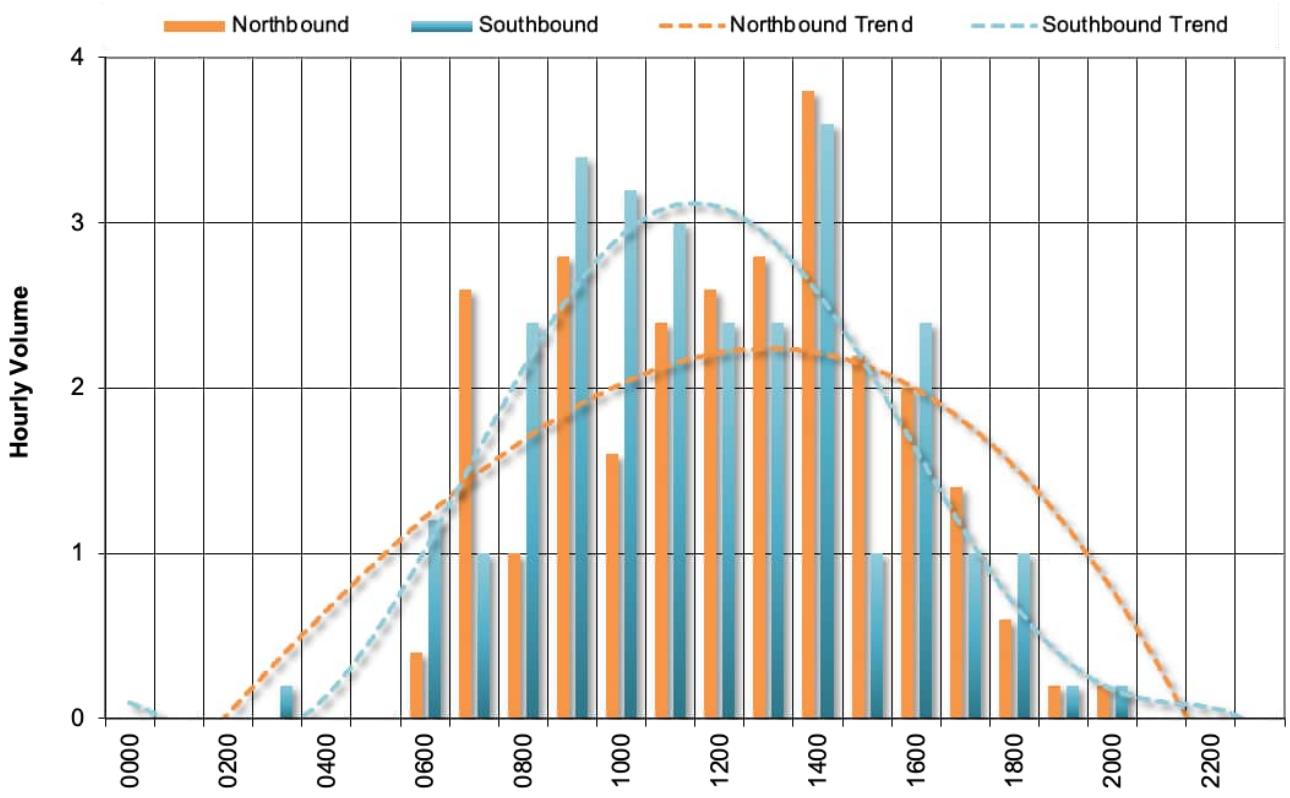


Figure 14-12
2024 Surveyed Daily HGV Traffic Flows L1113 (ATC1)



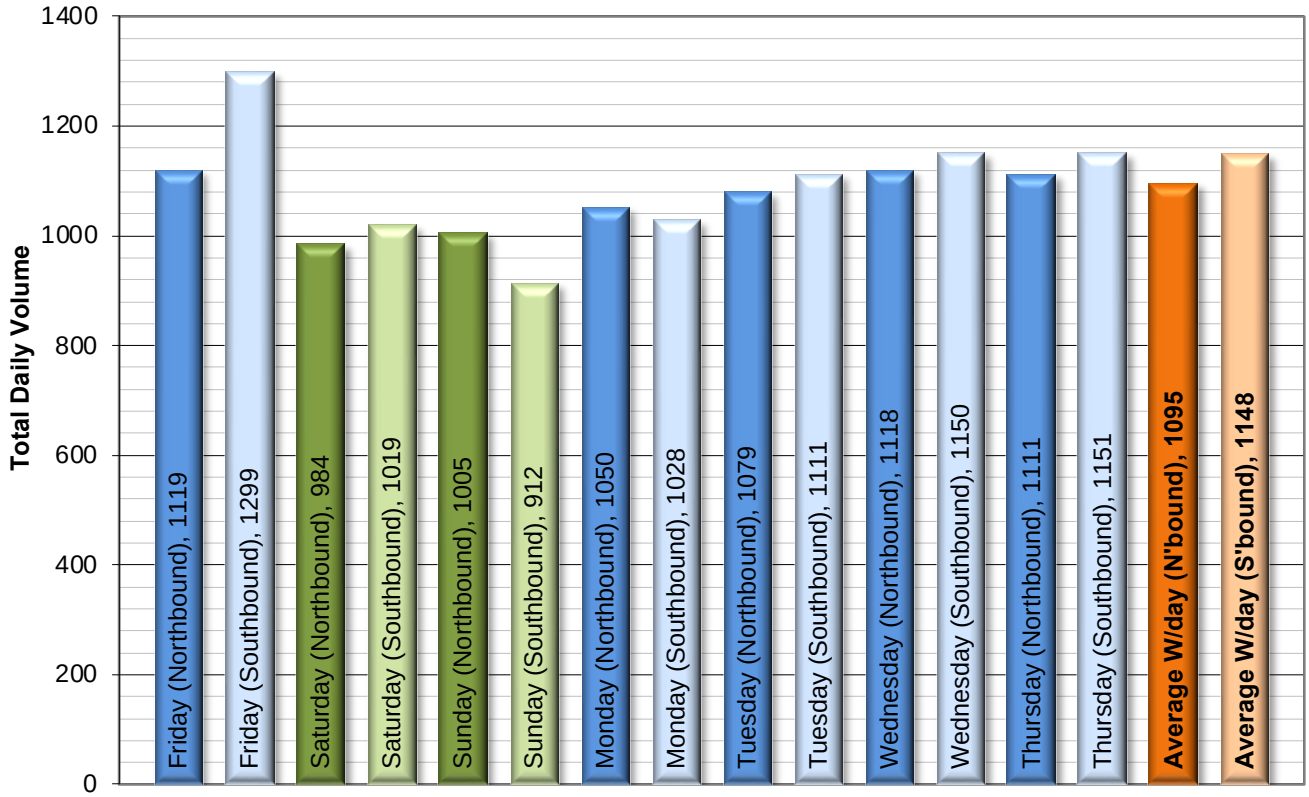
Regional Road R772

14.110 Analysis of the traffic flow data recorded by the ATC3 on R772 is summarised in the following graphical output in **Figure 14-13** which shows the total daily traffic flow by direction for each day of the week.

14.111 By direction, the average weekday total daily traffic flow on Regional Road R772 to the north of the junction with Local Road L1157 is 1,095 vehicles per day northbound (toward Beehive) and 1,148 No. vehicles per day southbound. The lowest daily traffic flow occurred on Sunday with 1,005 No. vehicles northbound and 912 No. southbound over a 24-hour period, whilst the highest daily flow occurred on Friday with 1,119 No. vehicles northbound and 1,299 No. southbound. Reference to TII Traffic Counter[2] data for count site N11-17 Jack Whites, located on the N11 approx. 11km north of Arklow, shows the former N11 carried an Annual Average Daily Traffic flow (AADT) in 2012 in the order of 17,925 vehicles with a 5.9% HGV content. The recorded average daily flow has reduced by approximately 87% or is 8 times lower than the 2012 flows whilst the proportion of HGV is similar at 6.5%.

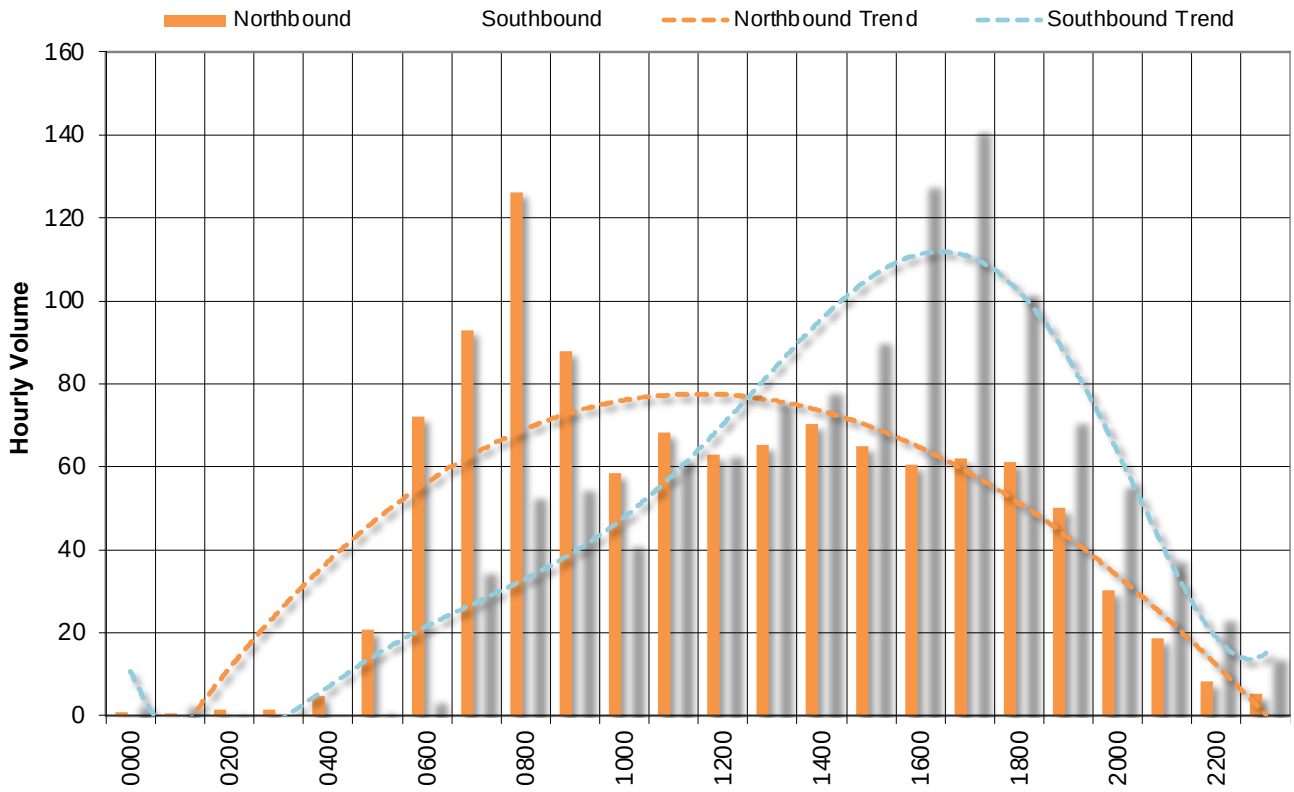
14.112 **Figure 14-14** shows the recorded average weekday hourly traffic flow over the course of the weeklong survey. The profile for the average daily weekday flows shows evidence of a tidal commuter traffic pattern typically observed on regional and national roads which tend to show peaks in one direction at the traditional commuting periods in the morning with a reversal in the predominant direction of flow during the evening peak. The predominant flow is northbound in the morning and southbound in the evening.

Figure 14-13
2024 Surveyed Daily Total Traffic Flows R772 (ATC3)



[2] https://www.tii.ie/en/roads-tolling/operations-and-maintenance/traffic-count-data/

Figure 14-14
2024 Surveyed Hourly Total Traffic Flows R772 (ATC3)



14.113 The average traffic flow recorded for each hour of the weekday over the course of the survey between the hours of 07:00 and 19:00 hrs is 72 No. vehicles northbound and 77 No. vehicles southbound per hour. The weekday morning peak hour during the traditional commuter peak hour period of 08:00 to 09:00 hrs shows the road carries 126 No. vehicles northbound and 53 No. vehicles southbound. The weekday evening peak hour period during the traditional commuter peak of 17:00 to 18:00 hrs shows the road carries 62 No. vehicles northbound and 142 No. vehicles southbound thus confirming the tidal nature of traffic flow.

14.114 The volume of HGV traffic recorded in the surveys is summarised separately in the graphical output provided in **Figure 14-15** and **Figure 14-16**. As before, it is noted that Ballinclare Quarry was closed and not operational at the time of the traffic surveys. The surveys therefore establish a traffic flow scenario where no development takes place.

14.115 **Figure 14-15** shows the average weekday daily HGV traffic flow is 36 No. vehicles per day northbound (toward Beehive) and 35 No. vehicles per day southbound. The lowest daily traffic flow is Sunday with 9 No. HGV travelling northbound and 7 No. HGV travelling southbound in 24 hours whilst the highest daily flow occurred on Thursday with 45 No. HGV northbound and 41 No. southbound.

Figure 14-15
2024 Surveyed Daily HGV Traffic Flows R772 (ATC3)

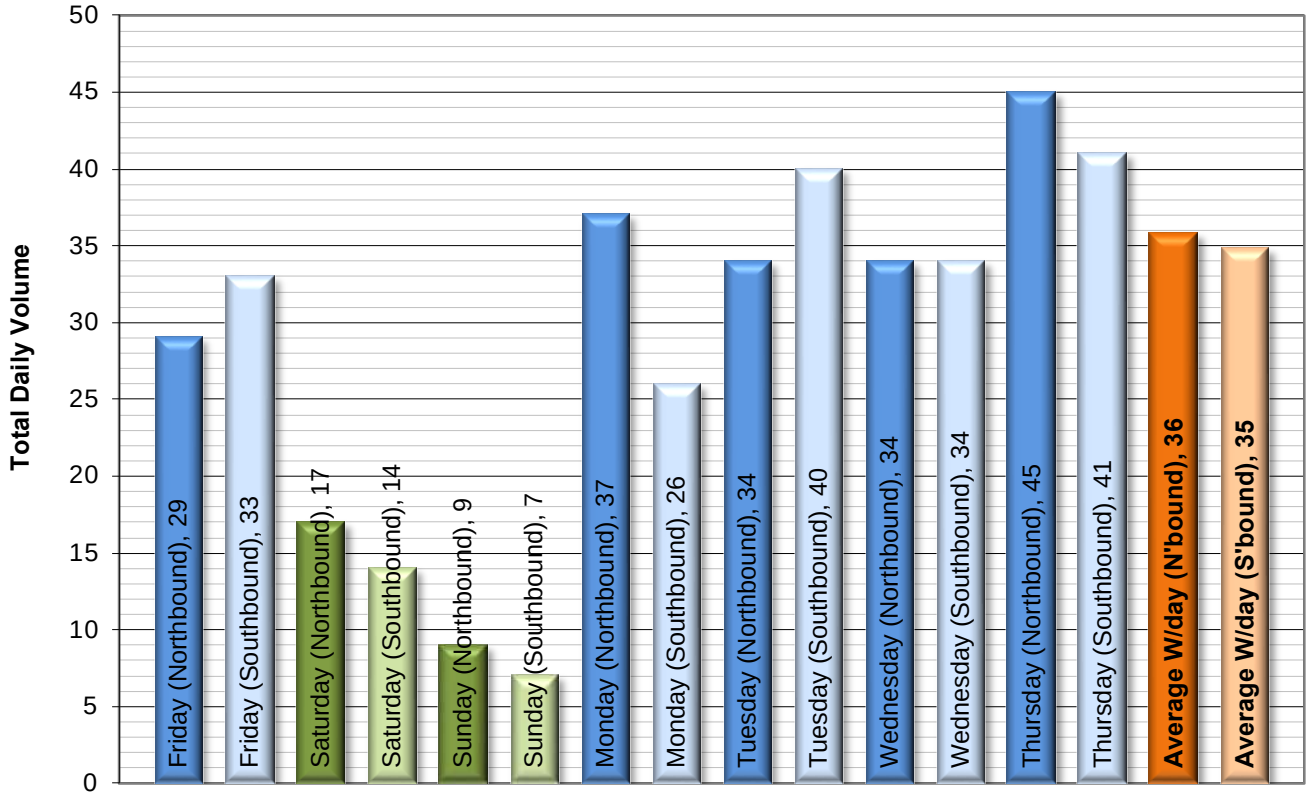
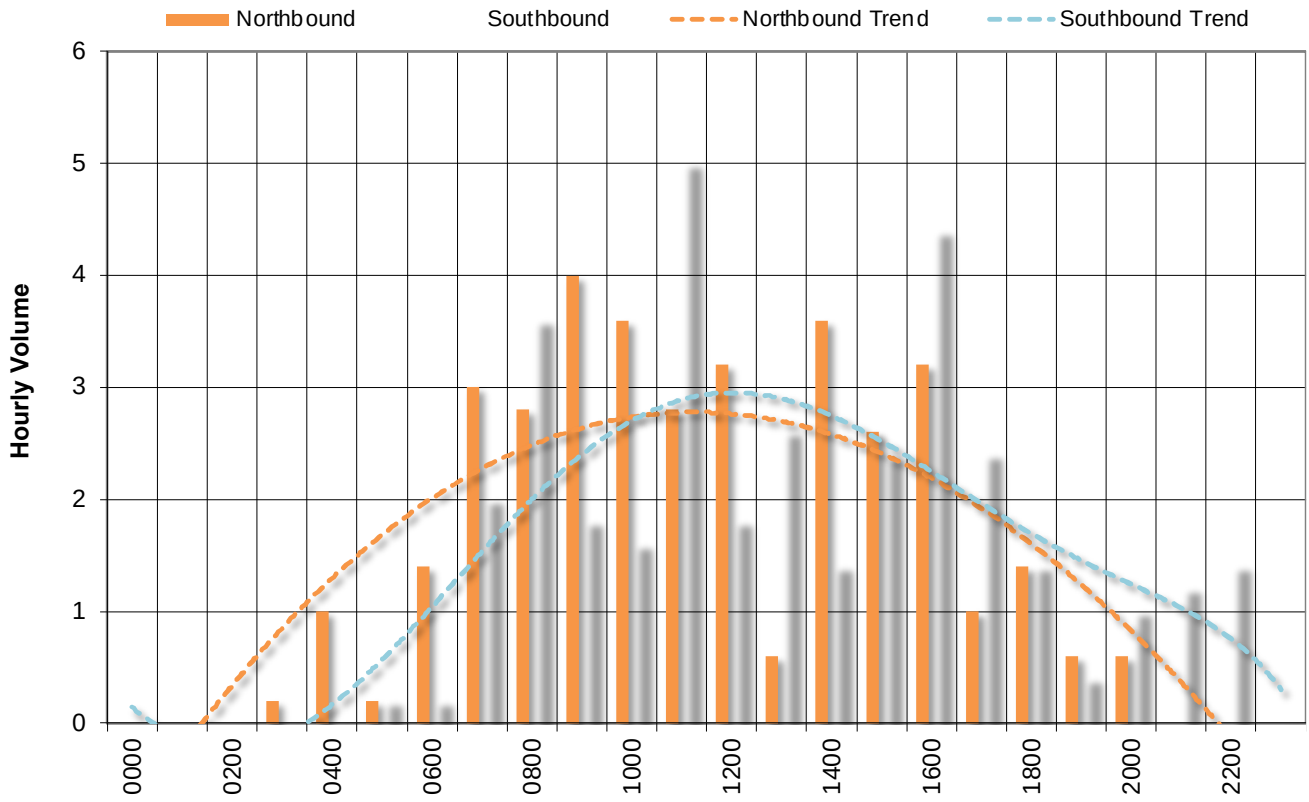


Figure 14-16
2024 Surveyed Daily HGV Traffic Flows R772 (ATC3)



14.116 **Figure 14-16** 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 19:00 hrs is 2 No. HGV northbound and 2 No. HGV southbound per hour.

14.117 The morning peak hour in HGV traffic occurs between 09:00 to 10:00 hrs which is after the traditional commuter peak hour period of 08:00 to 09:00 hrs. During the weekday HGV morning peak hour 09:00 to 10:00 hrs the road carries a flow of 3 No. HGV in either direction. The evening peak hour period is for HGV precedes the commuter peak hour and occurs closer to 16:00 hrs when there is 2 No. HGV travelling in either direction.

Receiving Road Network Traffic Flows

14.118 Daily traffic flows recorded on the receiving road network during the course of a survey on Thursday 18th April 2024 are shown in the following **Figure 14-17** which presents the traffic flow data in network flow diagram format. The car and light vehicle flow figures are shown 'blue' and the HGV flows are bracketed and shown '(red)'.

14.119 Also shown on **Figure 14-17** 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 Ref. 14/2118). The sum of these two traffic flows is taken as the baseline traffic scenario for the assessment of the effects of traffic arising from the proposed development.

14.120 **Table 14-1** below provides a summary of the recorded traffic flows on the receiving road network during the turning count surveys on Thursday 18th April 2024. **Table 14-1** shows the recorded traffic flow and percentage HGV content enumerated between 07:00 and 19:00 hrs.

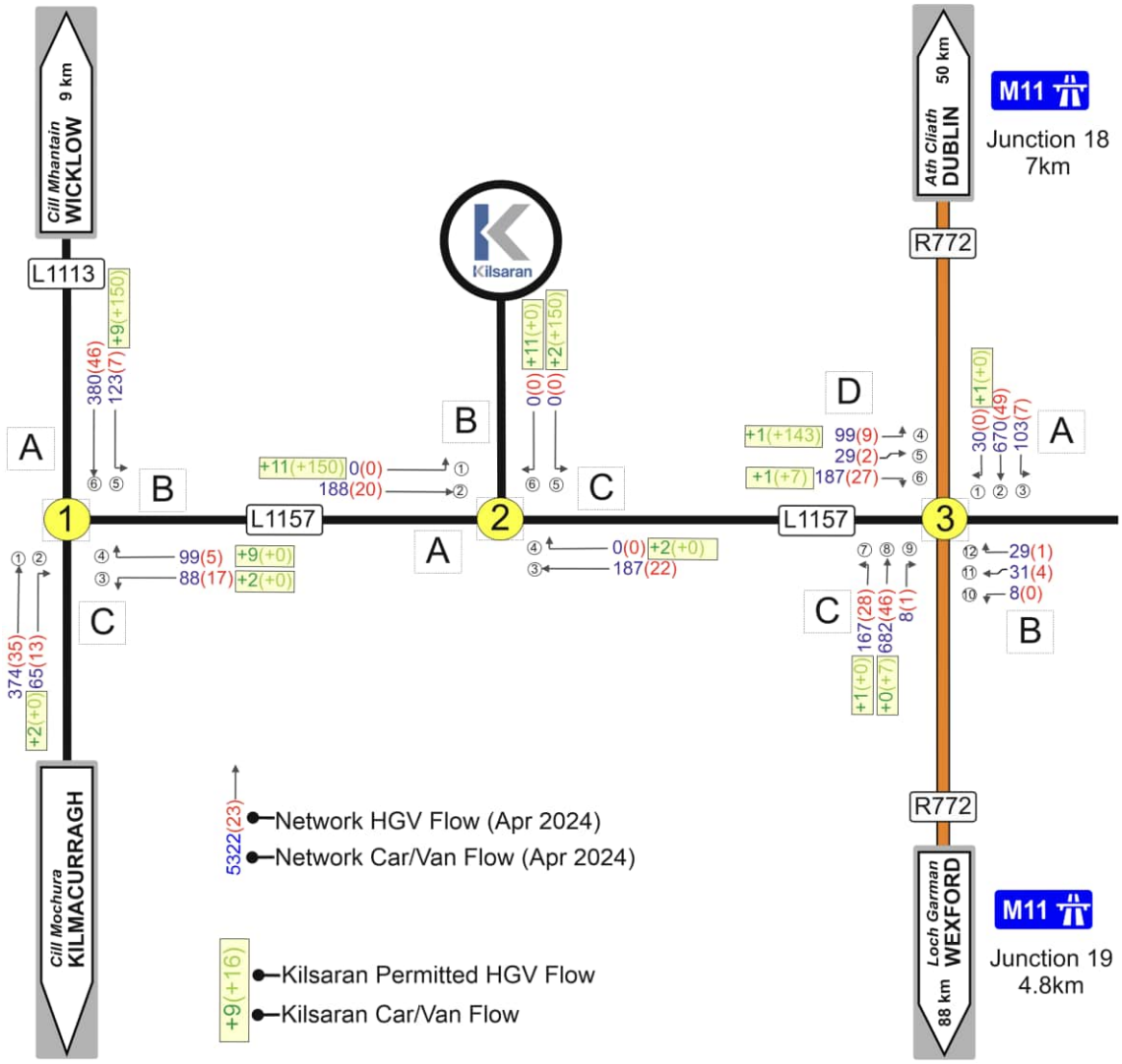
14.121 Annual Average Daily Traffic (AADT) is a measure used in traffic and transport planning to represent the average number of vehicles passing a specific point on a road each day, over the course of a year. It is a widely used metric for assessing traffic volumes and is critical in the planning, management, maintenance and evaluation of road infrastructure and transport systems. AADT is used in designing pavement structures, and designing pavement strengthening and maintenance works as heavier traffic volumes and heavier vehicles cause more wear and tear. Engineers use AADT to estimate how much load the road will bear over its lifespan and choose appropriate materials and construction.

14.122 Based upon TII Publication PE-PAG-02039 'Project Appraisal Guidelines for National Roads Unit 16.1: Expansion Factors for Short Period Traffic Counts' (Oct 2016) the weekday AADT on national roads can be estimated to be approximately 28.3%[3] higher than the flows recorded during the 12-hour surveys. This is not always the case with local roads. Since both short term and weeklong surveys have been carried on all three roads the AADT can be estimated by reference to the ATC data as set out in the following.

14.123 The short-term count data at Traffic Count Site 2 on L1157 shows 417 (10.1% HGV) over the 12-hour count. ATC2 data for the week shows an average daily 24-hour flow of 448 (6.3% HGV) which suggests that the short-term data for Local Road L1157 should be factored by 7.4% to reflect the recorded 24hr data.

[3] Cumulative Volume 07:00-19:00 hrs 0.771, Weekday Index 0.94, Monthly Index 0.99

Figure 14-17
2024 Surveyed and Baselines Daily Network Traffic Flows



14.124 The short-term count data at Traffic Count Site 1 on L1113 shows 1,069 (8.6% HGV) over the 12-hour count. ATC1 data for the week shows an average daily 24-hour flow of 1,354 (3.1% HGV) which suggests that the short-term data for Local Road L1113 should be factored by 26.6% to reflect the recorded 24hr data.

14.125 The short-term count data at Traffic Count Site 3 on R772 shows 1,725 (6.5% HGV) over the 12-hour count. ATC3 data for the week shows an average daily 24-hour flow of 2,163 (2.6% HGV) which suggests that the short-term data for Regional Road R772 should be factored by 25.4% to reflect the recorded 24hr data.

14.126 These figures suggest that the data collection for the L1113 and R772 are representative of typical daily traffic flows. As the previous analyses shows, both these routes are commuter routes that are relatively heavily trafficked when compared to the local road L1157 connecting them. Since the data for L1113 and R772 is close to that expected when measured against national statistics, it follows as reasonable that the data for L1157 is similarly likely to be representative of typical daily traffic flows locally on that road.

14.127 In the interest of simplicity for purposes of this assessment, the AADT values of **Table 14-1** are approximated for the L1157, L1113 and R772 based upon the 12-hour turning count

data factored by +7.4%, 26.6% and 25.4% respectively, to which the monthly flow index of PE-PAG-02039 has then been applied.

Table 14-1
2024 Surveyed Receiving Road Traffic Flows (18 April 2024)

Road Link	Daily Traffic Flows 07:00-19:00 hrs			AADT
	Total	HGV	%HGV	
L1157 (E)	417	42	10.1%	448
L1113 (N)	1,069	93	8.6%	1,353
R772 (N)	1,725	112	6.5%	2,163

14.128 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 2024 surveys are as follows:

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

14.129 **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
2024 Surveyed AM Peak Hour Traffic Flows (18 April 2024)

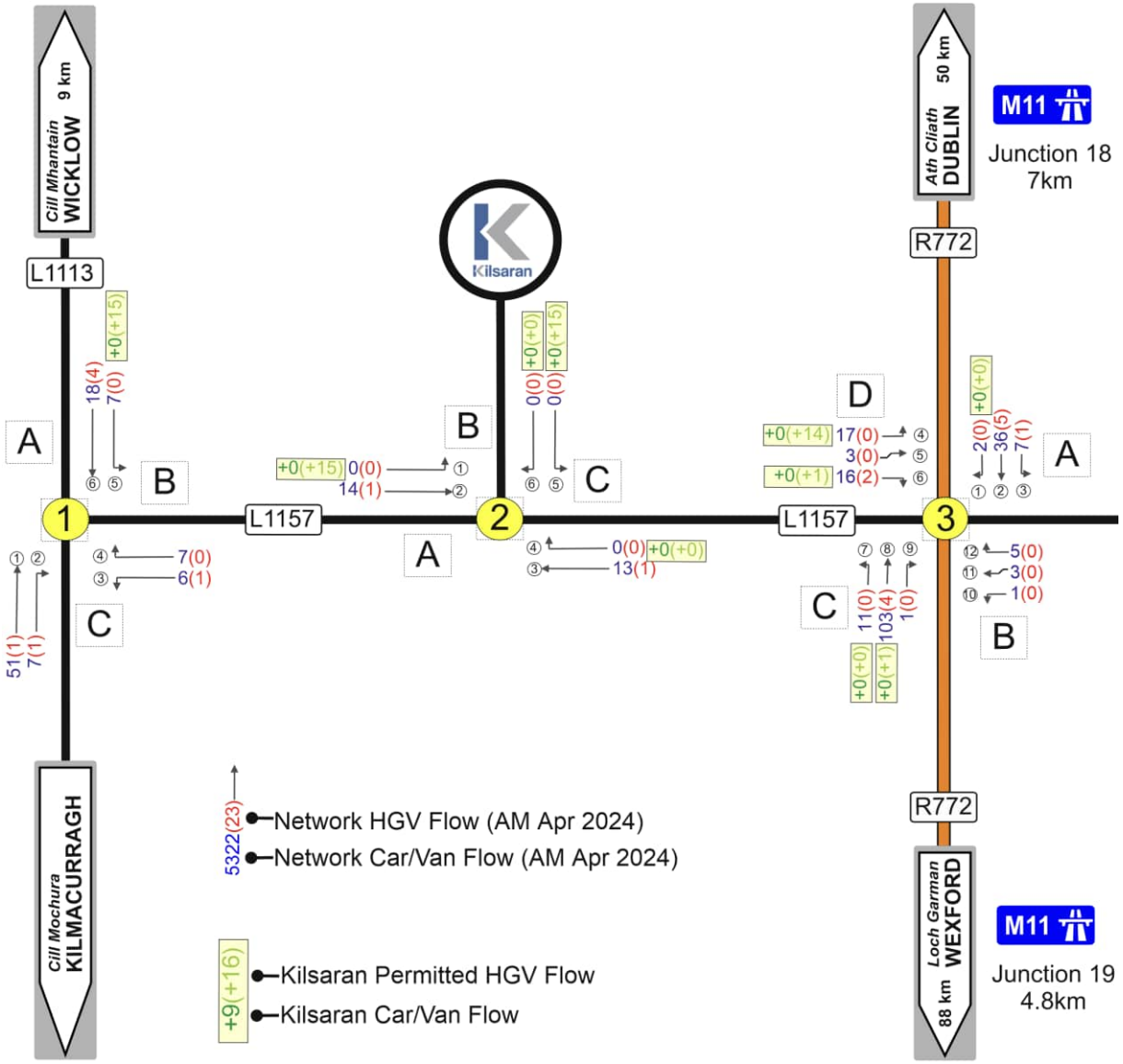
Road Link	Total Traffic	HGV	%HGV
L1157	29	2	6.9%
L1113 (N)	88	5	5.7%
R772 (N)	180	10	5.6%

Table 14-3
2024 Surveyed PM Peak Hour Traffic Flows (18 Apr 2024)

Road Link	Total Traffic	HGV	%HGV
L1157	31	5	16.1%
L1113 (N)	98	6	6.1%
R772 (N)	185	4	2.2%

14.130 The morning peak hour traffic flows recorded on the receiving road network during the course of the Thursday 18th April 2024 survey are shown in the following **Figure 14-18** which presents the traffic flow data in network flow diagram format. The car and light vehicle flow is shown 'blue' and the HGV flow '(red)'.

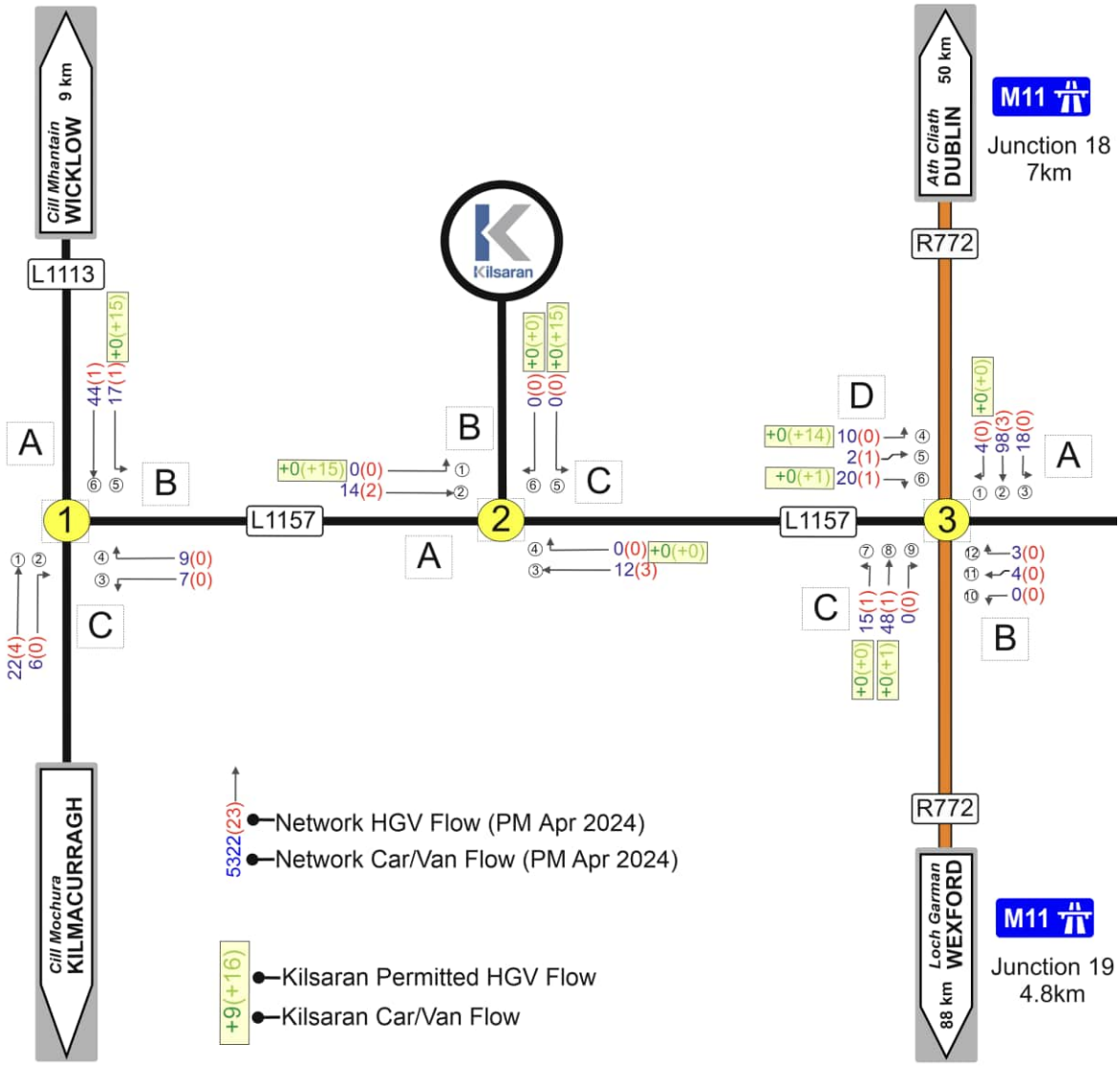
Figure 14-18
2024 Surveyed and Baseline Morning Peak Hour Network Traffic Flows



14.131 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 Ref. 14/2118 (Condition 5) are shown separately in **Figure 14-18**. These figures are based upon the average hourly traffic generation arising at the permitted quarry development. Both sets of flows are considered conjunctively as the baseline traffic scenario for the assessment of the effects of development traffic on the receiving road network.

14.132 The corresponding evening peak hour traffic flows recorded on the receiving road network during the course of the Thursday 18th April 2024 survey are shown in the following network flow diagram of **Figure 14-19** 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 14-19
2024 Surveyed & Baseline Evening Peak Hour Network Traffic Flows



Site Access Junction

14.133 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.

Vehicle Reception and Weighbridge

14.134 Existing 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. There is currently ample linear queuing space for up to 10 No. HGVs. There are no records of queuing on the public road over the history of the operation of the existing site.

14.135 In the interest of traffic management and efficient administration of entry to the site, it is proposed to enhance and develop the existing entry regime. The proposed alterations to the existing site entry layout are shown on **Appendix 14-C** Trafficwise Drawing No. 02991-

20-INT-01 'Proposed Entry System – Sightlines, Entry Lane and Weighbridge'. It is not proposed to alter the existing access junction to L1157.

14.136 In brief, the proposal includes for the assignment of the existing entry lane as a dedicated light vehicle access to be used by those not needing to traverse the weighbridge prior to entry to the works areas. The dedicated light vehicles lane will be segregated from 2 No. dedicated entry lanes for HGV. These HGV lanes will be developed to parallel the existing entry route.

14.137 At the northern end of the HGV lanes there will be a new weighbridge. Adjacent to the weighbridge is a 'weighbridge bypass lane'. **Appendix 14-C** Trafficwise Drawing No. 02991-20-INT-02 'Proposed Entry System – Queuing Provision' shows the queuing capacity of the entry arrangement is in the order of 18 No. articulated tipper vehicles.

14.138 The bypass lane allows for various scenarios including periods of maintenance on the new weighbridge where the new layout permits HGV to enter the site, turn around at an internal roundabout and use the existing weighbridge before re-entering the entry lanes to re-circulate into the works area. This recirculation manoeuvre is shown in Drawing No. 02991-20-INT-02. The circulation regimen has the potential to increase the queuing capabilities of the entry system by more than 10 No. vehicles. Such queuing is considered highly unlikely to occur, nevertheless, the system that has been developed lends itself to the incorporation of a significant level of redundancy.

Receiving Road Condition

Previous Road Condition Surveys

14.139 A detailed structural analysis of the full length of the former 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).

14.140 The structural analysis was carried out by Milestone Pavements Technologies and the results of the analysis was presented in a report entitled 'Haul Route Structural Analysis Survey – Ballinclare Quarry' dated June 2015. A full copy of the road condition survey report is provided in **Appendix 14-B**. The assessment and analyses 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.

14.141 The results of the structural analysis suggested that, subject to routine general road maintenance and strengthening works, the former 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.

14.142 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 and permitted traffic volumes. Maintenance would be required irrespective of any increase in traffic volumes arising from the development permitted planning under Planning Ref. 14/2118. The results of the earlier structural analysis suggest that to accommodate permitted traffic levels over the following 20 years (typical pavement design life), the proposed haul route would require ongoing strengthening and maintenance works.

14.143 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.

14.144 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.

14.145 In order to accommodate the permitted traffic levels, the WCC Roads Department required some sections of the haul route to undergo maintenance and strengthening works. Milestone 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, confirmed and agreed.

14.146 The resulting (i.e. current) quarry permission under Planning Ref. 14/2118 included Condition 7 which relates directly to those sections of road for which strengthening, widening an overlay works are required. These sections are identified in a planning submission received by the Planning Authority on 4 November 2015 prepared in an Applicant response to a request for further information which provided specific details of the roads strengthening, widening and overlay works that had been agreed.

14.147 In evaluating the EIAR mitigation measures including road strengthening and improvement works set out in the previous SID application (Ref. No. ABP-309991-21), the Roads Authority had regard to the 2015 road condition survey. No new survey was considered necessary for its evaluation and the agreement to the schedule of works.

Road Condition Survey 2024

14.148 When carrying out the recent joint walkover survey of L1157 with the Arklow Municipal District Senior Executive Engineer on 23rd September 2024, the inspection included reference to the road strengthening works set out in the previous SID application (under Ref. No. ABP-309991-21) and included direct reference to the drawings that accompanied that application. It was agreed that but for some minor additional sections (enlargement of previously identified sections) the road did not appear from visual inspection to have significantly degraded structurally since the previous road condition surveys were conducted. Those areas previously identified as crazed and liable to water ingress were expected to have been weakened more than places where the integrity of the upper layers were intact or in better condition.

14.149 Notwithstanding the observed condition of the haul route, given the passage of time since the 2015 road condition survey of the one-way haul route, a new detailed structural analysis of the full length of the L1157 from Ballinclare Quarry to the junction with R772 was undertaken in July 2024. The structural analysis was again carried out by Milestone Pavements Technologies and the results of the analysis was presented in a report entitled 'Falling Weight Deflectometer Survey' dated July 2024. A full copy of the road condition survey report is provided in **Appendix 14-B**. The survey comprises the same type of road strength analysis and follows the same methodology as before and includes Falling Weight Deflectometer (FWD) testing and a visual condition survey, together with coring of the pavement.

14.150 A comparison with results from the previous survey indicate that the pavement is weaker than in 2015 as would be expected, but is not significantly weaker. In both surveys, those areas where the overall pavement was weakest were found to correspond with a weak sub-grade. Any deterioration in pavement condition is more pronounced in the areas that were weakest in 2015. This would also be expected, as weaker pavements tend to let water into

the structure which will accelerate the deterioration. These areas correspond with the areas identified for carriageway strengthening works.

14.151 When a road subgrade becomes weak, it compromises the structural integrity of the entire carriageway. Strengthening works in such situations typically involve subgrade improvement works by excavation to remove the weak subgrade and replacing it with stronger, compacted fill material. Alternatively, where the subgrade is not too poor it can be stabilised where the subgrade is treated with materials like lime, cement, or fly ash to improve load-bearing capacity and reduce plasticity and moisture sensitivity. Geogrids and geotextiles, or other synthetic materials can be used to improve subgrade stability and distribute loads more effectively. The choice of strengthening work is confirmed when the road layers have been excavated.

14.152 After subgrade improvement the Base and Sub-base layers are replaced to restore proper strength and durability. Typically, a new asphalt layer overlay is used to improve surface durability and to distribute loads more effectively. These measures together address identified structural deficiencies and help restore road load-bearing capacity, durability, and overall performance.

14.153 It is noted that the road condition surveys provide a back-analysis for strengthening in which case the road strengthening is based upon an equivalent overlay. The results of the analyses between the 2015 and 2024 road condition surveys are not directly comparable since the traffic loading used was different and the design life for the previous improvements was for 20 years, whereas the current analysis is based upon a design life for 25 years. The road condition analysis reports consider strengthening based only on a road overlay, it should be noted that the areas identified as weakest in both of the analyses correspond with the road strengthening areas identified for L1157 between Ballinclare Quarry and Regional Road R772 and specifically dimensioned in Drawing Series ST in **Appendix 14-C**. As per the previous assessments, once the road subgrade has been strengthened and the Base and Sub-base replaced then the overlay required is significantly less than in the case where overlay alone is considered.

14.154 Albeit that the current proposed development generates less HGV traffic, for the purposes of road strengthening design it is considered comparable to the previous SID application. In the previous assessment of road strengthening considered at the time of the SID application under An Bord Pleanála case no. ABP-309991-21, it was calculated that once the strengthening works were completed an overlay of 50mm would be satisfactory. Wicklow County Council sought that in determining the application, the design overlay thickness should be increased to 80mm in the interest of additional strength. It is acknowledged that the type of strengthening work and the appropriate strengthening technique and final carriageway composition will be appropriately determined by Wicklow County Council as a matter of engineering detail. Considerable engineering detail is known from the road condition surveys and from the joint engineering inspections so preliminary road strengthening and improvement works and carriageway design can be determined as per the previous SID application. It is acknowledged that some details of the road strengthening works will come clear only when the works are in progress and the existing poor areas of subgrade have been excavated and exposed. Based upon the current information it is considered likely that the road strengthening and improvement works will comprise a similar basic road strengthening scheme as determined in the previous SID application.

Accident Records

14.155 Before the establishment of the RSA in 2006, road collision data in Ireland was primarily managed by An Garda Síochána, in collaboration with the Central Statistics Office (CSO). Data was collected from Garda reports after road traffic accidents, but the analysis and availability of the data were limited. When the RSA was formed, one of its key responsibilities was the collation and analysis of road traffic collision data. The RSA, in partnership with the CSO and An Garda Síochána, began compiling this data in a more systematic way to support road safety initiatives and policy formulation. The RSA began publishing annual reports detailing road traffic collisions, fatalities, and injuries. These reports include comprehensive breakdowns of factors like the time of day, weather conditions, vehicle types involved, and the age and gender of the individuals affected.

14.156 The first RSA road safety report was published in 2007, providing detailed data from 2006 onwards. Over time, the RSA expanded its reporting to include interactive dashboards and periodic updates that give insight into both long-term trends and emerging road safety concerns. The RSA publishes high-level road collision statistics and summary reports, which are available to the general public via its website. These reports provide aggregate data and trends about road safety in Ireland. Examples include annual reports, special reports on certain road user groups, and quarterly updates on road deaths.

14.157 Detailed raw collision data, including specifics about the location, individuals involved, and precise causes, is not made freely available to the general public. Access to this granular data is typically limited. Access is granted under strict guidelines to ensure privacy and responsible use. Access is granted to accredited researchers for studies that support road safety improvements. Access is understood to be granted to Road Authorities under certain circumstances where collision data may aid in planning and safety improvements on the roads they manage.

14.158 The RSA's road collision data plays a crucial role in shaping Ireland's road safety policies and understanding traffic behaviour. While the RSA publishes a significant amount of aggregated data for public use, access to detailed collision data remains restricted due to privacy, security, and sensitivity concerns.

14.159 Collision statistics on the Road Safety Authority (RSA) website formerly included 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 formerly available through the online database. RSA has been reviewing policy on publishing such statistics which are currently not made available to the public or to Roads Authorities.

14.160 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 suffered from a high accident rate and was replaced by the M11 motorway in July 2015. The original road was reclassified as Regional Road R772. The RSA former records included only officially recorded collisions where a Garda was present to formally record details of the incident. The following **Figure 14-20** 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. This data was referenced in the application for the current permitted quarry development under Planning Ref. 14/2118 and so is a matter of public record.

Figure 14-20
RSA Statistics 2005-2015 (Local Roads) 2015/16 (Motorway/Regional Roads)

14.161 **Figure 14-20** 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.

14.162 There are three categories of collision which include 'minor' (highlighted grey), 'serious' (highlighted yellow) and 'fatal' (highlighted red). Two collisions on **Figure 14-20** are highlighted yellow along the R772 and are classified as 'serious', with one collision along the M11 categorised as fatal. 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 14-20**. Only collisions 4 and 5 are located on the proposed L1157 haul route between the application site at Ballinclare Quarry and the Green angel Skincare premises (the former Tap Restaurant).

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

14.163 The data provided in **Figure 14-20** and **Table 14-4** above shows that there was a total of 2 No. 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.

14.164 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.

14.165 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.

The 'Do Nothing' Scenario

14.166 In the 'Do Nothing' scenario it is expected that the traffic environment will remain as per the baseline. It is noted that there is one existing permitted development that could be implemented in the absence of the proposed development. The permission, under Planning Ref. 14/2118, covers a 36 hectare 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 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 +1m OD over an extraction area of 16.5 hectares, as well as for the manufacture of concrete blocks.

14.167 Condition No.5 attached to the quarry permission limits the generation of HGV at the quarry to a maximum of 150 loads per day and is applied in order to control the impact of the development on the receiving road network, and to take account of the pre 1964 level of activity at the quarry.

POTENTIAL SIGNIFICANT EFFECTS

Construction Phase

14.168 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 No. HGV loads per day.

14.169 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 bearing in mind that the road strengthening and widening works to the L1157 are considered by the Roads Authority as 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.

14.170 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.

14.171 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.

Operational Phase

Traffic Generation Past and Permitted

14.172 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 No. 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.

14.173 Condition 5 of the current permitted quarry development under Planning Ref. 14/2118 limits the maximum number of HGV loads (trips) to 150 No. per day.

Vehicle Types Generated

14.174 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.

14.175 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

14.176 It is likely that the proposed materials recovery / recycling facility and inert landfill at Ballinclare Quarry will principally be served by 8-wheeled tippers and articulated tippers.

Vehicle Width and Carriageway Width

14.177 The front dimensions of a typical 8-wheel tipper truck or an articulated tipper truck can vary slightly depending on the specific model, but the general dimensions are as follows:

- Overall Width (including mirrors): Approximately 2.9 to 3.0 meters (mirrors included).

- Width of the Body (without mirrors): Typically, around 2.5 to 2.55 meters, which is the standard width for most heavy goods vehicles (HGVs) in Europe.
- Height: The cab height from ground level typically ranges between 3.2 to 3.5 meters, depending on the cab design and tyre size.

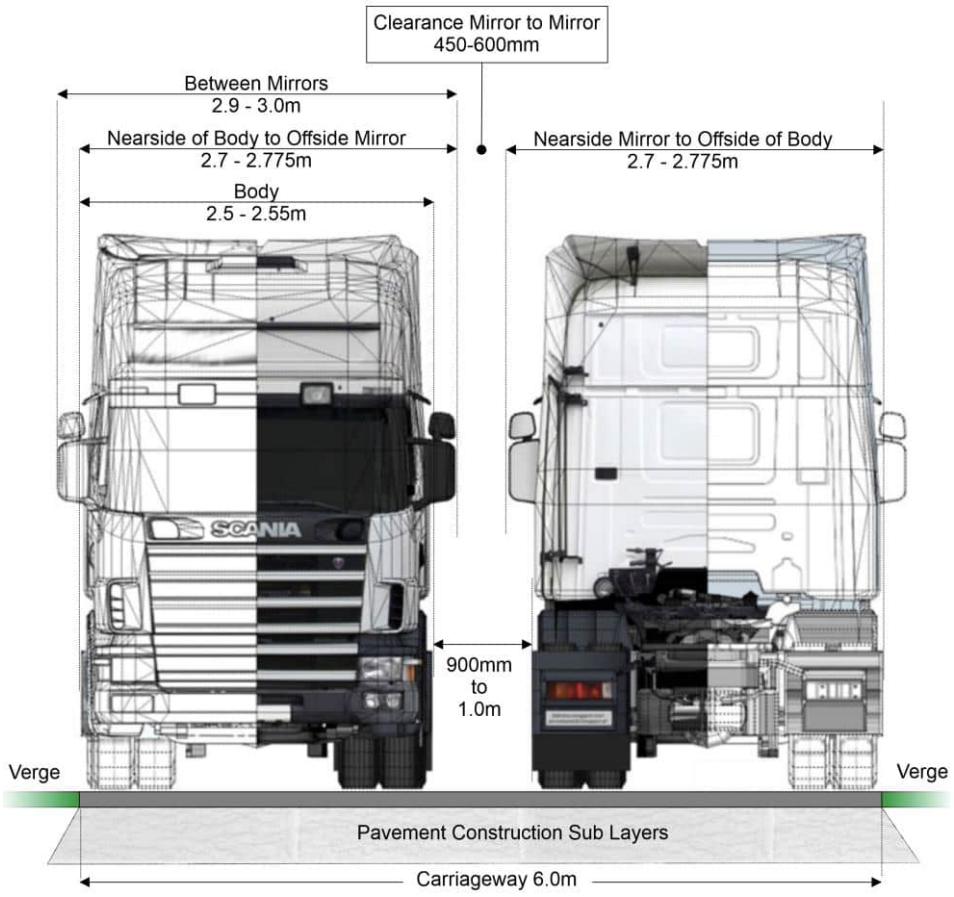
14.178 These dimensions are crucial for road planning, especially in narrow or constrained areas, and for determining vehicle clearance on various routes. It's important to note that exact dimensions may vary slightly based on configurations, load capacity, and any modifications made to the vehicle.

14.179 The vehicle width is typically 2.9-3.0m from the tip of one mirror to the tip of the opposite mirror. Given that the body width is typically 2.5-2.55m, insofar as it relates to the width of the carriageway required to accommodate 2 No. trucks passing opposed, the offside mirror does not need to over-sail the metalled road but can and does over-sail the verge area.

14.180 The width of carriageway required to accommodate opposed passage is therefore equal to the width of one vehicle from mirror tip to mirror tip added to the width of a vehicle body. The total minimum width required to accommodate passage with no clearance is (2.9m to 3.0m) + (2.5m to 2.55m) = 5.40m to 5.55 m. A carriageway width of 6.0m allows for a clearance of 450mm to 600mm (approx. half a metre) between the mirror tips of opposing vehicles were each travelling with the body at the edge of the carriageway and the wheel track inside that again. Were the drivers to retract the nearside mirror when approaching an opposing vehicle, the clearance between vehicles is in the order of 900mm and 1m.

14.181 The following **Figure 14-21** is provided for illustrative purposes. It is not drawn to scale but the relative dimensions are in proportion.

Figure 14-21
Road Width and Typical Truck Dimensions



Operational Phase Traffic Generation

HGV Trip Generation

14.182 The maximum combined annual intake of inert waste and (non-waste) by-product will be of the order of 550,000 tonnes per annum. The inert waste intake will predominantly comprise soil and stone from brownfield development sites and where suitable, will be imported and processed at the soil washing plant to recover construction grade aggregates. If not, it will be placed directly at the engineered (lined) inert landfill facility. Although the (non-waste) by-product intake will principally comprise soil and stone from greenfield development sites at the outset, it could possibly evolve to include other prospective by-product materials as other regulatory decisions in respect of by-products are made and/or enacted over time.

14.183 The maximum annual intake of inert, construction and demolition waste will be of the order of 50,000 tonnes per annum and will principally comprise concrete (ready-mixed, reinforced, blocks and/or pavement slabs), bricks and bituminous mixtures / hardened asphalt.

14.184 The indicative cumulative maximum intake of 600,000 tonnes per annum (for recovery / recycling at the C&D facilities or disposal at the inert landfill) constitutes an effective reduction of 200,000 tonnes per annum on the extraction limit permitted in the current quarry permission (Ref 14/2118) and the intake limit sought in the previous (2021) SID application (Ref. ABP-309991-21).

14.185 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.

14.186 The combined annual intake of 600,000 tonnes per annum is equivalent to an average of

- 12,000 tonnes per week (assuming 50 weeks in a working year)
- 2,400 tonnes per day (assuming 5 days per week – no loads Sat or Sun)
- 240 tonnes per hour (assuming 10 hours in a working day)

14.187 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. Traffic surveys at similar Kilsaran Concrete facilities show that materials are principally imported by the latter vehicle type.

14.188 Kilsaran Concrete operates similar licensed waste facilities to that proposed at Ballinclare Quarry in Kilmessan Co. Meath and Halverstown, Kilcullen, Co. Kildare. Based upon weighbridge records for the Kilcullen site spanning 2022 and 2023 the proportion of articulated vehicles is 81%. This calculation is based upon a continuous sample size of 21,522 recorded loads of which 81% were greater than 20t. Where loads are greater than 20t these can reasonably be considered to have been carried by articulated vehicles and that is the basis of the estimated proportional split in vehicle types generated by the proposed development. The equivalent figure for the Kilmessan site is based upon a sample size of 28,998 loads over the same period and shows the percentage of loads over 20t is 66%.

14.189 The Kilcullen site is considered demographically likely to be a better comparison with the application site given its proximity to the motorway network and so that data is likely more representative. Nevertheless, in the interest of a robust calculation or forecast of the proportion of HGV types likely to be generated by the proposed development, the average for the two sites has been calculated. Based upon the combined sample of 50,520 records, which can reasonably be considered statistically significant, the percentage of loads greater than 20t is 71%. It is forecast that 71% of the HGV generated to the development will be of the articulated type.

14.190 Aside from the breakdown in vehicle type, the average load received for the above combined sample size of 50,520 records is 25t per vehicle. This is the figure used to forecast the total number of HGV generated by the proposed development.

14.191 The total volume imported to the site includes those materials that will be processed in the proposed C&D recovery facility at the existing paved area to the west of the site access road 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 (i.e. departing lorries leaving site with recycled product rather than empty) and will not generate a separate stream of HGV trips.

14.192 Based on the proposed maximum intake of 600,000t of material per annum and based upon 5 working days per week and 50 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 an average of 120 No. HGV trips per day. Owing to the reduction in volumes, this figure has reduced by 30 No. HGV form estimate of 150 No. HGV provided in the EIAR for the previous SID application to An Bord Pleanála (Ref. No ABP-309991-21.

14.193 Some proportion of material is 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 potentially be approximately 83 No. HGV trips per day. In the EIAR for the previous SID application, the equivalent value was 104 No. HGV so a reduction of 21 No. HGV trips.

14.194 Modern haulage fleets tend to carry a mix of rigid and articulated tippers. As previously noted, it is estimated by reference to empirical data at similar sites that approximately 71% of loads are likely to be transported by articulated vehicles.

14.195 On the basis of the average load per vehicle recorded at the Kilmessan and Kilcullen sites being in the order of 25t per vehicle the proposed development site is forecast to generate an average of 96 No. HGV trips per day when operating at maximum intake capacity of 600,000t tonnes per annum. This is a reduction of 19 No. HGV trips per day (equates to 16.5%) from the total 115 No. HGV trips forecast in the EIAR for the previous SID application. It equates to a reduction of 54 No. HGV trips, or a 36% reduction in HGV traffic generation from the quarry currently permitted under Planning Ref. 14/2118.

Light Vehicle Trip Generation

14.196 The proposed backfilling operations will require a minimum of six personnel to be based at the facility at all times during working hours. When operating at full capacity, up to 15 people could be employed at the facility (depending on the number of ongoing activities). For the purposes of the traffic assessments it is assumed that there would be 20 No. daily trips generated by light vehicles.

Proposed Trip Routing

14.197 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**. As per best practice, light vehicle traffic is assumed to distribute to the network in the proportions manifest in the vehicle turning count surveys of existing traffic on the receiving road network carried out in April 2024.

Assessment Criteria

14.198 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.

14.199 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 TII Publication TII-PE-PDV-02045 '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.

14.200 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.

14.201 The application site currently enjoys a planning permission which expires in 2041 and which expressly permits a total of 150 No. 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 96 No. HGV trips which is a significantly lesser volume of HGV traffic. Although the characteristics of the haulage vehicles deployed in both scenarios is essentially the same, the proposed development represents a 36% reduction in the total number of HGV trips generated to the receiving road network.

14.202 Given that a maximum of 150 No. HGV loads / trips is permitted per day, and given the forecast average traffic generation of the proposed development is 96 No. trips per day when operating at maximum capacity, 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 from the informal one-way route to a shorter two-way route, the proposed development will eliminate all development 150 No. HGV from the L1113 Coolbeg Road and from the western end of the L1157 that could potentially be generated by the extraction and related production activities currently permitted at Ballinclare Quarry.

14.203 The volume of HGV traffic on the designated haul route along the L1157 will in future be two-way, as opposed to the previous informal one-way system. It follows that the level of HGV traffic generation to the L1157 will increase when compared to an equivalent one-way scenario. Since the volume of traffic assigned to the L1157 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-C**.

14.204 These (indicative) works involve a significant road improvement including carriageway widening, road strengthening, road overlay, road markings, utilities diversion, roadside drainage improvement and the addition of driver feedback signing to influence driver behaviour and reduce vehicle speeds to the forthcoming 60km/h speed limit which is due to be in place in early 2025 on L1157 and the haul route.

14.205 TII Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014) advises 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.

14.206 In view of the current grant of permission 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, reduces by 36% and locally re-routes quarry traffic for materials recovery / recycling and inert landfilling. 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.

14.207 In the case of sub-threshold scenarios, TII-PE-PDV-02045 advises 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.

14.208 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 increase significantly from that which was assessed previously and is already permitted however HGV will travel two-way on the proposed haul route;
- 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 8-12 HGV trips which is not considered numerically significant by the standard metrics set out in the guidelines however development traffic is primarily comprised of HGV. 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.

14.209 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 available Road Safety Authority records.

14.210 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. The Chartered Institution of Highways and Transportation publication 'Guidelines for Traffic Impact Assessment' advises that traffic assessments should examine the potential impacts both positive and negative.

14.211 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 8-12 HGV trips, the proposed development will not give rise to capacity problems at this junction. The existing junction of the R772 and L1157 was upgraded and improved by Wicklow County Council in the interest of road safety. The improvement to the junction pre-dates the opening of the M11 Motorway between Arklow and Rathnew and so would have been upgraded and improved with regard to the considerably higher traffic flows that prevailed on this section of road (N11, R772) up to mid-2015.

14.212 The last full year of recorded traffic flow data provided by the TII Traffic Counter at 'Jack Whites N11-17' show an Annual Average Daily Flow (two-way) of 18,841 No. vehicles, comprising 1,093 No. HGV. The design of the junction would have been required to factor the generation of traffic from the subject development site granted permission in 2008 under Planning Ref. 07/45. That permission was subject to 39 No. conditions where Condition No.6 limited the maximum number of loads per day to 70 HGV. Extractive operations have been carried out at the existing Ballinclare Quarry since before 1963.

14.213 Prior to the 2008 grant of permission there was no prescribed upper limit to the daily number of HGVs. Planning permission was granted by Wicklow County Council for a further quarry extension and additional site activities after the opening of the M11 Motorway between Arklow and Rathnew. This is the current permission granted in January 2016 under Planning Ref. 14/2118 (Condition No. 5) which limits the maximum number of loads to 150 No. HGV trips per day and is valid for a period of 25 years and thus expires in 2041. 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.

14.214 The current quarry permission does not restrict the use of the receiving road network and HGVs can access the application site from any direction. Since acquiring the quarry in 2014, the Applicant has on a voluntary basis employed an informal policy of HGV traffic following a one-way route comprising L1157 and L1113 as set out in **Figure 14-2**. The routing of traffic to and from the existing permitted quarry is not formally restricted either by condition of planning or by reference to any plans and particulars that accompanied the application decided under Planning Ref. 14/2118.

14.215 On the basis that the current permitted quarry development application was determined on the understanding that the informal one-way system would be voluntarily enforced, it is assumed for the purposes of the traffic assessments in this EIAR that the permitted quarry traffic travels on an informal one-way route so only half of the total permitted 150 No. HGV trips are manifest at the junction of R772 / L1157. It should nevertheless be borne in mind that the permitted development, without further reference to the planning system, is not

prevented from, and has the potential to, generate traffic via any available route including a scenario that would see all 150 No. loads come and go from the application site via L1157.

14.216 The current proposal is to restrict all traffic to the 2 km section of the L1157 between the application site and the R772 so the forecast increase above the permitted quarry as set out in the EIAR is approximately 8-12 No. HGV per hour in one direction. Without the need for complex capacity modelling an experienced practitioner can reasonably conclude with a high degree of scientific surety that the impact of the forecast traffic will not have a significant impact above baseline upon the capacity of the R772 / L1157 junction.

14.217 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 as a result of the proposed development.

14.218 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.

Assessment Years

14.219 TII Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014) set out a framework for analysing the potential impacts of development on the road and transportation network. The assessment years are a key part of the process and are used to forecast traffic conditions and analyse the potential impact of proposed developments over time. The TII Guidelines recommend the following assessment years:

- Opening Year: This is the first year when the development is expected to become operational. The traffic impact is analysed to assess how the proposed development will affect the road network from the outset.
- Future Assessment Year(s): Typically, 5 and 15 years after the opening year for general developments. This future year analysis helps to assess how the development will impact the road network over the long term as traffic volumes grow.

14.220 The inclusion of these specific assessment years is important for several reasons:

- Traffic Growth Forecasting: Over time, population growth, economic activities, and other developments cause traffic volumes to increase. The future year assessment helps planners and engineers anticipate and prepare for these long-term traffic patterns.
- Mitigation Measures: By analysing traffic impacts in both the opening year and future years, it becomes possible to identify when certain mitigation measures (e.g., road widening, traffic sign) may be needed.
- Compliance with National Planning Policies: The TII assessment year framework aligns with national policies on spatial planning and sustainable transport, ensuring consistency in how traffic impacts are analysed across different regions and developments in Ireland.

14.221 By conducting assessments for both the opening year and future year(s), developers and planners can ensure that the transportation network can accommodate both short-term and long-term traffic demand. Future year traffic forecasts are based on growth rates set out in TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021) which provides different growth rate scenarios to account for uncertainty in future conditions. These scenarios are high, central, and low

growth rates and they reflect differing levels of expected traffic demand based on economic activity, population growth, and transport trends.

14.222 The 'High' growth rate scenario assumes strong economic growth and rapid population increases. This is typically used to assess the worst-case scenario where the road and transport infrastructure would be under maximum pressure. The 'Central' growth rate scenario assumes more moderate economic and population growth and this is generally considered the most likely or baseline scenario and represents a balanced or typical future growth rate. Central growth rates are used for the majority of planning assessments, as it reflects the expected outcome based on current trends and planning assumptions. It assumes a steady increase in traffic. This is the scenario adopted for the purposes of future year assessments in this Chapter. It follows that the 'Low' growth rate scenario assumes slower economic and population growth.

14.223 Future year network traffic flows are forecast by application of the TII published growth factors set out in **Table 14-6**. The factors listed in **Table 14-6** are the standard central growth rates set out in TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).

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

Operational Stage Traffic Effects – Opening Year Average Traffic Generation

14.224 The following **Table 14-7** shows baseline traffic flows for the forecast year of opening 2026 and is based upon the traffic flows recorded in the April 2024 traffic surveys which are set out in **Table 14-1**. The baseline 2026 network traffic flows in **Table 14-7** are derived from the TII published growth factors set out in **Table 14-6**.

14.225 The existing permitted quarry was not operating at the time of the traffic surveys accordingly Scenario [1] shows a surveyed scenario where no traffic at all is generated by the existing quarry site.

14.226 Scenario [1] is the 2026 traffic flows derived from the April 2024 traffic surveys.

14.227 Scenario [2] is the baseline which includes the traffic flows arising under the current permitted quarry traffic scenario which limits the number of loads that can be transported from the site to 150 No. per day.

14.228 It is assumed for the purposes of Scenario [2] that all development HGV traffic is routed by the informal one-way haul route as shown in **Figure 14-2**.

14.229 Scenario [2] is the baseline and shows the HGV traffic flow and estimated light traffic flow arising from the development permitted under Planning Ref. 14/2118 which has been added to the forecast 2026 traffic flows derived from the April 2024 traffic surveys. For ease of reference that traffic generated by the permitted development is identified separately and bracketed with the resulting sum shown in bold in each cell of the table.

14.230 In calculating figures in **Table 14-7**, only the surveyed network traffic has been factored by the network growth rates since development generated traffic is capped at a permitted 150 No. HGV trips and can therefore be assumed to remain at or below this constant value.

14.231 The traffic management proposals implemented previously for extractive related development at Ballinclare Quarry will not apply for the proposed materials recovery / recycling facility and inert landfill. As previously advised, the Planning Authority has indicated and confirmed a preference for a shorter haul route along the L1157, directly to and from the R772 (the former N11). The adoption of the alternative shorter haul route is contingent upon appropriate road strengthening and widening works to accommodate the safe opposed passage of HGV traffic.

14.232 Scenario [3] results presented in **Table 14-7** is the proposed scenario which includes for the factored surveyed (April 2024) traffic added to the proposed development generated average daily traffic flows.

14.233 The development currently permitted under Planning Ref. 14/2118 allows for 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 2041. The incremental difference between the permitted and proposed scenarios is highlighted by the coloured figures in each cell of the table.

14.234 Where the effect of the proposed development is to reduce traffic from the permitted scenario, the figures are negative and coloured ‘green’, where traffic is diverted from the existing haul route to the proposed shorter haul route, and thus where it constitutes an increase in traffic flows, then this is identified by the ‘red’ figures.

14.235 **Table 14-7** 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. In the interest of simplicity, it is assumed that the light vehicle traffic generation and the distribution of such traffic will not change between Scenario [2] and Scenario [3].

14.236 Based upon the average traffic generation of the proposed development site being 96 No. HGV per day **Table 14-7** shows that L1113 Coolbeg Road and the western end of L1157 will benefit from a reduction in traffic in the order of 150 No. HGV per day (two-way flow) reducing the HGV content of traffic on L1113 from 20% to 9% and reducing AADT by approximately 12%.

14.237 **Table 14-7** shows that under the daily HGV traffic generation rate of 96 No. HGV when the proposed development is operating at maximum tonnage of 600,000t per annum, there would be an increase in two-way traffic flows on L1157 in the order of 42 No. HGV movements (+21 No. HGV inbound and +21 No. HGV outbound). Measured against the permitted Scenario [2] this constitutes and increase in total traffic flow on L1157 to the east of the existing quarry access in the order of 7% incorporating an increase in HGV traffic of approximately 22%.

Table 14-7
Forecast 2026 Daily Two-way Traffic Flow (Average Traffic Generation)

Road Link	Scenario [1] No Development Baseline			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	**430**	**45**	10%	462[4](10%)
L1157 (E)	**430**	**45**	10%	462 (10%)
L1113 (N)	**1,103**	**100**	9%	1,396 (7%)
R772 (N)	**1,780**	**121**	7%	2,232 (5%)
Road Link	**Scenario [2] Permitted Development Reg. Ref 14/2118**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	430 + [160] = **590**	45 + [150] = **195**	33%	634 (31%)
L1157 (E)	430 + [160] = **590**	45 + [150] = **195**	33%	634 (31%)
L1113 (N)	1,103 + [160] = **1,263**	100 + [150] =**250**	20%	1,599 (16%)
R772 (N)	1,780 + [160] = **1,940**	121 + [150] = **271**	14%	2,432 (13%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	430 + [10] = **440**	45 + [0] = **45**	10%	473 (10%)
L1157 (E)	430 + [202] = **632**	45 + [192] = **237**	37%	679 (35%)
L1113 (N)	1,103 + [10] = **1,113**	100 + [0] = **100**	9%	1,409 (7%)
R772 (N)	1,780 + [202] = **1,982**	121 + [192] = **313**	16%	2,485 (13%)
Road Link	**[3] – [2] Incremental Change – No.(%)**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	-150 (-25%)	-150 (-77%)	-23%	-161 (-21%)
L1157 (E)	+42 (+7%)	+42 (+22%)	+4%	+45 (+4%)
L1113 (N)	-150 (-12%)	-150 (-60%)	-11%	-190 (-9%)
R772 (N)	+42 (+2%)	+42 (+16%)	+2%	+53 (+1%)

Operational Stage Traffic Effects – Opening Year Upper Value Traffic Generation

14.238 The above calculations are based upon the average traffic generation when the site would be operating at the maximum capacity of 600,000t per annum sought in the application and are thought likely to be robust, the Chartered Institution of Highways and Transportation 'Guidelines for Traffic Impact Assessment' recommend that developers and roads

[4] AADT Estimated by reference to ATC data as set out at paragraphs 14.123 to 14.127

authorities should adopt a robust forecast using a value higher than the average. An approach which is in widespread use is to consider a range of values with the higher value being the 85th percentile of the data sample and the lower value being reflected by the average. The higher value might reasonably be considered a sensitivity test.

14.239 The extractive industry and similarly waste / recovery and landfilling is acknowledged to be market or demand driven and this gives rise to fluctuations in the weekly and monthly volumes of material transported to and from these types of sites. The volume of material transportation arising at the development site can be expected to fluctuate throughout the year and this is typically borne out by weighbridge data records at similar sites. Variance around the average in HGV trip generation is assumed for the purposes of this traffic assessment to potentially be in the order of approximately ±50% trips per day. An occasional increase in activity is not considered unusual at such facilities and typically arises to address certain demands as required. The upper value of traffic generation which might be reached occasionally but not sustained for long periods, is robustly estimated to be 96+50% = 144 No. HGV trips or loads per day.

14.240 **Table 14-8** is based upon the traffic flows forecast for 2026 and shows the forecast changes in traffic flows on the local roads between those flows arising from the permitted development under Planning Ref. 14/2118 and the forecast robust upper value traffic generation arising at the proposed development. Based upon the upper or higher value traffic generation of the proposed development site being 144 No. HGV per day **Table 14-8** shows that L1113 Coolbeg Road and the western end of L1157 will benefit from a reduction in traffic in the order of 150 No. HGV per day (two-way flow) reducing the HGV content of traffic on L1113 from 20% to 9% and reducing AADT by approximately 12%.

14.241 **Table 14-8** shows that based upon the upper value or higher daily HGV traffic generation rate of 144 No. HGV trips at the proposed development there would be a temporary increase in two-way traffic flows over baseline on L1157 in the order of 138 No. HGV movements. Measured against the permitted Scenario [2] this constitutes an increase in total traffic flow on L1157 to the east of the existing quarry access in the order of 23% incorporating an increase in HGV traffic of approximately 71%.

14.242 The indicative cumulative maximum intake of 600,000 tonnes per annum constitutes an effective reduction of 200,000 tonnes per annum on the extraction limit permitted in the current quarry permission (Planning Ref. 14/2118) and the intake limit sought in the previous (2021) SID application (Ref. No. ABP-309991-21). The forecast impact of the proposed development when considered at the average daily value of 96 No. HGV trips per day is beneficial with respect to the road infrastructure to the west of the existing site including the L1113 whilst it will give rise to an average additional HGV traffic flow on the L1157 to the east in the order of 42 No. HGV movements per day. The principal significant difference between the permitted and proposed scenarios is that traffic on L1157 will travel in both directions under the current proposal. The average assessment value is the appropriate value to use in the design of roads and in designing road strengthening works.

14.243 The forecast impact of the proposed development when considered operating at the upper or higher value of 144 No. HGV trips per day is similarly beneficial with respect to the road infrastructure to the west of the existing site including the L1113 whilst it will give rise to an increase over baseline values of approximately 138 No. HGV movements on the L1157 to the east.

Table 14-8
Forecast 2026 Daily Two-way Traffic Flow (Upper Value Traffic Generation)

Road Link	Scenario [1] No Development Baseline			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	**430**	**45**	10%	462 (10%)
L1157 (E)	**430**	**45**	10%	462 (10%)
L1113 (N)	**1,103**	**100**	9%	1,396 (7%)
R772 (N)	**1,780**	**121**	7%	2,232 (5%)
Road Link	**Scenario [2] Permitted Development Reg. Ref 14/2118**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	430 + [160] = **590**	45 + [150] = **195**	33%	634 (31%)
L1157 (E)	430 + [160] = **590**	45 + [150] = **195**	33%	634 (31%)
L1113 (N)	1,103 + [160] = **1,263**	100 + [150] =**250**	20%	1,599 (16%)
R772 (N)	1,780 + [160] = **1,940**	121 + [150] = **271**	14%	2,432 (11%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	430 + [10] = **440**	45 + [0] = **45**	10%	473 (10%)
L1157 (E)	430 + [298] = **728**	45 + [288] = **333**	46%	782 (43%)
L1113 (N)	1,103 + [10] = **1,117**	100 + [0] = **100**	9%	1,414 (7%)
R772 (N)	1,780 + [298] = **2,078**	121 + [288] = **409**	20%	2,605 (16%)
Road Link	**[3] – [2] Incremental Change**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	-150 (-25%)	-150 (-77%)	-23%	-161 (-21%)
L1157 (E)	+138 (+23%)	+138 (+71%)	+13%	+148 (+12%)
L1113 (N)	-150 (-12%)	-150 (-60%)	-11%	-190 (-9%)
R772 (N)	+138 (+7%)	+138 (+51%)	+6%	+173 (+5%)

Operational Stage Traffic Effects – Opening Year Average Value Alternative Scenario

14.244 Since the permitted development is not formally restricted to the one-way circulation route shown in **Figure 14-2** it is reasonable, in the interest of a comprehensive assessment to consider an alternative hypothetical scenario in which the permitted quarry was to adopt the two-way haul route along L1157. This had happened in the past when there were various road closures during the construction of the M11 Motorway to which Ballinclare Quarry provided aggregates. In considering or comparing this scenario with the proposed development however it should be appreciated that the permitted quarry development allows only for some strengthening and repair works to the L1157 carriageway but provides for no widening or passing areas.

14.245 On the basis of the hypothetical scenario where the L1157 might be used by both the permitted development and the proposed development, it can be seen form the figures presented in **Table 14-9** that the proposed development would give rise to a reduction in the typical daily traffic volumes on L1157 in the order of 118 No. vehicle movements or 16%. This reduction in traffic includes for the reduction of HGV traffic movements in the order of 108 No. which equates to a 32% reduction in HGV traffic arising from the substitution of the permitted quarry development with the proposed development.

Table 14-9
Forecast 2026 Daily Two-way Traffic Flow (Average Value – Alternative)

Road Link	Scenario [2] Permitted Development Reg. Ref 14/2118			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	430 + [10] = **442**	45 + [0] = **45**	10%	473 (10%)
L1157 (E)	430 + [320] = **750**	45 + [300] = **345**	46%	806 (43%)
L1113 (N)	1,103 + [10] = **1,113**	100 + [0] =**100**	9%	1,409 (7%)
R772 (N)	1,780 + [320] = **2,100**	121 + [300] = **421**	20%	2,633 (16%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	430 + [10] = **440**	45 + [0] = **45**	10%	473 (10%)
L1157 (E)	430 + [202] = **632**	45 + [192] = **237**	37%	679 (35%)
L1113 (N)	1,103 + [10] = **1,113**	100 + [0] = **100**	9%	1,409 (7%)
R772 (N)	1,780 + [202] = **1,982**	121 + [192] = **313**	16%	2,485(13%)
Road Link	**[3] – [2] Incremental Change**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	0 (0%)	0 (0%)	0%	0 (0%)
L1157 (E)	-118 (-16%)	-108 (-32%)	-9%	-127 (-8%)
L1113 (N)	0 (0%)	0 (0%)	0%	0 (0%)
R772 (N)	-118 (-6%)	-108 (-26%)	-4%	-148 (-3%)

Operational Stage Traffic Effects – Future Year 2041 Average Value Traffic Generation

14.246 The following **Table 14-10** shows baseline traffic flows for the forecast future year 2041 which is the year of opening 2026 plus 15 years as is the standard assessment year scenario required by the TII Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014).

14.247 The baseline is derived from the traffic flows recorded in the April 2024 traffic surveys (see **Table 14-1**). The baseline 2041 network traffic flows in **Table 14-10** are derived from the TII published growth factors set out in **Table 14-6**. The factors listed are the standard central growth rates set out in TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).

14.248 As in the opening year assessments, Scenario [1] is the 2041 baseline traffic flows derived from the April 2024 traffic surveys. Scenario [2] shows the traffic flows arising under the current permitted traffic scenario which limits the number of loads that can be transported from the site to 150 No. per day. Scenario [2] shows the HGV traffic flow and estimated light traffic flow arising from the development permitted under Planning Ref. 14/2118 which has been added to the baseline 2041 traffic flows. For ease of reference that traffic generated by the permitted development is identified separately and bracketed with the resulting sum shown in bold in each cell of the table.

14.249 Scenario [3] in **Table 14-10** is provided in order to show the incremental difference in network traffic flows arising from the proposed development over that already permitted.

14.250 The 2041 assessment uses the same underlying criteria as above for the 2026 assessment. Based upon the average traffic generation of the proposed development site being 96 No. HGV per day **Table 14-10** shows that the L1113 Coolbeg Road and the western end of L1157 will benefit from a reduction in traffic in the order of 150 No. HGV per day (two-way flow) reducing the HGV content of traffic on L1113 from 21% to 11% and reducing AADT by approximately 11%.

14.251 **Table 14-10** shows that under the typical daily HGV traffic generation rate of 96 No. HGV at the proposed development there would be an increase in two-way traffic flows on L1157 in the order of 42 No. HGV movements. Measured against the permitted Scenario [2] this constitutes and increase in total traffic flow on L1157 to the east of the existing quarry access in the order of 6.5% incorporating an increase in HGV traffic of approximately 20%.

Table 14-10
Forecast 2041 Daily Two-way Traffic Flow (Average Traffic Generation)

Road Link	Scenario [1] No Development Baseline			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	**484**	**64**	10%	520 (12%)
L1157 (E)	**484**	**64**	10%	520 (12%)
L1113 (N)	**1241**	**144**	9%	1,571 (9%)
R772 (N)	**2002**	**169**	8%	2,511 (7%)
Road Link	**Scenario [2] Permitted Development Reg. Ref 14/2118**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	484 + [160] = **644**	64 + [150] = **214**	33%	692 (31%)
L1157 (E)	484 + [160] = **644**	64 + [150] = **214**	33%	692 (31%)
L1113 (N)	1,241 + [160] = **1,401**	144 + [150] =**294**	21%	1,773 (17%)
R772 (N)	2,002 + [160] = **2,162**	169 + [150] = **319**	15%	2,711 (12%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	484 + [10] = **494**	64 + [0] = **64**	13%	531 (12%)
L1157 (E)	484 + [202] = **686**	64 + [192] = **256**	37%	737 (35%)
L1113 (N)	1,241 + [10] = **1,251**	144 + [0] = **144**	11%	1,584 (9%)
R772 (N)	2,002 + [202] = **2,204**	169 + [192] = **361**	16%	2,764 (13%)
Road Link	**[3] – [2] Incremental Change**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	-150 (-23%)	-150 (-70%)	-20%	-161 (-19%)
L1157 (E)	+42 (+7%)	+42 (+20%)	+4%	+45 (+4%)
L1113 (N)	-150 (-11%)	-150 (-51%)	-10%	-190 (-8%)
R772 (N)	+42 (+1.9%)	+42 (+13%)	+1%	+53 (+1%)

Operational Stage Traffic Effects – Future Year 2041 Upper Value Traffic Generation

14.252 Based upon the upper or higher value traffic generation of the proposed development site being 144 No. HGV per day **Table 14-11** shows that L1113 Coolbeg Road and the western end of L1157 will benefit from a reduction in traffic in the order of 150 No. HGV per day (two-way flow) reducing the HGV content of traffic on L1113 from 21% to 12% and reducing AADT by approximately 11%.

14.253 **Table 14-11** shows that under the upper value or higher daily HGV traffic generation rate of 144 No. HGV trips at the proposed development there would be an increase in two-way traffic flows on L1157 in the order of 138 No. HGV movements. Measured against the permitted Scenario [2] this constitutes an increase in total traffic flow on L1157 to the east of the existing quarry access in the order of 21% incorporating an increase in HGV traffic of approximately 64%.

14.254 The indicative cumulative maximum intake of 600,000 tonnes per annum constitutes an effective reduction of 200,000 tonnes per annum on the extraction limit permitted in the current quarry permission (Planning Ref. 14/2118) and the intake limit sought in the previous (2021) SID application (Ref. No. ABP-309991-21). The forecast impact of the proposed development when considered at the upper value sensitivity daily value of 144 No. HGV trips per day is beneficial with respect to the road infrastructure to the west of the existing site including the L1113 whilst it will give rise to a additional HGV traffic flow on the L1157 to the east. The principal significant difference between the permitted and proposed scenarios is that traffic on L1157 will travel in both directions under the current proposal.

14.255 The forecast impact of the proposed development when considered operating at the upper or higher value of 144 No. HGV trips per day is similarly beneficial with respect to the road infrastructure to the west of the existing site including the L1113 whilst it will give rise to an increase of approximately 138 No. HGV movements on the L1157 to the east.

Table 14-11
Forecast 2041 Daily Two-way Traffic Flow (Upper Value Traffic Generation)

Road Link	Scenario [1] No Development Baseline			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	**484**	**64**	10%	520 (12%)
L1157 (E)	**484**	**64**	10%	520 (12%)
L1113 (N)	**1241**	**144**	9%	1,571 (9%)
R772 (N)	**2002**	**169**	8%	2,511 (7%)
Road Link	**Scenario [2] Permitted Development Reg. Ref 14/2118**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	484 + [160] = **644**	64 + [150] = **214**	33%	692 (31%)
L1157 (E)	484 + [160] = **644**	64 + [150] = **214**	33%	692 (31%)
L1113 (N)	1,241 + [160] = **1,401**	144 + [150] =**294**	21%	1,773 (17%)
R772 (N)	2,002 + [160] = **2,162**	169 + [150] = **319**	15%	2,711 (12%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	484 + [10] = **494**	64 + [0] = **64**	15%	556 (14%)
L1157 (E)	484 + [298] = **782**	64 + [288] = **352**	45%	865 (42%)
L1113 (N)	1,241 + [10] = **1,251**	144 + [0] = **144**	13%	1,659 (10%)
R772 (N)	2,002 + [298] = **2,300**	169 + [288] = **457**	21%	3,005 (16%)
Road Link	**[3] – [2] Incremental Change**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	-150 (-23%)	-150 (-70%)	-18%	-161 (-17%)
L1157 (E)	+138 (+21%)	+138 (+65%)	+12%	+148 (+11%)
L1113 (N)	-150 (-11%)	-150 (-51%)	-8%	-190 (-7%)
R772 (N)	+138 (+6.4%)	+138 (+43%)	+6%	+173 (+4%)

Operational Stage Traffic Effects – Future Year 2041 Average Value Alternative Scenario

14.256 As above, since the permitted development is not formally restricted to the one-way circulation route shown in **Figure 14-2** it is reasonable, in the interest of a comprehensive assessment to consider an alternative scenario in which the permitted quarry was to adopt the two-way haul route along L1157.

14.257 On the basis of the hypothetical scenario where the L1157 might be used by both the permitted development and the proposed development, it can be seen form the figures presented in **Table 14-12** that the proposed development would give rise to a reduction in the typical daily traffic volumes on L1157 in the order of 118 No. vehicles movements or 15%. This reduction in traffic includes for the reduction of HGV traffic movements in the order of 108 No. which equates to a 30% reduction in HGV traffic arising from the substitution of the permitted quarry development with the proposed development.

Table 14-12
Forecast 2041 Daily Two-way Traffic Flow (Average Value – Alternative)

Road Link	Scenario [2] Permitted Development Reg. Ref 14/2118			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	484 + [10] = **494**	64 + [0] = **64**	13%	520 (12%)
L1157 (E)	484 + [320] = **804**	64 + [300] = **364**	45%	520 (42%)
L1113 (N)	1,241+ [10] = **1,251**	144 + [0] =**144**	11%	1,571 (9%)
R772 (N)	2,002 + [320] = **2,322**	169 + [300] = **469**	20%	2,511 (16%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	484 + [10] = **517**	64 + [0] = **78**	13%	531 (12%)
L1157 (E)	484 + [202] = **686**	64 + [192] = **256**	37%	737 (35%)
L1113 (N)	1,241 + [10] = **1,251**	144 + [0] = **144**	11%	1,584 (9%)
R772 (N)	2,002 + [202] = **2,204**	169 + [192] = **361**	16%	2,764 (13%)
Road Link	**[3] – [2] Incremental Change**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	0 (0%)	0 (0%)	0%	0 (0%)
L1157 (E)	-118 (-15%)	+108 (-30%)	-8%	-127 (-7%)
L1113 (N)	0 (0%)	0 (0%)	0%	0 (0%)
R772 (N)	-118 (-5%)	+108 (-23%)	-4%	-148 (-3%)

Operational Stage Traffic Effects – Future Year 2051 Average Value Traffic Generation

14.258 In reviewing the following assessment for the Design Year or Horizon Year it should be borne in mind that the underlying calculation of the forecast network traffic flow figures are derived from the application of TII forecast demand projects. The figures do not allow for any increase in the volume of development traffic which is assumed a constant over the life of the proposed development. It can be appreciated therefore that over time the proportional or relative impact of the increased traffic is diminished when compared against the growing background network traffic flows accordingly the Opening Year 2026 analyses set out above represent the worst-case traffic impact.

14.259 The following **Table 14-13** shows baseline traffic flows for the forecast horizon year which is the year of opening 2026 plus 25 years. The baseline is derived from the traffic flows recorded in the April 2024 traffic surveys (see **Table 14-1**). The baseline 2051 network traffic flows in **Table 14-13** are derived from the TII published growth factors set out in **Table 14-6**. The factors listed are the standard central growth rates set out in TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).

14.260 As in the opening year assessments, Scenario [1] is the 2051 baseline traffic flows derived from the April 2024 traffic surveys. Scenario [2] shows the traffic flows arising under the current permitted traffic scenario which limits the number of loads that can be transported from the site to 150 No. per day. Scenario [2] shows the HGV traffic flow and estimated light traffic flow arising from the development permitted under Planning Ref. 14/2118 which has been added to the baseline 2051 traffic flows. For ease of reference that traffic generated by the permitted development is identified separately and bracketed with the resulting sum shown in bold in each cell of the table. It is acknowledged that Scenario [2] in the Design Year is a hypothetical scenario included for comparison only with the opening year this is because the permission for the current permitted quarry development would have expired by 2051. Scenario [2] therefore considers a continuation in quarrying. It can be appreciated that were the existing permitted assumed to be exhausted and restored in 2051 then the forecast incremental increase in traffic arising from the proposed development would be the difference between Scenario [3] and Scenario [1].

14.261 Scenario [3] in **Table 14-13** is provided in order to show the incremental difference in network traffic flows arising from the proposed development over that arising from assumed continuance at the quarry.

14.262 The 2051 assessment uses the same underlying criteria as for the 2026 and 2041 assessments. **Table 14-13** and the underlying analysis is provided as a basis of comparison between the assessment years. Based upon the average traffic generation of the proposed development site being 96 No. HGV per day **Table 14-13** shows that in the hypothetical scenario where there where a continuance at the permitted quarry is considered the L1113 Coolbeg Road and the western end of L1157 will benefit from a reduction in traffic in the order of 150 No. HGV per day (two-way flow) reducing the HGV content of traffic on L1113 from 34% to 13% and reducing AADT by approximately 10%.

14.263 **Table 14-13** shows that under the typical daily HGV traffic generation rate of 96 No. HGV at the proposed development there would give rise to an increase in two-way traffic flows on L1157 in the order of 42 No. HGV movements. Measured against the permitted Scenario [2] this constitutes and increase in total traffic flow on L1157 to the east of the existing quarry access in the order of 6.3% incorporating an increase in HGV traffic of approximately 18%.

Table 14-13
Forecast 2051 Daily Two-way Traffic Flow (Average Traffic Generation)

Road Link	Scenario [1] No Development Baseline			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	**507**	**78**	10%	545 (14%)
L1157 (E)	**507**	**78**	10%	545 (14%)
L1113 (N)	**1,300**	**172**	9%	1,646 (11%)
R772 (N)	**2,098**	**207**	7%	2,631 (8%)
Road Link	**Scenario [2] Permitted Development Reg. Ref 14/2118**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	507 + [160] = **667**	78 + [150] = **228**	34%	717 (32%)
L1157 (E)	507 + [160] = **676**	78 + [150] = **228**	34%	717 (32%)
L1113 (N)	1,300 + [160] = **1,460**	172 + [150] =**322**	22%	1,849 (17%)
R772 (N)	2,098 + [160] = **2,258**	207 + [150] = **357**	16%	2,832 (13%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	507 + [10] = **517**	78 + [0] = **78**	15%	556 (14%)
L1157 (E)	507 + [202] = **709**	78 + [192] = **270**	38%	762 (35%)
L1113 (N)	1,300 + [10] = **1,310**	172 + [0] = **172**	13%	1,659 (10%)
R772 (N)	2,098 + [202] = **2,300**	207 + [192] = **399**	17%	2,885 (14%)
Road Link	**[3] – [2] Incremental Change**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	-150 (-29%)	-150 (-193%)	-19%	-161 (-18%)
L1157 (E)	+42 (+6%)	+42 (+15%)	+4%	+45 (+3%)
L1113 (N)	-150 (-11%)	-150 (-87%)	-9%	-190 (-7%)
R772 (N)	+42 (+1.8%)	+42 (+11%)	+1%	+53 (+1%)

14.264 **Table 14-14** is provided in order to show the incremental difference in network traffic flows arising from the proposed development over that arising were no development whatsoever considered to be in operation at the existing Ballinclare Quarry in the horizon year or year in which the 25 year permission currently sought would expire.

Table 14-14
Forecast 2051 Daily Two-way Traffic Flow (Average Traffic Generation)

Road Link	Scenario [1] No Development Baseline			AADT
	Total Traffic Flow (07:00-19:00 hrs)	HGV	%HGV	
L1157 (W)	**507**	**78**	10%	545 (14%)
L1157 (E)	**507**	**78**	10%	545 (14%)
L1113 (N)	**1,300**	**172**	9%	1,646 (11%)
R772 (N)	**2,098**	**207**	7%	2,631 (8%)
Road Link	**Scenario [3] Proposed Development**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	507 + [10] = **517**	78 + [0] = **78**	15%	556 (14%)
L1157 (E)	507 + [202] = **709**	78 + [192] = **270**	38%	762 (35%)
L1113 (N)	1,300 + [10] = **1,310**	172 + [0] = **172**	13%	1,659 (10%)
R772 (N)	2,098 + [202] = **2,300**	207 + [192] = **399**	17%	2,885 (14%)
Road Link	**[3] – [1] Incremental Change**			**AADT**
	Total Traffic Flow (07:00-19:00 hrs)	**HGV**	**%HGV**	
L1157 (W)	+10 (+2%)	+0 (+0%)	+5%	+11 (+0%)
L1157 (E)	+202 (+40%)	+192 (+247%)	+28%	+217 (+21%)
L1113 (N)	+10 (+0.8%)	+0 (+0%)	+4%	+13 (+1%)
R772 (N)	+202 (+9.6%)	+192 (+92%)	+10%	+253 (+6%)

Effects Upon Capacity of Receiving Road

14.265 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.

14.266 From **Table 14-7** the opening year daily traffic flow along L1157 is forecast to be 632 No. vehicles per day with a HGV content of 37.5% to the east of Ballinclare Quarry. The corresponding figures for the future year 2051 are 709 / 38%.

14.267 In traffic engineering, a rule of thumb or a generally accepted relationship between daily traffic volumes (AADT) and peak hour traffic is often used to estimate the proportion of traffic occurring during the busiest hour of the day. This is used in both the design and assessment of road capacities, especially since peak-hour traffic tends to influence the design of roadways and junctions. A common range for estimating peak hour traffic is 8% to 12% of the AADT, which means that approximately 8-12% of the total daily traffic occurs in the busiest hours of the day, which are typically in the morning and evening. In rural or suburban areas, the peak hour volume tends to be on the lower end of the spectrum, closer to 8-10% of the AADT, since traffic is typically more spread out over the day.

14.268 On the basis of the peak hours being at the upper end of the range and equal to 10% of the daily flow, the hourly flow on L1157 to the east of the existing access to Ballinclare Quarry is estimated to be in the region of 70 No. vehicles per hour combined two-way flow with the proposed development in operation and 50 No. were no development in operation at Ballinclare Quarry.

14.269 The design capacity of a rural undivided carriageway measuring 6.0m in width is estimated to be in excess of 1,000 vehicles per hour per direction.

14.270 **Table 14-2** and **Table 14-3** set out the current 2024 flows along the L1157 (E) without any traffic arising from the Ballinclare Quarry site and show approximately 27 cars and 2 HGV using the L1157 in the morning peak hour and 31 cars and 5 HGV in the evening peak hour.

14.271 It is estimated that the permitted quarry development if established and operational would give rise to an additional 15 HGV per hour in one direction thus increasing the total peak hourly[5] flow along L1157 to 27 cars and 17 HGV in the morning peak and 31 cars and 20 HGV in the evening. Light traffic generation at the quarry development would not be significant over the course of the day. Given the permitted hours of operation staff arrivals and departures would be unlikely to coincide with the identified commuter peak hours on L1157 so these vehicles are not included in this calculation.

14.272 Under the average traffic generation rate of 96 No. HGV per day at the proposed development the comparable potential increase is 10 HGV per hour in both directions therefore increasing the total hourly traffic flow on L1157 to 27 cars and 22 HGV in the morning peak and 31 cars and 25 HGV in the evening peak hour. For the same reason above, light vehicles are not included in the calculation. The incremental hourly increase of the proposed development traffic over that permitted is estimated to be in the order of 2.5 HGV in either direction.

14.273 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 considered likely that the change in traffic flows will not give rise to capacity issues on the receiving road network. On balance, and taking the identified road improvement works into consideration, the level of service and capacity of the L1157 are not considered likely to be significantly impacted.

14.274 The proposed combined rate of soil and C&D waste (and non-waste by-product) imported for recovery / recycling and landfilling at the proposed development will be up to a maximum or 600,000 tonnes per annum. This rate of waste importation will give rise to a volume of traffic that is less than the existing permitted limit of 150 No. loads or HGV trips per day. The primary change in traffic flows arises from the proposed alteration to the haul route.

14.275 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.

14.276 The local roads network intersects with the greater network at a motorway interchange at the Beehive Inn (M11 Junction 1: M11 / L1113) and at a priority junction between the R772 and L1157 near the Green Angel Skincare premises (the former Tap Restaurant), both junctions form part of the proposed haul route. The Beehive Inn junction is a grade

[5] Assumes that peak hour traffic generation equates to 10% of daily flow

separated motorway interchange which will has significant capacity to cater for current, permitted and proposed future traffic flows to and from the R772 (the former N11). This will remain the case 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 modest impacts that have historically arisen from the operation of the existing quarry and those impact that can potentially arise from the quarry use permitted under Planning Ref 14/2118.

14.277 The junction at the Green Angel Skincare premises (the former Tap Restaurant) is a priority arrangement. The N11 mainline or major road at the junction was reclassified to R772 Regional Road and traffic flows along the major road have reduced from a daily two-way flow of approx. 20,000 No. vehicles to approx. 1,700 No. which is in the order of 90%.

14.278 Given the significant reduction in major road flows, it is highly unlikely that the traffic flows arising from proposed development at Ballinclare Quarry will have a significant impact upon capacity, road safety or the structural integrity and carrying capacity of the Regional Road.

14.279 The R772 / L1157 junction was improved and reconfigured geometrically in the same timeframe as the M11 works. The road structure and surfacing are 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 Effects – Post Closure Stage

14.280 Upon completion of landfilling and backfilling to original ground level, the former quarry lands will be restored to long-term native woodland habitat and will not generate any HGV traffic thereafter.

14.281 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.

Cumulative Effects

Construction and Operational Phases

14.282 A number of minor developments have been granted permission within the surrounding area, these are typically associated with extensions or alterations to single buildings and will not have the potential for significant cumulative impact. Identified developments with the potential to generate HGV within 5km of the study area include the following:

Table 14-15
Nearby Development

	Planning Ref. No.	Description	Relative Location	Comment
1	ABP 314374	Substitute consent application for sand and gravel pit	3.5km SW	Pending Located south of L1152 No Interaction with proposed haul route
2	21/672	Reclamation of land through the filling with clay, silt, sand, gravel or stone on site of 4.41 hectares, for purpose of improvement of land, together with site access / roadway and other ancillary site works. ▪ Permitted 19-01-2022 ▪ 20,000t/a for 3 years	Keeloges Rathdrum Co. Wicklow 4.0 km W	Located on L1152 Potential to use L1157 for haulage is considered low This traffic would have been picked up in surveys for baseline

	Planning Ref. No.	Description	Relative Location	Comment
3	22/147	Importation and deposition of inert subsoil and topsoil for land profiling and re-contouring purposes, including the continued use of existing wheel-wash and extension to existing internal haul road, and all site ancillary works at an existing agricultural holding of 4.890 hectares. ▪ Permitted 18-08-2022	Balleese Lower Rathdrum Co. Wicklow 5.0 km W	Haul route from Rathdrum via. R752 and L1152 No HGV traffic to L1113 Coolbeg Road. No potential to use L1157 for haulage.
4	23/626	The reclamation of land through the filling of material compromising clay, silt, sand, gravel or stone on a site having an area of 8.20 hectares, for the purpose of improvement of land, together with the retention and use of the existing site access road, entrance off the old N11 ▪ Permitted 07-05-2024	Ballinalogh Co. Wicklow 3.5 km NE	Site located to north of M11.J18 Beehive Potential for development traffic to use L1157 is negligible.
5	23/801	Reclamation of land through the filling of material for the purpose of improvement of land, together with site access and ancillary works granted under PRR No.18/74 ▪ Time extension granted 12-12-2023	Newbawn Rathdrum Co. Wicklow 4.2 km SW	Traffic routing from M11.J18 L1113 And R752, L1152 from Rathdrum. Potential use of L1157 is negligible.
6	23/60497	Reclamation of land through the filling of material comprising of clay, silt, sand, gravel or stone for the purpose of improvement of land for agricultural use, temporary haul road from existing entrance and ancillary works including portable truck wheel ▪ Not decided – RFI received 24-07-2024 ▪ 48,000t in one year	Ballincor East Co. Wicklow 2 km SE	Traffic routing directly from R772 to the south of former Tap Restaurant

14.283 Only the proposed development at Ballincor East has the potential to give rise to a cumulative effect when considered in concert with the proposed development. The potential for cumulative effect arises on the R772 (former N11) which is the haul route associated with the prospective development. Given the short-term duration of the development and the modest increases in average traffic arising from the proposed development and that will be passing through L1157 / R772 junction on the mainline R772, the cumulative level of impact is considered likely not to be significant.

14.284 The road network assessments do not include for specific local developments other than the proposed development. Permitted development and other future development that may give rise to the generation of new traffic on the receiving roads network is included for by the application of TII published growth rates to existing surveyed traffic flows on the receiving road in the study area. The baseline network traffic flows for each of the assessment years are derived from the application of TII published growth factors and

these are set out in **Table 14-6**. The factors listed are the standard central growth rates set out in TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).

14.285 The additional traffic generation arising on the receiving road network reflect the level of expected traffic demand based on economic activity, population growth, and transport trends. The forecast increases in network traffic assumed in this Chapter through the application of the TII growth rates is as follows:

- 2024-2026 (Opening Year)----------3.16% (Cars)----------7.7% (HGV)
- 2024-2041 (Opening Year +15yrs)----------16.1% (Cars)----------51.2% (HGV)
- 2024-2051 (Horizon - End Year)----------21.6% (Cars)----------85.1% (HGV)

14.286 The cumulative traffic arising from future economic growth and development resulting in traffic growth on the receiving network are included for in both the 'do-nothing' and 'do-something' road network assessment scenarios. Baseline traffic on the receiving road network includes traffic generated to and from the surrounding hinterland to which growth factors have been applied which is likely to result in robust calculations. It is reasonable to expect that traffic arising from the proposed development would by definition be included, or at least included in part in the TII growth rates. This factor is disregarded in the traffic assessments which considers all future traffic above baseline that is generated to the proposed development as totally new to the road network for both the proposed construction and operational periods.

14.287 The following **Table 14-16** summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

Table 14-16
Summary of Construction Phase Traffic Effects before mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Demolition Decommissioning	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
General Construction Traffic	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct

14.288 The following **Table 14-17** summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 14-17
Summary of Operational Phase Traffic Effects before mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Operational Traffic L1113 Coolbeg Rd	Positive	Significant	Receiving Network	Likely	Long-term	Direct
Operational Traffic L1157 Haul Route	Negative	Slight	Receiving Network	Likely	Long-term	Direct

MITIGATION MEASURES

Construction Phase Mitigation

14.289 During the construction phase of the proposed development, the local residents and local workers will be affected by a range of temporary and short-term effects such as noise, dust, HGV construction traffic, disruption to residential and commercial properties and perhaps in some occasional cases increased journey times.

14.290 Construction phase effects will be short-term. It is proposed that construction traffic will access the site via the proposed haul route along Local Road L1157 between Regional Road R772 (former N11) and the existing quarry site entrance. Whilst in use for the purposes of construction, the existing quarry entrance will remain an all-movements priority arrangement which has sufficient capacity to accommodate construction traffic. The effects of construction traffic upon the capacity of the existing access are forecast to be negligible.

14.291 The following mitigation measures are proposed:

- A Construction Traffic Management Plan will be prepared, including measures to provide information to affected parties, including advising land and property owners in advance of any diversions. Local access shall be maintained at all times. In addition, it is proposed that temporary signage shall be put in place to minimise disruption and ensure all road users understand that construction works are in progress.
- A detailed 'Construction Environmental Management Plan'(CEMP) sets out the allowable working day, construction traffic, parking arrangements and incorporates environmental protection measures.

Operational Stage Mitigation

14.292 In total, no additional traffic volume is likely to arise from the proposed development insofar as this relates to the total volume of light and heavy vehicles entering and exiting the 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 reducing traffic volumes by 25% and reducing HGV traffic by approximately 77%, however the proposal increases the total number of HGV movement traveling to/from the development site on the proposed new haul route along L1157. Based upon the daily average traffic generation of 96 No. HGV trips, the forecast increase over that currently permitted is in the order of 7%, incorporating an increasing in HGV traffic of approximately 21%.

14.293 The following section entitled '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.

14.294 The design life of the road improvement works is 25 years so it follows that, save for routine maintenance, no additional mitigation measures are considered necessary during the operational stage of the proposed development.

Road Strengthening and Widening

14.295 To accommodate the quarry development permitted under Planning Ref. 14/2118 that generates a greater total volume of HGV traffic to the proposed development, only road strengthening works were considered to be required on the L1157 by the Roads Authority. This requirement was based upon the understanding that the Applicant would continue to operate the informal one-way haul route policy to reduce the frequency of HGVs meeting opposed on the road network.

14.296 Wicklow County Council in pre-planning engagement with the Applicant relating to the previous SID application (Ref. No. ABP-309991-21) indicated its opinion as Roads Authority that due to current local traffic characteristics and changes since the grant of permission under Planning Ref. 14/2118 and the completion of the M11 Motorway, the benefits of the one-way system were not in evidence. To limit insofar as practicable the incidences of opposed HGV meeting on the general road network including L1157 and L1113 the Planning Authority indicated that a shorter haul route along the L1157, directly to and from the R772 was preferred, subject not only to appropriate road strengthening but subject to road widening works appropriate to accommodating the opposed passage of HGV traffic. This has been confirmed in pre-planning engagement with the Roads Authority in the preparation of this Chapter.

14.297 There is no dispute that local roads generally require strengthening where the carriageway is shown to have structural weaknesses. The current grant of permission under Planning Ref. 14/2118 is testament to this and the permission is conditional on the provision of the carriageway strengthening works proposed as part of that development. The comprehensive road improvement works identified in the current application similarly include for strengthening and it is expected and respectfully invited that, should the Board be minded to grant permission that same is conditional on the agreement with the Roads Authority regarding the engineering detail relating to the detailed roads design and construction of the carriageway strengthening and road improvement works identified in this Chapter and the accompanying drawings.

14.298 The proposed development at Ballinclare Quarry will generate a lower volume of HGV traffic with similar characteristics in terms of vehicle type and payload, nevertheless it is proposed to alter the haul route from the previous informal 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. This will result in a reduction in traffic on L1113 of approximately 12% and a reduction in HGV traffic in the order of 60% over that flow that would be manifest upon implementation of the quarry development permitted under Planning Ref. 14/2118. Nevertheless, the current proposal is for traffic to come and go from the east using only Local Road L1157 and, using the same baseline, will effectively increase traffic flows by 7% and HGV flows by 22% travelling along the L1157 to the east of the development access.

14.299 The application site is currently permitted Planning Ref. 14/2118 to generate 150 No. trips per day (150 No. in and 150 No. out) and was granted permission in January 2016. It is a matter of fact and a matter of law that there is no formal restriction on the movement of HGV to / from the permitted quarry development. The potential exists under the current permission that all traffic could travel in any direction to / from the application site. This has always been the case at the site since its acquisition by the Applicant. The Applicant has self-applied a policy of using a one-way haul route as identified and has every intention of continuing to employ this policy in operating the permitted quarry. It is a matter of fact nonetheless that site generated quarry traffic travelling two-way on any of the receiving roads (L1113 and L1157 included) would not be in breach of planning. It follows as a matter of fact therefore that the current permitted development has the same and greater potential to generate two-way traffic on the L1157 should the Applicant implement the quarry development and simply choose to abandon the one-way system. Notwithstanding this, the assessments herein consider a baseline where the one-way system is in place and thus examines a worst-case scenario with respect to the potential impact of the proposed development. In the interest of a comprehensive assessment, the assessments also provide analysis of the receiving roads under the alternative scenario where the one-way system is abandoned when considering the potential traffic generation characteristics of the permitted quarry development.

14.300 Given the total number of HGV movements along the L1157 will increase, the previously agreed road strengthening works under Planning Ref. 14/2118 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 HGVs 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 as shown in **Figure 14-21**.

Previous Consultation with Roads Authority

14.301 In terms of traffic generation, the current proposal is practically identical to a previous application under Section 37E of the Planning and Development Act, 2000 considered by An Bord Pleanála under Case Ref. No. ABP-309991-21. In preparing the traffic chapter of the EIAR for that development, there was on-site pre-application engagement with Wicklow County Council which 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 and a road condition survey. Trafficwise personnel met with the Arklow Municipal District Engineer on 24 July 2020 to conduct a joint walkover assessment of the structural condition and width of Local Road L1157 between the Green angel Skincare premises (the former Tap Restaurant) and the existing site access.

14.302 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. 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.

14.303 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 Ref. 14/2118).

14.304 Trafficwise subsequently prepared preliminary road widening and strengthening 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 and Haul Route Structural Analysis Survey), to widen the road to a minimum 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.

14.305 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. **Figure 14-21** does show that a width of 5.5m allows for opposed passage, but not with comfort. Wicklow County Council Roads Section advised that it was 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 was and is currently subject to locally generated HGV traffic. Coolbeg Road does not 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 5.7m to 5.8m, and this was not considered sufficient principally due to the

observed encroachment of HGVs into the grassed verge when passing other HGVs opposed at particular locations.

14.306 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 with was not achievable.

14.307 In addition to carriageway widening, it was clear from the joint walkover road inspection survey of 24 July 2020 that a comprehensive road improvement scheme 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.

14.308 In brief the road improvement works in that case included a series of inter-visible passing bays along the 2km haul route together with road widening for more than half the length of the haul route between the R772 and the existing site access. Notwithstanding the Area Engineer's initial objective of wishing to achieve a 6.0m road width for the full length of the haul route, Wicklow County Council was satisfied with the road strengthening and widening works and with the previous SID application (Ref. No. ABP-309991-21), the Roads Authority ultimately had no objection to a grant of permission for the development.

Recent Follow-Up Consultation with Roads Authority

14.309 As set out earlier, given the passage of time since the previous SID application to An Bord Pleanála (Ref. No ABP-309991-21), a revised road condition survey has been carried out. The road condition survey is comparable in scope to that undertaken previously and that had informed the previous road improvement scheme. The results of the road condition survey show that the structure of the carriageway of Local Road L1157 has not degraded significantly in the 10 years or so since the previous survey was carried out. The previous road improvement works included for an overlay of the entire haul route between R772 and the existing site entrance, in addition, informed by the road condition survey and the walkover assessment with Wicklow County Council the proposed improvement works had identified areas where the carriageway was considered to require structural or strengthening works. The areas requiring such treatment were set out in a series of drawings which accompanied the application.

14.310 The current proposal similarly includes for road improvement works along the L1157. The formulation of the works follows the same methodology as before and the same level of pre-planning engagement. The Applicant's Engineer met with the current Arklow Municipal District Engineer on 23 Sept 2024 to conduct a further walkover survey. This survey was conducted to confirm the extent of the strengthening works previously agreed for the L1157. In general, it was agreed that the structure of the carriageway had not significantly degraded from the previous walkover survey. Some minor modifications were made to the previous areas of strengthening that had been agreed in 2020. The current road strengthening works are practically identical to those previously agreed with the Arklow Municipal District Engineer. The principal difference in the overall road improvement scheme is the abandonment of the inter-visible passing areas and instead a widening of the entire road to 6.0m as was, and still is favoured by the Roads Authority.

14.311 Attached as **Appendix 14-C** is a series of drawings showing the road strengthening, widening and improvement works to the L1157 between Ballinclare Quarry and Regional Road R772. **Appendix 14-C** includes the following drawings:

Series WD – Road Widening Works

- 02991-24-WD-00A Road Widening (NTS) General Layout
- 02991-24-WD-01A Road Widening - Chainage +0.000 to +500.000
- 02991-24-WD-02A Road Widening - Chainage +500.000 to +1180.000
- 02991-24-WD-03A Road Widening - Chainage +1180.000 to +2050.000

Series ST – Road Strengthening Works

- 02991-24-ST-00A Road Strengthening (NTS) General Layout
- 02991-24-ST-01A Road Strengthening - Chainage +0.000 to +500.000
- 02991-24-ST-02A Road Strengthening - Chainage +500.000 to +1180.000
- 02991-24-ST-03A Road Strengthening - Chainage +1180.000 to +2050.000

14.312 The previous application had proposed improving the haul road by widening to 6m over a significant length and combining this with extensive inter-visible passing areas. At various points the 6.0m width objective was not easily achievable due to various constraints and economic considerations. The most recent assessment of boundary constraints has found that the haul road along the L1157 can be widened to 6.0m over the full length between the R772 and the existing quarry access. This had been the preference of Wicklow County Council in the previous application and as it transpires widening over the full length was preferred by those who made submissions to the previous application file and who later expressed a preference to the Applicant in various consultations.

14.313 The road improvement works to the L1157 do not encroach into the accesses of farms and there is reconfiguration of the edge of the road at farm entrances. The road improvement works do not impact negatively on the existing direct accesses. One of the core principles adopted in the design of the road improvement scheme has been to eliminate encroachment upon existing direct accesses and junctions and this is borne out in the submitted drawings.

14.314 The road strengthening and improvement scheme shows the carriageway widened to a consistent 6.0m over the full length of the L1157 haul route between R772 and the existing quarry entrance and such widening is achievable within the constraints of the existing public road.

14.315 Drawing series WD ‘Road Widening Works’, shows how the widening to a 6.0m carriageway can be achieved. The drawings show a centreline chainage along L1157 where the start chainage is at the edge of the R772 carriageway. The existing carriageway widths are shown dimensioned in ‘red’ generally at 10m centres over the full length of the haul route. The existing edges of the road are marked with a dashed red line save where there are road edge kerbs (underpass of M11). Where widening of the existing carriageway is required to achieve the 6.0m width, these areas are highlighted ‘dark grey’ and dimensioned ‘black’ and this regimen is clearly highlighted in the drawing ‘key’.

14.316 Drawing series ST ‘Road Strengthening Works’ show in detail those areas where road strengthening is required. Strengthening will generally involve digging out the existing carriageway and reinstatement with new materials to the specification for roads construction used by, or agreed with, Wicklow County Council. Most of the sections that require strengthening have identified failures of the carriageway edges. The areas of road strengthening have been identified by a combination of recent detailed road condition surveys together with a walkover survey undertaken by the Applicant’s Engineer and the Arklow Municipal District Senior Executive Engineer. The first such joint inspection took place on 24 July 2020 and the second was carried out on 23 September 2024.

14.317 At all locations identified for road strengthening where this includes for edge strengthening there will be some minor element of road widening as a matter of course. The initial objective is to provide a carriageway width of 6.0m and this is achievable over all the

sections requiring strengthening as detailed on the ST 'Road Strengthening Works' series of drawings.

14.318 The sections of strengthening have been assessed by Roads Condition Survey and a joint further walkover survey by the Arklow Municipal District Senior Executive Engineer and Applicant's Roads Engineer. The sections included in the strengthening works drawings not only correspond with those previously identified by the Arklow Municipal District Engineer as noted during the joint site meeting of 24th July 2020 which were confirmed by the recent joint walkover inspection survey of 23 September 2024, but also include additional areas and road edge works identified by the Applicant's Road Engineer together with some minor enlargements to the strengthening works previously identified and agreed.

14.319 In addition to the road widening works shown on the drawings, once the road widening, road strengthening and structural repair works have been completed, the final works will include the overlay the entire L1157 from the R772 up to and including the existing site access. The overlay will provide a consistent and smooth wearing course or running surface. The roadway will be marked with road edge and centreline markings. Existing road edge swales will be trimmed and regraded to improve road drainage.

14.320 The previous FWD assessment of the road structure as set out in Haul Route Structural Analysis Survey of June 2015 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 quarry permission, the principal change associated with the proposed development will be that HGV also arrive at the site from the R772.

14.321 Given the passage of time since the detailed FWD carriageway assessment of the Haul Route Structural Analysis Survey in 2015 (See **Appendix 14-B** 'Haul Route Structural Analysis Survey' dated June 2015), and given the change in traffic flow characteristics, in evaluating the previous SID application (Ref. ABP-309991-21) Wicklow County Council engineers sought that the final overlay thickness be increased to a total depth of 80mm. This had been the recommendation considered appropriate under the previous SID. The current proposed development will generate a lower daily average volume of HGV nonetheless the characteristics of development traffic are comparable with the previous SID. The assessment of strengthening works calculated in the more recent road conditions surveys undertaken in July 2024 (See **Appendix 14-B** 'Falling Weight Deflectometer Survey' dated October 2024) serve to confirm that an overlay of 80mm would be satisfactory. Accordingly, in light of the recommendations of the Arklow Municipal District Engineer, the current road improvement works similarly make provision for an 80mm overlay to Local Road L1157 between the site access and Regional Road R772. It is understood that the Planning Authority considers the road improvement works 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 development at Ballinclare Quarry.

14.322 The road improvement works set out above essentially constitute road maintenance and road safety improvement works including road strengthening, localised pavement widening and pavement edge strengthening. The road improvement works will not impact 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 road improvement works do not require the use of third-party lands or consent from third party landowners.

14.323 Close examination of the submitted suite of drawings provided in **Appendix 14-C** confirms that the road 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 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.

14.324 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 site / facility, depending on the frequency on any transgressions. This approach has proved very effective in controlling hauliers at other similar developments operated by Kilsaran.

14.325 The Applicant's project team has consulted extensively with Wicklow County Council with respect to the details of the 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.

14.326 The detailed set of drawings included in **Appendix 14-C** were provided to the Planning Authority for review and consideration. Save for minor amendments to annotation on the drawings to reflect the increased strengthening areas and minor tweaking of the alignment in response to matters raise in public consultation the current drawing set is unchanged from those provide at the pre-planning consultation stage.

14.327 Wicklow County Council has indicated that it is satisfied in principle with the upgrades being proposed. In examining the previous SID application (Ref. No ABP-309991-21), 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 details are still relevant in the context of the current, and similar road improvement works. Notwithstanding that these are matters of engineering detail and will as a matter of course be agreed with the Road Authority, they are reproduced here for completeness:

- 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 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 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.

14.328 The works outlined in the submitted documents are those of road improvement and maintenance all within the public road. In this regard we refer to the Roads Act 1993, Section 2 that defines the 'public road', 'roadway', 'road' and defines 'maintenance' in relation to the public road to include improvement and management. Improvement that can be carried out by the Road Authority is reasonably considered to include such works as carriageway strengthening, carriageway widening, drainage schemes, street lighting schemes, footway provision, landscaping etc. As set out at Section 13(7) and 13(8)(a) of the Roads Act 1993, the Road Authority can provide any amenity, structure or thing for the safety and convenience of road users.

14.329 The Applicant put forward a package of road improvement works which are considered appropriate to accommodate development and baseline network traffic on the receiving road network. The Applicant does not propose to undertake development works in the public road and has no authority to do so without the issue of the appropriate licences.

14.330 Wicklow County Council acknowledges in the conditions of planning it has applied or has recommended are applied in previous applications that the detail of engineering works in the public road are required to be agreed with the Roads Authority. In the previous applications the applied and/or suggested conditions do not require the Applicant to carry out the works in the public road. It is understood that agreed works will be carried out by Wicklow County Council or by an appointed and authorised agent of Wicklow County Council in which regard we refer to Roads Act 1993, Section 13.

14.331 Examination of the submitted drawings confirms that the road improvement 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. Strengthening and widening are the categories of road improvement considered fundamental under the term 'maintenance' as defined in the Roads Act 1993. The detailed design of the works will be agreed with Wicklow County Council and the works will be carried out by Wicklow County Council or by an appointed and authorised agent of Wicklow County Council.

14.332 The proposed road strengthening and widening scheme does not impact upon third party properties nor does it impact upon existing trees save for the type of maintenance routinely required to remove branches that overhang the carriageway or that otherwise interfere with the passage of vehicles. This type of maintenance is required regardless of the current application. Tree trimming and the removal of obstruction to the passage of vehicles is required on the public road. It stands to reason that tree trimming is necessary to accommodate existing large agricultural machinery, existing HGV traffic and existing permitted quarry HGV traffic. The widening and road strengthening works will benefit those larger vehicles already using the road.

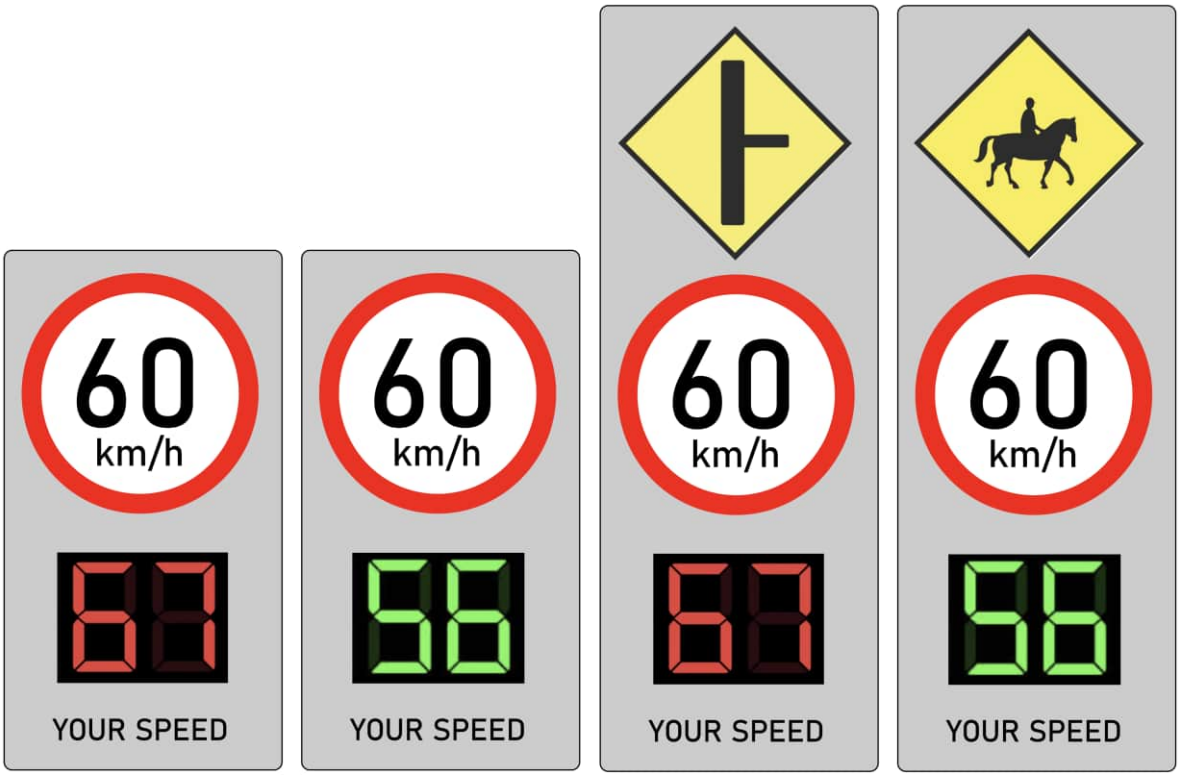
Proposed Driver Feedback Signing

14.333 Local Road L1157 is due to be subject to a revised local road speed limit. It is understood that the speed limit will be lowered to 60km/h. From discussions with the Arklow Municipal District Engineer it was agreed that it would be appropriate, as part of the road improvement scheme, to incorporate electronic driver feedback signing. Electronic Driver Feedback Signing (DFS) are equipped with digital displays that provide real-time information to drivers, usually regarding their speed or other relevant driving conditions. These signs are designed to enhance road safety by making drivers more aware of their behaviour and encouraging them to adjust accordingly. The WD series of drawings in **Appendix 14-C** identify potential locations for a total of 4 No. feedback signs, 2 No. facing eastbound traffic and 2 No. facing westbound traffic. The precise location of the signs is to be agreed at the detailed design stage.

14.334 The 4 No. signs are speed feedback signs. These signs will display the approaching vehicle speed in large, easy-to-read digits. If the speed exceeds the posted limit, the sign will flash a warning (e.g. “Slow Down”), helping drivers quickly recognize and adjust their speed. Feedback visual alerts may include flashing digits or colour changes (e.g. green for safe speed, red for over speeding) to get the driver’s attention. Importantly the electronic driver feedback signs will be equipped with data collection tools, allowing the Roads Authority to analyse speed patterns, monitor traffic volumes, and assess road safety issues in real time. The goal of DFS is to promote safer driving by giving drivers immediate feedback on their actions, which often leads to a reduction in speeding. The signs are usually powered by solar energy and have built-in radar detectors to track vehicle speed.

14.335 Driver Feedback Signs come in different configurations which can be tailored to the particular location and circumstances. **Figure 14-22** shows a typical sign arrangement in common use. As shown in the **Figure 14-22** examples, these signs can be combined with other warning sighs so as to avoid a proliferation of posts and signs and also, in some special cases to emphasise the reason for lowering speed.

Figure 14-22
Example of Typical Driver Feedback Signing



Proposed Driver Induction Training

14.336 When commencing the operational phase of the proposed development drivers that will be using the site will be required to attend a HGV driver induction lecture which the Applicant has initiated at other similar sites and considers a crucial tool for ensuring that all drivers are fully aware of the rules and expectations regarding safety, adherence to the haul route, speed limits, and courteous behaviour towards other road users. Set out below are some of the key elements that will be part of the Driver Induction and continuous motoring and management that will be undertaken by the operators of the site.

Driver Induction Information

14.337 The induction lecture will set clear expectations for drivers, reinforce the importance of safety, compliance, and courtesy, and ensure that drivers are aware of the operational and legal requirements associated with the new development and haul route in particular. By establishing these guidelines early, it helps create a safe, efficient, and respectful environment for both drivers and other road users. Som of the key elements of driver induction and haul route driver conduct and management are set out below:

Overview of the Quarry Operations:

Brief drivers on the purpose of the development, materials being imported, and materials being exported. Highlighting in both cases the procedure for processing both and the procedures for handling of materials and preparation of vehicles including cleaning, sheeting etc.

Haul Route Overview:

Provide detailed information about the designated haul route, including:

- Identify specific roads and lanes to be used
- Identify any restricted areas or routes to avoid
- Locations of entry and exit points to and from the development.
- Identify the specified internal routes
- Supply each driver with maps of the haul route and highlight the key landmarks, turnings, and any signage to follow.

Importance of Dedicated Haul Route:

- Explain why the dedicated route has been established, such as minimising the impact on residential areas, protecting local infrastructure, and ensuring road safety.
- Emphasise that deviation from the designated haul route will not be tolerated and could lead to disciplinary action, as well as legal and safety consequences.
- Highlight the risks of damage to public roads not designed for HGVs.
- Make clear the relationship with local community.

Tracking and Monitoring:

Inform drivers that route adherence will be monitored, possibly using GPS tracking or other telematics systems, and highlight the importance of accountability.

Speed Limits on the Haul Route:

Clearly state the speed limits along various sections of the haul route, emphasising the need for strict compliance.

- Differentiate between speed limits within the quarry premises, public roads, and sensitive areas like near schools or residential zones.
- Stress the importance of obeying speed limits for safety, vehicle control, and preventing wear and tear on local roads.
- Outline the consequences of speeding, including the use of speed monitoring systems (speed cameras, GPS-based tracking), and the penalties for violations.

Driving Behaviour and Courtesy:

- Reinforce the importance of being courteous to other road users, particularly along the haul route.

- Encourage drivers to be mindful of smaller vehicles, cyclists, pedestrians, and agricultural vehicles that may use parts of the haul route.
- Employ best practices for courteous driving by maintaining safe following distances, particularly in traffic or around vulnerable road users.
- Avoid aggressive driving behaviours, like tailgating or overtaking in dangerous conditions.
- Always signal intentions early and avoid abrupt manoeuvres.
- Give way to emergency vehicles and local traffic where appropriate.

Minimizing Noise and Dust:

Advise drivers to reduce noise by minimising unnecessary revving of the engines and controlling their speed on gravel or uneven surfaces to reduce dust emissions. Ensure that loads are sheeted.

Personal Safety:

Emphasize the importance of safety protocols within the development, including the use of high-visibility clothing, hard hats, and other required personal protective equipment (PPE).

Vehicle Safety Checks:

Stress the need for daily vehicle inspections (tires, brakes, lights, mirrors, and fluid levels) before starting the haul, to ensure vehicle safety and compliance with regulations.

Load Safety:

Ensure drivers understand how to secure their loads properly to prevent accidents, especially during transport on public roads.

Minimizing Environmental Impact:

Remind drivers to be aware of the environmental implications of their work, such as reducing dust, preventing fuel spills, and minimizing noise pollution.

Waste Disposal:

Instruct drivers on proper waste disposal practices at the quarry and along the haul route, ensuring that no litter or waste material is discarded improperly.

Incident Reporting Procedures:

- Inform drivers of the procedures to follow in case of accidents or breakdowns, both within the quarry and along the haul route.
- Provide contact information for emergency services, roadside assistance, and quarry management.
- Encourage the reporting of near misses and unsafe conditions to help identify and mitigate potential risks.

Community Communication Protocols:

Provide a contact number on the gates of the development so that members of the community have a direct contact number to report driver behaviour on the haul route should that be necessary

Legal Compliance and Licensing:

- Reaffirm that drivers must have the appropriate Heavy Goods Vehicle (HGV) licenses and certifications to operate.

- Emphasize that all drivers are expected to comply with local and national road traffic laws at all times.
- Remind drivers of the legal requirements for maintaining tachograph records and adhering to limits on driving hours and rest periods.

Proposed Advance Warning Signing

14.338 Condition No. 9 of the permission granted under Planning Ref. 14/2118 requires that the developer refurbish the advance warning signs, further requiring that the signs be maintained in good and clean condition. The Applicant respectfully invites an appropriate condition in this regard. The layout and detail of the signs can be agreed in writing with Wicklow County Council prior to the intake of materials.

Proposed Road Maintenance

14.339 Condition No. 8 of the permission granted under Planning Ref. 14/2118 requires that the developer maintain the adjoining public road in a clean state, free from mud and debris caused by haulage associated with the site. A similar condition is invited.

Do Nothing Scenario Mitigation

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

14.341 No mitigation measures are considered necessary in the Do-Nothing Scenario.

Post – Operational Stage

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

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

RESIDUAL IMPACT ASSESSMENT

Construction and Operational Phases

14.344 The proposed development will have no effects on the receiving road network other than those already arising from previously permitted development. This section assesses potential significant environmental impacts which remain after mitigation measures are implemented. The following **Table 14-18** summarises the identified likely significant effects during the construction phase of the proposed development after mitigation measures are applied.

Table 14-18
Summary of Construction Phase Traffic Effects after mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Demolition Decommissioning	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
General Construction Traffic	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct

14.345 The following **Table 14-19** summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

Table 14-19
Summary of Operational Phase Traffic Effects after mitigation

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Operational Traffic L1113 Coolbeg Rd	Positive	Significant	Receiving Network	Likely	Long-term	Direct
Operational Traffic L1157 Haul Route	Negative	Slight	Receiving Network	Likely	Long-term	Direct

Cumulative Residual Effects

14.346 Given the location of other permitted developments and the likely potential for traffic generation it is not considered likely that there will be a perceptible cumulative impact.

Post – Operational Stage

14.347 No traffic impacts are identified after the operational stage.

'Do Nothing' Impact

14.348 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 No. 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 No. HGV movements to L1113 and the addition of 150 No. HGV movements to L1157. The do-something scenario removes the former and increases the latter whilst including for significant road improvement works to the haul route including strengthening and widening of the carriageway.

REFERENCES

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

Transport Infrastructure Ireland Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014).

Transport Infrastructure Ireland Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).

Transport Infrastructure Ireland Publication PE-PAG-02039 'Project Appraisal Guidelines for National Roads Unit 16.1: Expansion Factors for Short Period Traffic Counts' (Oct 2016);

Transport Infrastructure Ireland Publication PE-PAG-02016 'Project Appraisal Guidelines for National Roads Unit 5.2 - Data Collection' (Dec 2023);

Transport Infrastructure Ireland Publication DN-GEO-03060 'Geometric Design of Junctions'. (May 2023)

Transport Infrastructure Ireland Publication DN-GEO-03061 'Rural Link Design'. (May 2023);

Wicklow County Development Plan 2022-2028

APPENDICES

APPENDIX 14-A

TRAFFIC SURVEY DATA

Site and Movement Numbering Mapping

Turning Count Site 1 – L1113/L1157

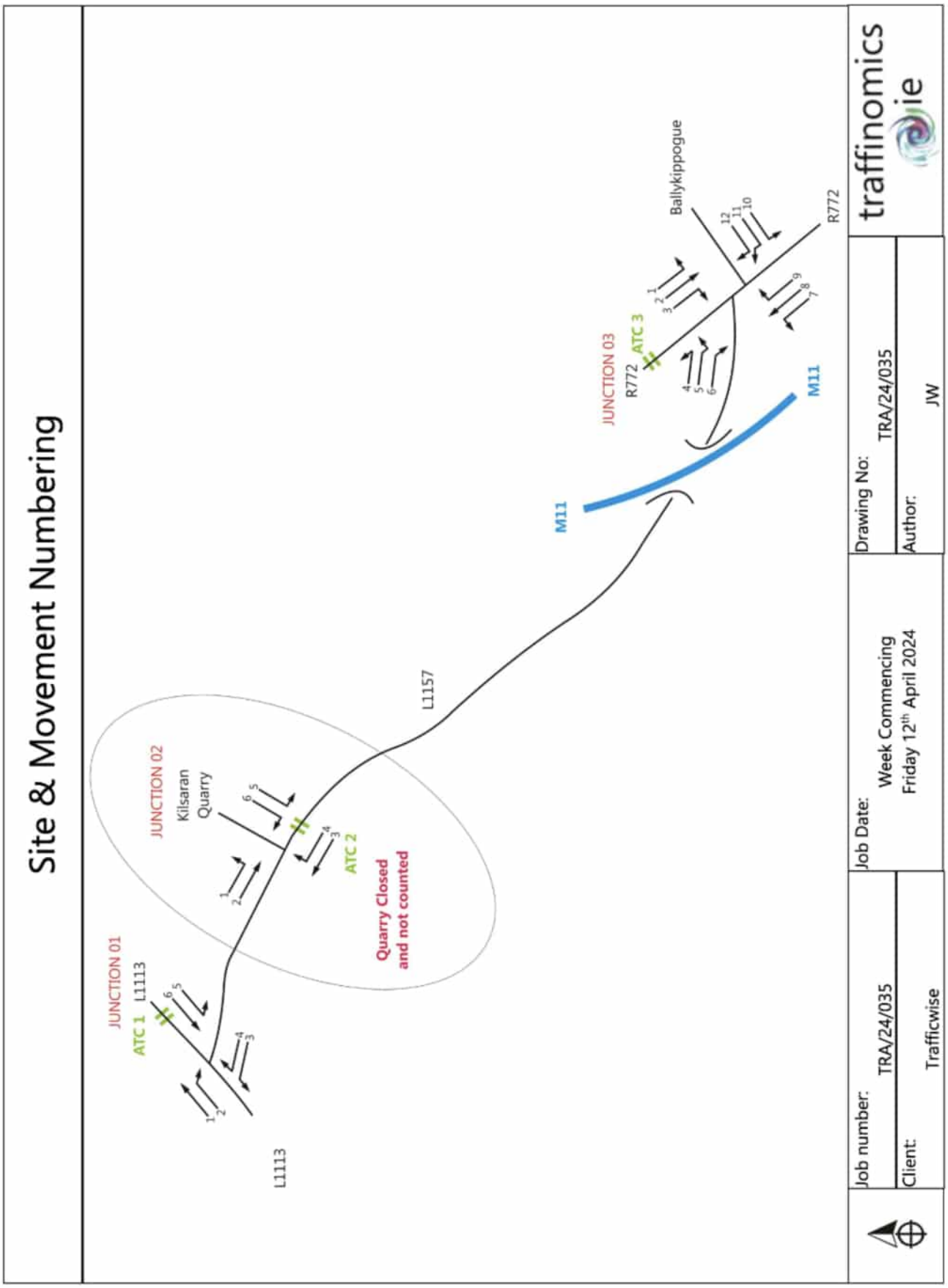
Turning Count Site 3 – R772/L1157

Automatic Traffic Count ATC1 L1113

Automatic Traffic Count ATC2 L1157 Near Ballinclare Quarry Access

Automatic Traffic Count ATC3 R772

Site and Movement Numbering Mapping


Site & Movement Numbering
JUNCTION 01
ATC 1
L1113
JUNCTION 02
Kilsaran
Quarry
ATC 2
Quarry Closed
and not counted
L1157
M11
JUNCTION 03
R772
ATC 3
Ballykippogue
R772
M11
L1113
Job number:
TRA/24/035
Client:
Trafficwise
Job Date:
Week Commencing
Friday 12th April 2024
Drawing No:
TRA/24/035
Author:
JW
traffinomics
ie

Turning Count Site 1 – L1113/L1157

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 01 DATE: 18th April 2024

LOCATION: L1113/L1157 DAY: Thursday

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
7:00	7	3	0	1	0	11	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	3	1	1	0	0	5	6	0	0	0	0	0	0	0	2	0	0	0	0	2	2
7:30	8	3	0	0	0	11	11	3	0	0	0	0	3	3	0	0	1	0	0	1	2
7:45	14	1	0	0	0	15	15	0	0	0	0	0	0	0	3	0	0	0	0	3	3
H/TOT	32	8	1	1	0	42	44	3	0	0	0	0	3	3	5	0	1	0	0	6	7
8:00	13	1	0	1	0	15	16	1	0	0	0	0	1	1	2	0	0	0	0	2	2
8:15	14	2	0	0	0	16	16	2	0	1	0	0	3	4	2	0	0	0	0	2	2
8:30	11	1	0	0	0	12	12	2	0	0	0	0	2	2	2	0	0	0	0	2	2
8:45	9	0	0	0	0	9	9	2	0	0	0	0	2	2	0	0	1	0	0	1	2
H/TOT	47	4	0	1	0	52	53	7	0	1	0	0	8	9	6	0	1	0	0	7	8
9:00	9	0	0	0	0	9	9	0	0	0	0	0	0	0	1	0	0	2	0	3	6
9:15	3	1	0	0	0	4	4	0	0	0	0	0	0	0	2	0	0	0	0	2	2
9:30	8	3	0	1	0	12	13	1	0	0	0	0	1	1	2	1	0	0	0	3	3
9:45	6	3	0	0	0	9	9	0	0	0	1	0	1	2	0	0	0	0	0	0	0
H/TOT	26	7	0	1	0	34	35	1	0	0	1	0	2	3	5	1	0	2	0	8	11
10:00	5	2	2	0	1	10	12	1	0	0	0	0	1	1	1	0	0	0	0	1	1
10:15	5	0	0	0	0	5	5	1	1	0	0	0	2	2	1	0	0	0	0	1	1
10:30	4	0	0	0	0	4	4	2	1	0	0	0	3	3	3	0	1	1	0	5	7
10:45	7	3	0	0	0	10	10	1	0	0	0	0	1	1	5	0	0	0	0	5	5
H/TOT	21	5	2	0	1	29	31	5	2	0	0	0	7	7	10	0	1	1	0	12	14
11:00	4	2	0	0	0	6	6	1	0	0	0	0	1	1	0	0	0	0	0	0	0
11:15	3	0	1	0	0	4	5	0	0	0	0	0	0	0	2	0	0	0	0	2	2
11:30	11	0	1	0	0	12	13	1	0	0	0	0	1	1	1	0	0	1	0	2	3
11:45	5	0	1	1	0	7	9	1	0	0	1	0	2	3	0	0	0	0	0	0	0
H/TOT	23	2	3	1	0	29	32	3	0	0	1	0	4	5	3	0	0	1	0	4	5
12:00	9	0	0	0	0	9	9	1	0	0	0	0	1	1	3	1	0	0	0	4	4
12:15	6	3	0	0	0	9	9	2	0	0	1	0	3	4	1	0	0	0	0	1	1
12:30	12	2	0	0	0	14	14	2	0	0	0	0	2	2	3	0	0	0	0	3	3
12:45	7	2	0	2	1	12	16	2	0	0	0	0	2	2	2	0	0	0	0	2	2
H/TOT	34	7	0	2	1	44	48	7	0	0	1	0	8	9	9	1	0	0	0	10	10

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 01 DATE: 18th April 2024

LOCATION: L1113/L1157 DAY: Thursday

	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
7:00	1	0	0	0	0	1	1	0	0	1	0	0	1	2	1	0	0	0	0	1	1
7:15	1	0	0	0	0	1	1	1	0	0	0	0	1	1	6	0	0	0	0	6	6
7:30	2	0	1	0	0	3	4	1	1	0	0	0	2	2	4	0	0	0	0	4	4
7:45	0	1	0	0	0	1	1	2	0	0	0	0	2	2	2	0	0	0	1	3	4
H/TOT	4	1	1	0	0	6	7	4	1	1	0	0	6	7	13	0	0	0	1	14	15
8:00	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	1	1
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H/TOT	4	3	0	0	0	7	7	5	2	0	0	0	7	7	16	2	4	0	0	22	24
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9:45	1	0	0	0	1	2	3	2	0	0	0	0	2	2	8	0	1	0	0	9	10
H/TOT	11	1	0	0	1	13	14	13	2	1	0	0	16	17	23	5	2	2	0	32	36
10:00	1	0	0	0	0	1	1	2	0	0	0	0	2	2	9	1	1	1	0	12	14
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10:45	0	0	0	0	0	0	0	1	0	0	0	0	1	1	8	0	1	0	0	9	10
H/TOT	1	2	0	0	0	3	3	6	0	0	0	0	6	6	35	4	3	2	0	44	48
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11:45	2	0	0	0	0	2	2	4	1	1	0	0	6	7	5	0	0	0	1	6	7
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H/TOT	4	3	2	0	0	9	10	10	1	0	0	0	11	11	26	3	0	2	0	31	34

TRAFFINOMICS LIMITED

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	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
TIME	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	3	1	0	0	0	4	4	5	0	0	0	0	5	5
13:15	8	0	0	2	0	10	13	3	0	0	0	0	3	3	0	1	0	0	0	1	1
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	5	3	0	1	0	9	10	1	0	0	0	0	1	1	3	0	0	0	0	3	3
H/TOT	18	4	0	5	0	27	34	7	1	0	0	0	8	8	9	1	0	0	0	10	10
14:00	6	1	2	0	0	9	10	0	0	0	0	0	0	0	4	0	0	1	0	5	6
14:15	9	1	1	0	0	11	12	0	0	0	0	0	0	0	3	1	0	0	0	4	4
14:30	5	1	0	0	0	6	6	1	0	1	0	0	2	3	0	0	1	1	0	2	4
14:45	4	0	1	0	0	5	6	1	0	0	0	0	1	1	1	0	0	3	0	4	8
H/TOT	24	3	4	0	0	31	33	2	0	1	0	0	3	4	8	1	1	5	0	15	22
15:00	7	1	1	2	0	11	14	3	0	0	1	0	4	5	1	0	1	1	0	3	5
15:15	7	0	1	0	1	9	11	2	0	1	2	0	5	8	1	0	0	0	0	1	1
15:30	5	1	0	0	0	6	6	4	0	0	1	0	5	6	2	0	1	0	0	3	4
15:45	6	1	0	2	0	9	12	2	0	1	0	0	3	4	2	0	0	0	0	2	2
H/TOT	25	3	2	4	1	35	42	11	0	2	4	0	17	23	6	0	2	1	0	9	11
16:00	10	0	0	1	0	11	12	0	0	1	0	0	1	2	1	0	0	0	0	1	1
16:15	4	1	0	0	0	5	5	1	0	0	0	0	1	1	0	0	0	0	0	0	0
16:30	8	0	0	0	0	8	8	1	1	0	0	0	2	2	4	1	0	0	0	5	5
16:45	8	1	0	0	0	9	9	4	0	0	0	0	4	4	4	1	0	1	0	6	7
H/TOT	30	2	0	1	0	33	34	6	1	1	0	0	8	9	9	2	0	1	0	12	13
17:00	3	2	0	0	0	5	5	1	0	0	0	0	1	1	1	0	0	0	0	1	1
17:15	6	0	0	1	1	8	10	2	0	0	0	0	2	2	2	0	0	0	0	2	2
17:30	6	1	0	1	0	8	9	1	0	0	0	0	1	1	1	1	0	0	0	2	2
17:45	3	1	1	0	0	5	6	2	0	0	0	0	2	2	1	1	0	0	0	2	2
H/TOT	18	4	1	2	1	26	30	6	0	0	0	0	6	6	5	2	0	0	0	7	7
18:00	7	0	0	0	0	7	7	2	0	0	0	0	2	2	1	0	0	0	0	1	1
18:15	7	0	0	0	0	7	7	0	1	1	0	0	2	3	2	0	0	0	0	2	2
18:30	6	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	7	0	0	0	0	7	7	0	0	0	0	0	0	0	2	0	0	0	0	2	2
H/TOT	27	0	0	0	0	27	27	2	1	1	0	0	4	5	5	0	0	0	0	5	5
P/TOT	325	49	13	18	4	409	443	60	5	6	7	0	78	90	80	8	6	11	0	105	122

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 01 DATE: 18th April 2024

LOCATION: L1113/L1157 DAY: Thursday

	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	1	2	0	0	0	3	3	3	0	0	0	0	3	3	6	1	0	0	0	7	7
13:15	0	0	0	0	0	0	0	3	0	0	0	0	3	3	5	0	1	1	0	7	9
13:30	3	0	1	0	0	4	5	3	0	0	0	0	3	3	13	3	3	0	0	19	21
13:45	0	0	0	0	0	0	0	0	1	0	0	0	1	1	10	0	1	1	0	12	14
H/TOT	4	2	1	0	0	7	8	9	1	0	0	0	10	10	34	4	5	2	0	45	50
14:00	2	0	0	0	0	2	2	0	0	0	0	0	0	0	2	0	0	3	0	5	9
14:15	4	0	0	0	0	4	4	2	0	0	0	1	3	4	4	0	0	1	0	5	6
14:30	5	1	0	0	0	6	6	2	0	0	0	0	2	2	1	1	0	0	0	2	2
14:45	2	0	0	0	0	2	2	2	1	0	0	0	3	3	8	0	0	1	0	9	10
H/TOT	13	1	0	0	0	14	14	6	1	0	0	1	8	9	15	1	0	5	0	21	28
15:00	0	0	0	0	0	0	0	5	0	0	0	0	5	5	9	0	0	2	0	11	14
15:15	3	0	0	0	0	3	3	4	0	0	0	0	4	4	13	1	1	0	0	15	16
15:30	0	1	0	0	0	1	1	2	1	0	0	0	3	3	9	2	1	1	0	13	15
15:45	2	0	0	0	0	2	2	3	1	0	0	0	4	4	8	1	0	0	1	10	11
H/TOT	5	1	0	0	0	6	6	14	2	0	0	0	16	16	39	4	2	3	1	49	55
16:00	2	0	0	0	0	2	2	4	0	0	0	0	4	4	9	1	0	1	0	11	12
16:15	3	0	0	0	0	3	3	1	2	0	0	0	3	3	10	1	0	0	0	11	11
16:30	3	1	0	0	0	4	4	3	0	0	0	0	3	3	13	1	2	1	0	17	19
16:45	4	1	0	0	0	5	5	1	1	0	0	0	2	2	5	0	1	0	0	6	7
H/TOT	12	2	0	0	0	14	14	9	3	0	0	0	12	12	37	3	3	2	0	45	49
17:00	4	1	0	0	0	5	5	3	0	0	0	0	3	3	17	0	0	1	0	18	19
17:15	2	0	0	0	0	2	2	6	2	0	0	0	8	8	9	1	0	0	0	10	10
17:30	1	0	0	0	0	1	1	3	2	1	0	0	6	7	11	0	0	0	0	11	11
17:45	1	0	0	0	0	1	1	1	0	0	0	0	1	1	5	1	0	0	0	6	6
H/TOT	8	1	0	0	0	9	9	13	4	1	0	0	18	19	42	2	0	1	0	45	46
18:00	3	0	0	0	0	3	3	3	0	0	0	0	3	3	11	0	0	1	0	12	13
18:15	0	1	0	0	0	1	1	0	0	0	0	0	0	0	7	3	0	1	0	11	12
18:30	4	0	0	0	0	4	4	3	0	0	0	0	3	3	10	0	0	0	0	10	10
18:45	4	0	0	0	0	4	4	2	1	0	0	0	3	3	11	1	1	0	0	13	14
H/TOT	11	1	0	0	0	12	12	8	1	0	0	0	9	9	39	4	1	2	0	46	49
P/TOT	81	18	4	0	1	104	107	103	20	5	1	1	130	135	346	34	20	22	4	426	469

Turning Count Site 3 – R772/L1157

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
7:00	0	0	0	0	0	0	0	3	0	0	0	0	3	3	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	4	3	0	0	0	7	7	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	6	0	0	0	1	7	8	2	1	1	0	0	4	5
7:45	0	0	0	0	0	0	0	9	1	0	0	1	11	12	4	0	0	0	0	4	4
H/TOT	0	0	0	0	0	0	0	22	4	0	0	2	28	30	6	1	1	0	0	8	9
8:00	1	0	0	0	0	1	1	6	0	0	0	2	8	10	1	1	1	0	0	3	4
8:15	0	0	0	0	0	0	0	6	1	1	0	0	8	9	0	2	0	0	0	2	2
8:30	0	0	0	0	0	0	0	11	1	0	0	1	13	14	1	0	0	0	0	1	1
8:45	1	0	0	0	0	1	1	10	1	1	0	0	12	13	2	0	0	0	0	2	2
H/TOT	2	0	0	0	0	2	2	33	3	2	0	3	41	45	4	3	1	0	0	8	9
9:00	1	0	0	0	0	1	1	16	1	1	0	0	18	19	1	0	0	0	0	1	1
9:15	1	0	0	0	0	1	1	8	3	1	0	0	12	13	1	2	0	0	0	3	3
9:30	0	0	0	0	0	0	0	5	2	1	2	0	10	13	3	1	0	0	0	4	4
9:45	0	0	0	0	0	0	0	9	3	1	0	0	13	14	1	0	0	0	0	1	1
H/TOT	2	0	0	0	0	2	2	38	9	4	2	0	53	58	6	3	0	0	0	9	9
10:00	1	0	0	0	0	1	1	6	1	0	1	0	8	9	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	12	1	0	0	0	13	13	2	1	0	0	0	3	3
10:30	0	0	0	0	0	0	0	3	0	1	0	0	4	5	1	1	0	0	0	2	2
10:45	0	0	0	0	0	0	0	6	2	1	0	0	9	10	0	1	1	0	0	2	3
H/TOT	1	0	0	0	0	1	1	27	4	2	1	0	34	36	3	3	1	0	0	7	8
11:00	0	0	0	0	0	0	0	3	4	1	0	0	8	9	2	0	0	0	0	2	2
11:15	1	0	0	0	0	1	1	6	1	0	0	0	7	7	2	0	0	0	0	2	2
11:30	0	0	0	0	0	0	0	8	2	1	1	0	12	14	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	12	3	2	0	0	17	18	1	0	0	0	0	1	1
H/TOT	1	0	0	0	0	1	1	29	10	4	1	0	44	47	5	0	0	0	0	5	5
12:00	0	0	0	0	0	0	0	8	1	0	0	0	9	9	2	0	0	0	0	2	2
12:15	0	0	0	0	0	0	0	12	2	1	0	0	15	16	3	0	0	0	0	3	3
12:30	0	0	0	0	0	0	0	9	2	0	1	0	12	13	1	0	0	0	0	1	1
12:45	0	0	0	0	0	0	0	14	4	1	0	0	19	20	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	43	9	2	1	0	55	57	7	0	0	0	0	7	7

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
7:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	2	0	0	0	0	2	2	0	0	0	0	0	0	0	1	0	0	0	0	1	1
7:30	2	0	0	0	0	2	2	2	0	0	0	0	2	2	2	0	0	0	0	2	2
7:45	4	0	0	0	0	4	4	0	0	0	0	0	0	0	2	0	0	0	0	2	2
H/TOT	9	0	0	0	0	9	9	2	0	0	0	0	2	2	5	0	0	0	0	5	5
8:00	4	0	0	0	0	4	4	0	1	0	0	0	1	1	2	0	0	0	0	2	2
8:15	7	0	0	0	0	7	7	0	0	0	0	0	0	0	2	0	0	1	0	3	4
8:30	1	1	0	0	0	2	2	0	0	0	0	0	0	0	6	1	1	0	0	8	9
8:45	3	1	0	0	0	4	4	2	0	0	0	0	2	2	5	0	0	0	0	5	5
H/TOT	15	2	0	0	0	17	17	2	1	0	0	0	3	3	15	1	1	1	0	18	20
9:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0	6	1	0	0	0	7	7
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	5	5
9:30	2	1	0	0	0	3	3	1	0	0	0	0	1	1	3	1	1	1	0	6	8
9:45	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	0	2	3
H/TOT	4	1	0	0	0	5	5	1	0	0	0	0	1	1	14	3	1	2	0	20	23
10:00	2	0	1	0	0	3	4	0	1	0	0	0	1	1	4	0	0	0	0	4	4
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	3
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	4	5
10:45	1	0	0	0	0	1	1	1	1	0	0	0	2	2	4	1	0	0	0	5	5
H/TOT	3	0	1	0	0	4	5	1	2	0	0	0	3	3	12	3	0	1	0	16	17
11:00	2	0	0	1	0	3	4	0	1	0	0	0	1	1	3	0	1	0	0	4	5
11:15	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	2	2
11:30	6	2	0	0	0	8	8	0	0	0	0	0	0	0	1	1	0	0	0	2	2
11:45	2	1	0	0	0	3	3	1	0	0	0	0	1	1	4	1	1	1	0	7	9
H/TOT	11	3	0	1	0	15	16	1	1	0	0	0	2	2	10	2	2	1	0	15	17
12:00	4	0	1	0	0	5	6	0	0	0	0	0	0	0	5	0	0	0	0	5	5
12:15	4	0	0	0	0	4	4	0	0	0	0	0	0	0	3	0	0	1	0	4	5
12:30	1	0	0	0	0	1	1	0	0	0	0	0	0	0	6	1	0	0	0	7	7
12:45	2	0	0	0	0	2	2	0	0	0	0	0	0	0	3	0	1	0	0	4	5
H/TOT	11	0	1	0	0	12	13	0	0	0	0	0	0	0	17	1	1	1	0	20	22

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 7							MOVEMENT 8							MOVEMENT 9						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
7:00	0	0	0	0	0	0	0	10	7	0	0	0	17	17	0	0	0	0	0	0	0
7:15	2	0	1	0	0	3	4	11	2	1	0	0	14	15	0	0	0	0	0	0	0
7:30	5	0	0	0	0	5	5	19	3	0	0	0	22	22	0	0	0	0	0	0	0
7:45	2	0	0	0	0	2	2	18	3	2	0	0	23	24	0	1	0	0	0	1	1
H/TOT	9	0	1	0	0	10	11	58	15	3	0	0	76	78	0	1	0	0	0	1	1
8:00	2	0	0	0	0	2	2	26	1	0	0	2	29	31	0	0	0	0	0	0	0
8:15	2	1	0	0	0	3	3	17	2	0	0	1	20	21	1	0	0	0	0	1	1
8:30	1	1	0	0	0	2	2	26	6	0	0	0	32	32	0	0	0	0	0	0	0
8:45	4	0	0	0	0	4	4	22	3	1	0	0	26	27	0	0	0	0	0	0	0
H/TOT	9	2	0	0	0	11	11	91	12	1	0	3	107	111	1	0	0	0	0	1	1
9:00	7	0	0	3	0	10	14	16	1	1	0	1	19	21	1	0	0	0	0	1	1
9:15	5	0	0	0	0	5	5	18	1	0	0	0	19	19	0	0	0	0	0	0	0
9:30	5	1	0	0	0	6	6	12	3	0	0	0	15	15	0	0	0	0	0	0	0
9:45	1	0	1	1	1	4	7	15	2	3	0	0	20	22	0	0	0	0	0	0	0
H/TOT	18	1	1	4	1	25	32	61	7	4	0	1	73	76	1	0	0	0	0	1	1
10:00	3	0	0	0	0	3	3	7	4	0	1	0	12	13	0	0	0	0	0	0	0
10:15	0	2	1	0	0	3	4	9	0	1	0	1	11	13	0	0	0	0	0	0	0
10:30	3	0	0	1	0	4	5	9	1	2	1	0	13	15	0	0	0	0	0	0	0
10:45	4	0	0	0	0	4	4	10	0	3	1	0	14	17	0	0	0	0	0	0	0
H/TOT	10	2	1	1	0	14	16	35	5	6	3	1	50	58	0	0	0	0	0	0	0
11:00	1	0	0	0	0	1	1	12	0	0	0	0	12	12	0	0	0	0	0	0	0
11:15	3	0	0	1	0	4	5	11	3	0	0	0	14	14	0	0	0	0	0	0	0
11:30	1	0	0	1	0	2	3	12	0	0	0	1	13	14	0	0	0	0	0	0	0
11:45	3	0	0	0	0	3	3	13	2	0	0	0	15	15	0	0	0	1	0	1	2
H/TOT	8	0	0	2	0	10	13	48	5	0	0	1	54	55	0	0	0	1	0	1	2
12:00	2	1	0	0	0	3	3	6	1	2	0	0	9	10	0	0	0	0	0	0	0
12:15	3	1	0	0	0	4	4	7	1	0	0	1	9	10	0	0	0	0	0	0	0
12:30	3	3	0	0	0	6	6	11	2	1	0	0	14	15	0	0	0	0	0	0	0
12:45	2	0	0	0	0	2	2	8	2	1	0	0	11	12	0	0	0	0	0	0	0
H/TOT	10	5	0	0	0	15	15	32	6	4	0	1	43	46	0	0	0	0	0	0	0

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 10							MOVEMENT 11							MOVEMENT 12						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
H/TOT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
8:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
8:15	1	0	0	0	0	1	1	1	0	0	0	0	1	1	0	1	0	0	0	1	1
8:30	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4	4
H/TOT	1	0	0	0	0	1	1	3	0	0	0	0	3	3	3	2	0	0	0	5	5
9:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30	1	1	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	1	1	0	0	0	2	2	1	0	0	0	0	1	1	1	0	0	0	0	1	1
10:00	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
10:30	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2	0	0	0	0	2	2
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	0	1	0	0	0	1	1	2	0	0	0	0	2	2
11:00	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	1	0	0	0	1	1	0	1	0	0	0	1	1	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
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H/TOT	1	1	0	0	0	2	2	0	1	0	0	0	1	1	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	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
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	3
12:45	2	0	0	0	0	2	2	0	0	0	0	0	0	0	1	0	0	0	0	1	1
H/TOT	2	0	0	0	0	2	2	1	0	0	0	0	1	1	2	0	0	1	0	3	4

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 1							MOVEMENT 2							MOVEMENT 3						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	0	1	0	0	0	1	1	7	0	0	0	0	7	7	3	0	0	0	0	3	3
13:15	0	0	0	0	0	0	0	10	1	1	0	0	12	13	5	0	1	0	0	6	7
13:30	1	0	0	0	0	1	1	17	3	1	0	0	21	22	0	0	0	0	0	0	0
13:45	1	0	0	0	0	1	1	5	2	1	0	0	8	9	2	0	0	0	0	2	2
H/TOT	2	1	0	0	0	3	3	39	6	3	0	0	48	50	10	0	1	0	0	11	12
14:00	2	0	0	0	0	2	2	10	1	0	0	0	11	11	1	0	0	0	0	1	1
14:15	3	0	0	0	0	3	3	14	0	0	0	0	14	14	1	0	0	0	0	1	1
14:30	0	0	0	0	0	0	0	12	2	1	0	0	15	16	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	16	2	0	0	0	18	18	0	0	0	0	0	0	0
H/TOT	5	0	0	0	0	5	5	52	5	1	0	0	58	59	2	0	0	0	0	2	2
15:00	0	0	0	0	0	0	0	11	0	1	0	0	12	13	0	0	0	0	0	0	0
15:15	1	0	0	0	0	1	1	11	3	0	0	0	14	14	0	0	1	0	0	1	2
15:30	1	0	0	0	0	1	1	23	2	0	0	1	26	27	0	1	0	0	0	1	1
15:45	0	1	0	0	0	1	1	13	1	2	0	0	16	17	2	0	0	1	0	3	4
H/TOT	2	1	0	0	0	3	3	58	6	3	0	1	68	71	2	1	1	1	0	5	7
16:00	0	0	0	0	0	0	0	18	1	0	0	0	19	19	5	0	0	0	0	5	5
16:15	1	0	0	0	0	1	1	18	2	1	3	1	25	30	5	0	1	0	0	6	7
16:30	0	0	0	0	0	0	0	30	4	1	1	1	37	40	4	0	0	0	0	4	4
16:45	2	0	0	0	0	2	2	24	4	1	0	1	30	32	1	2	0	0	0	3	3
H/TOT	3	0	0	0	0	3	3	90	11	3	4	3	111	121	15	2	1	0	0	18	19
17:00	2	0	0	0	0	2	2	23	4	0	0	0	27	27	4	2	0	0	0	6	6
17:15	0	0	0	0	0	0	0	24	1	0	0	1	26	27	2	1	0	0	0	3	3
17:30	2	0	0	0	0	2	2	19	2	0	0	0	21	21	3	0	0	0	0	3	3
17:45	0	0	0	0	0	0	0	23	2	1	0	1	27	29	6	0	0	0	0	6	6
H/TOT	4	0	0	0	0	4	4	89	9	1	0	2	101	104	15	3	0	0	0	18	18
18:00	1	1	0	0	0	2	2	20	3	1	0	0	24	25	0	0	0	0	0	0	0
18:15	2	0	0	0	0	2	2	19	1	1	0	0	21	22	3	2	0	0	0	5	5
18:30	1	0	0	0	0	1	1	19	0	0	0	1	20	21	1	1	0	0	0	2	2
18:45	1	0	0	0	0	1	1	11	1	1	0	0	13	14	4	1	0	0	0	5	5
H/TOT	5	1	0	0	0	6	6	69	5	3	0	1	78	81	8	4	0	0	0	12	12
P/TOT	27	3	0	0	0	30	30	589	81	28	9	12	719	757	83	20	6	1	0	110	114

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 4							MOVEMENT 5							MOVEMENT 6						
TIME	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU	CAR	LGV	OGV1	OGV2	BUS	TOT	PCU
13:00	1	0	0	0	0	1	1	1	0	0	0	0	1	1	5	1	0	0	0	6	6
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	7	7
13:30	0	1	0	0	0	1	1	1	1	0	0	0	2	2	5	0	0	0	0	5	5
13:45	1	0	0	0	0	1	1	1	0	0	0	0	1	1	2	0	1	0	0	3	4
H/TOT	2	1	0	0	0	3	3	3	1	0	0	0	4	4	19	1	1	0	0	21	22
14:00	1	0	1	0	0	2	3	0	0	0	0	0	0	0	3	0	0	0	0	3	3
14:15	1	0	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	1	1	2
14:30	2	1	0	0	0	3	3	0	0	0	0	0	0	0	1	0	0	0	0	1	1
14:45	1	0	0	1	0	2	3	0	1	0	0	0	1	1	5	0	0	0	0	5	5
H/TOT	5	1	1	1	0	8	10	2	1	0	0	0	3	3	9	0	0	0	1	10	11
15:00	2	0	0	0	0	2	2	0	0	0	0	0	0	0	4	0	0	0	0	4	4
15:15	2	0	1	0	0	3	4	1	0	0	0	0	1	1	2	0	0	2	0	4	7
15:30	3	0	1	0	0	4	5	1	0	0	0	0	1	1	6	1	0	4	0	11	16
15:45	2	1	0	0	0	3	3	1	0	0	0	0	1	1	3	0	0	0	0	3	3
H/TOT	9	1	2	0	0	12	13	3	0	0	0	0	3	3	15	1	0	6	0	22	30
16:00	1	0	1	0	0	2	3	1	0	1	0	0	2	3	6	1	1	2	0	10	13
16:15	1	0	0	0	0	1	1	1	0	0	0	0	1	1	2	2	0	0	0	4	4
16:30	1	0	0	0	0	1	1	2	0	0	0	0	2	2	4	3	0	1	0	8	9
16:45	1	0	0	0	0	1	1	1	0	0	0	0	1	1	6	0	1	0	0	7	8
H/TOT	4	0	1	0	0	5	6	5	0	1	0	0	6	7	18	6	2	3	0	29	34
17:00	4	1	0	0	0	5	5	1	1	0	0	0	2	2	3	0	0	0	0	3	3
17:15	1	0	0	0	0	1	1	0	0	0	0	0	0	0	5	1	0	1	0	7	8
17:30	2	0	0	0	0	2	2	0	0	1	0	0	1	2	6	2	0	0	0	8	8
17:45	2	0	0	0	0	2	2	0	0	0	0	0	0	0	2	1	0	0	0	3	3
H/TOT	9	1	0	0	0	10	10	1	1	1	0	0	3	4	16	4	0	1	0	21	22
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	1	0	6	7
18:15	1	0	0	0	0	1	1	0	0	0	0	0	0	0	2	1	1	0	0	4	5
18:30	2	1	1	0	0	4	5	1	0	0	0	0	1	1	3	0	0	0	0	3	3
18:45	3	0	0	0	0	3	3	0	0	0	0	0	0	0	3	1	0	0	0	4	4
H/TOT	6	1	1	0	0	8	9	1	0	0	0	0	1	1	13	2	1	1	0	17	19
P/TOT	88	11	7	2	0	108	114	22	7	2	0	0	31	32	163	24	9	17	1	214	242

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 7							MOVEMENT 8							MOVEMENT 9						
TIME	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	0	0	4	4	15	0	0	0	0	15	15	0	0	0	0	0	0	0
13:15	2	1	1	0	0	4	5	7	4	0	0	0	11	11	0	0	0	0	0	0	0
13:30	5	0	0	0	0	5	5	13	2	0	0	0	15	15	1	0	0	0	0	1	1
13:45	2	0	1	0	0	3	4	17	2	0	0	0	19	19	0	0	0	0	0	0	0
H/TOT	12	2	2	0	0	16	17	52	8	0	0	0	60	60	1	0	0	0	0	1	1
14:00	4	0	0	1	0	5	6	10	2	0	1	0	13	14	0	0	0	0	0	0	0
14:15	4	1	0	0	0	5	5	4	2	0	1	1	8	10	0	0	0	0	0	0	0
14:30	3	0	0	1	0	4	5	21	1	0	0	0	22	22	0	0	0	0	0	0	0
14:45	4	0	0	3	0	7	11	6	2	0	0	1	9	10	0	0	0	0	0	0	0
H/TOT	15	1	0	5	0	21	28	41	7	0	2	2	52	57	0	0	0	0	0	0	0
15:00	1	1	1	1	0	4	6	15	1	1	0	1	18	20	1	0	0	0	0	1	1
15:15	6	0	0	0	0	6	6	5	0	0	0	0	5	5	0	0	0	0	0	0	0
15:30	2	1	1	0	0	4	5	15	1	1	0	0	17	18	0	0	0	0	0	0	0
15:45	5	0	0	1	0	6	7	7	1	1	0	0	9	10	0	1	0	0	0	1	1
H/TOT	14	2	2	2	0	20	24	42	3	3	0	1	49	52	1	1	0	0	0	2	2
16:00	2	0	0	0	0	2	2	11	1	1	0	1	14	16	0	0	0	0	0	0	0
16:15	5	0	0	1	0	6	7	9	2	1	0	2	14	17	1	0	0	0	0	1	1
16:30	4	2	0	1	0	7	8	12	2	0	2	0	16	19	1	0	0	0	0	1	1
16:45	6	2	0	2	0	10	13	5	1	0	0	0	6	6	0	0	0	0	0	0	0
H/TOT	17	4	0	4	0	25	30	37	6	2	2	3	50	57	2	0	0	0	0	2	2
17:00	5	1	0	0	0	6	6	17	0	0	0	0	17	17	0	0	0	0	0	0	0
17:15	5	0	0	1	0	6	7	9	0	0	0	0	9	9	0	0	0	0	0	0	0
17:30	1	1	0	0	0	2	2	12	0	1	0	0	13	14	0	0	0	0	0	0	0
17:45	1	1	0	0	0	2	2	10	0	0	0	0	10	10	0	0	0	0	0	0	0
H/TOT	12	3	0	1	0	16	17	48	0	1	0	0	49	50	0	0	0	0	0	0	0
18:00	3	0	0	0	0	3	3	19	1	0	0	0	20	20	0	0	0	0	0	0	0
18:15	1	0	1	0	0	2	3	12	0	0	0	1	13	14	0	0	0	0	0	0	0
18:30	3	1	0	0	0	4	4	19	0	1	0	0	20	21	0	0	0	0	0	0	0
18:45	3	0	0	0	0	3	3	12	0	0	0	0	12	12	0	0	0	0	0	0	0
H/TOT	10	1	1	0	0	12	13	62	1	1	0	1	65	67	0	0	0	0	0	0	0
P/TOT	144	23	8	19	1	195	225	607	75	25	7	14	728	764	6	2	0	1	0	9	10

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNTS **APRIL 2024**

MANUAL CLASSIFIED JUNCTION TURNING COUNTS **TRA/24/035**

SITE: 03 DATE: 18th April 2024

LOCATION: R772/L1157/Ballykippogue DAY: Thursday

	MOVEMENT 10							MOVEMENT 11							MOVEMENT 12						
TIME	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	2	1	1	0	0	4	5	3	0	0	0	0	3	3
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
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	2	1	1	0	0	4	5	6	0	0	0	0	6	6
14:00	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1
14:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	2	1	0	0	0	3	3	1	0	0	0	0	1	1
14:45	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0
H/TOT	0	0	0	0	0	0	0	5	1	1	0	0	7	8	2	0	0	0	0	2	2
15:00	0	0	0	0	0	0	0	2	1	0	0	0	3	3	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
15:45	0	0	0	0	0	0	0	0	0	1	0	0	1	2	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	2	1	1	0	0	4	5	4	0	0	0	0	4	4
16:00	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	1	1	0	0	0	2	2	1	0	0	0	0	1	1
16:45	1	0	0	0	0	1	1	3	0	0	0	0	3	3	0	0	0	0	0	0	0
H/TOT	1	0	0	0	0	1	1	4	2	1	0	0	7	8	1	0	0	0	0	1	1
17:00	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1
17:15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1
17:45	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	4	0	0	0	0	4	4	3	0	0	0	0	3	3
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	2	0	0	0	0	2	2	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	1	0	0	0	0	1	1
H/TOT	0	0	0	0	0	0	0	2	0	0	0	0	2	2	1	0	0	0	0	1	1
P/TOT	6	2	0	0	0	8	8	24	7	4	0	0	35	37	25	4	0	1	0	30	31

Automatic Traffic Count ATC1 L1113

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS — SUMMARY — WEEK COMMENCING: Friday 12 April 202
AUTOMATIC TRAFFIC COUNTS — TRA/24/035

SITE 01

LOCATION: L1113 North of L1157 Junction (Google Maps Ref: 52.937073, -6.144939)

SPEED SURVEY SUMMARY:

NORTHBOUND	85% Speed = 82.28 km/h, 95% Speed = 94.86 km/h, Median = 66.42 km/h	Maximum = 129.2 km/h, Minimum = 12.7 km/h, Mean = 68.0 km/h
SOUTHBOUND	85% Speed = 81.89 km/h, 95% Speed = 90.72 km/h, Median = 65.79 km/h	Maximum = 151.9 km/h, Minimum = 9.9 km/h, Mean = 66.7 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	No. Vehicles	7 day Mean
NORTHBOUND	07-19	585	627	742	478	517	516	515	3980	569
SOUTHBOUND	07-19	642	650	719	547	544	530	562	4194	599
NORTHBOUND	00-00	707	687	794	597	614	608	619	4626	661
SOUTHBOUND	00-00	740	745	792	653	635	620	665	4850	693

PEAK FLOW SUMMARY:

Peak	AM	IP	PM
Most Frequent Peak Hour	0800	1300	1600
Average Vehicles per Peak Hour	57	65	68

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	1	2	0	0	0	3	3
0400	0	0	0	0	0	0	0	0
0500	0	9	2	0	0	0	11	11
0600	0	32	5	0	1	0	38	39
0700	0	33	9	1	2	0	45	48
0800	0	62	5	0	0	0	67	67
0900	0	28	2	2	3	0	35	40
1000	0	26	12	0	0	0	38	38
1100	4	38	7	0	0	0	49	46
1200	0	37	5	0	1	0	43	44
1300	0	47	7	0	1	0	55	56
1400	0	44	5	0	3	0	52	56
1500	0	40	7	1	1	0	49	51
1600	0	85	4	0	1	1	91	93
1700	0	25	7	0	0	0	32	32
1800	0	27	1	0	1	0	29	30
1900	0	19	4	0	0	0	23	23
2000	0	15	4	0	0	0	19	19
2100	0	6	1	0	0	0	7	7
2200	0	10	1	0	0	0	11	11
2300	0	7	2	0	0	0	9	9
07-19	4	492	71	4	13	1	585	602
06-22	4	564	85	4	14	1	672	690
06-00	4	581	88	4	14	1	692	710
00-00	4	592	92	4	14	1	707	725

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	1	0	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	1	0	1	2
0400	0	2	0	0	0	0	2	2
0500	0	0	0	0	0	0	0	0
0600	0	3	0	0	1	0	4	5
0700	0	11	7	1	0	0	19	20
0800	0	28	2	0	2	0	32	35
0900	0	26	6	2	3	0	37	42
1000	0	52	8	2	2	1	65	70
1100	1	47	2	1	0	0	51	51
1200	1	62	4	0	0	1	68	68
1300	0	55	8	0	1	0	64	65
1400	0	48	4	1	5	0	58	65
1500	0	56	8	0	0	0	64	64
1600	1	62	9	0	2	0	74	76
1700	0	58	7	0	0	0	65	65
1800	0	43	1	0	1	0	45	46
1900	0	32	5	0	0	0	37	37
2000	0	17	1	0	0	0	18	18
2100	0	14	0	0	0	0	14	14
2200	0	10	4	0	0	0	14	14
2300	0	5	1	0	0	0	6	6
07-19	3	548	66	7	16	2	642	666
06-22	3	614	72	7	17	2	715	740
06-00	3	629	77	7	17	2	735	760
00-00	3	633	77	7	18	2	740	767

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Saturday 13 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	1	0	0	0	3	3
0100	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
0400	0	1	1	0	0	0	2	2
0500	0	1	1	0	0	0	2	2
0600	0	4	3	0	0	0	7	7
0700	0	18	2	0	0	0	20	20
0800	0	20	2	1	0	0	23	24
0900	1	32	7	0	0	0	40	39
1000	1	28	5	0	0	0	34	33
1100	1	46	2	1	1	0	51	52
1200	1	63	4	0	3	0	71	74
1300	1	82	4	0	0	0	87	86
1400	0	66	2	0	0	0	68	68
1500	0	59	7	0	0	0	66	66
1600	0	95	5	0	0	0	100	100
1700	0	38	4	2	0	0	44	45
1800	0	22	0	1	0	0	23	24
1900	0	8	1	0	0	0	9	9
2000	0	15	3	0	0	0	18	18
2100	0	10	0	0	0	0	10	10
2200	0	5	0	0	0	0	5	5
2300	0	4	0	0	0	0	4	4
07-19	5	569	44	5	4	0	627	631
06-22	5	606	51	5	4	0	671	675
06-00	5	615	51	5	4	0	680	684
00-00	5	619	54	5	4	0	687	691

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Saturday 13 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	5	1	0	0	0	6	6
0100	0	2	0	0	0	0	2	2
0200	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
0500	0	0	0	0	0	0	0	0
0600	0	2	0	0	0	0	2	2
0700	0	9	3	0	0	0	12	12
0800	0	16	3	0	0	0	19	19
0900	0	33	4	0	0	0	37	37
1000	0	60	4	0	1	0	65	66
1100	1	87	4	1	0	0	93	93
1200	2	89	4	0	1	0	96	96
1300	0	64	3	0	0	0	67	67
1400	0	79	5	0	0	0	84	84
1500	1	63	4	0	0	0	68	67
1600	0	44	6	0	0	0	50	50
1700	0	22	0	1	0	0	23	24
1800	1	31	4	0	0	0	36	35
1900	0	23	1	0	0	0	24	24
2000	1	24	1	0	0	0	26	25
2100	0	15	1	0	0	0	16	16
2200	0	12	1	0	0	0	13	13
2300	0	5	1	0	0	0	6	6
07-19	5	597	44	2	2	0	650	650
06-22	6	661	47	2	2	0	718	717
06-00	6	678	49	2	2	0	737	736
00-00	6	685	50	2	2	0	745	744

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Sunday 14 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	4	1	0	0	0	5	5
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	0	1	0	0	0	0	1	1
0500	0	0	0	0	0	0	0	0
0600	0	4	0	0	0	0	4	4
0700	0	9	4	0	1	0	14	15
0800	0	14	1	0	0	0	15	15
0900	3	29	0	0	0	0	32	30
1000	2	39	4	0	0	0	45	43
1100	2	70	5	0	0	0	77	75
1200	4	107	2	0	0	0	113	110
1300	0	105	2	0	2	0	109	112
1400	0	71	1	0	0	0	72	72
1500	0	96	2	0	2	0	100	103
1600	0	100	2	0	0	0	102	102
1700	0	35	1	0	0	0	36	36
1800	0	25	2	0	0	0	27	27
1900	0	15	1	0	0	0	16	16
2000	0	9	1	0	0	0	10	10
2100	0	4	0	0	0	0	4	4
2200	0	5	1	0	0	0	6	6
2300	1	0	1	0	0	0	2	1
07-19	11	700	26	0	5	0	742	740
06-22	11	732	28	0	5	0	776	774
06-00	12	737	30	0	5	0	784	781
00-00	12	746	31	0	5	0	794	791

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Sunday 14 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	6	0	0	0	0	6	6
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0
0600	0	1	1	0	0	0	2	2
0700	0	5	2	0	0	0	7	7
0800	1	14	0	0	0	0	15	14
0900	1	49	1	0	0	0	51	50
1000	1	75	4	0	0	0	80	79
1100	1	105	5	0	0	0	111	110
1200	2	86	1	0	0	0	89	87
1300	2	104	2	0	0	0	108	106
1400	1	83	6	0	0	0	90	89
1500	1	79	3	0	0	0	83	82
1600	0	25	2	0	0	0	27	27
1700	0	30	2	0	0	0	32	32
1800	0	26	0	0	0	0	26	26
1900	0	23	2	0	0	0	25	25
2000	0	18	1	0	0	0	19	19
2100	0	7	0	0	0	0	7	7
2200	0	6	0	0	0	0	6	6
2300	0	3	1	0	0	0	4	4
07-19	10	681	28	0	0	0	719	711
06-22	10	730	32	0	0	0	772	764
06-00	10	739	33	0	0	0	782	774
00-00	10	749	33	0	0	0	792	784

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Monday 15 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	1	0	0	0	0	1	1
0500	0	6	2	0	0	0	8	8
0600	0	35	7	0	0	0	42	42
0700	0	33	8	0	1	0	42	43
0800	0	64	4	0	1	0	69	70
0900	0	29	4	2	1	0	36	38
1000	0	28	1	3	0	0	32	34
1100	0	33	4	1	3	0	41	45
1200	0	31	5	1	3	0	40	44
1300	0	31	3	1	2	0	37	40
1400	0	37	5	0	2	0	44	47
1500	0	28	6	1	0	0	35	36
1600	0	34	5	2	0	0	41	42
1700	0	22	2	1	1	0	26	28
1800	0	32	3	0	0	0	35	35
1900	0	21	1	0	0	0	22	22
2000	0	26	3	1	0	0	30	31
2100	0	7	1	0	0	0	8	8
2200	0	7	0	0	0	0	7	7
2300	0	0	0	0	0	0	0	0
07-19	0	402	50	12	14	0	478	502
06-22	0	491	62	13	14	0	580	605
06-00	0	498	62	13	14	0	587	612
00-00	0	506	64	13	14	0	597	622

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Monday 15 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	0	0	0	0	0	0	0	0
0500	0	1	0	0	0	0	1	1
0600	0	6	1	0	1	0	8	9
0700	0	9	3	0	2	0	14	17
0800	0	29	0	1	4	0	34	40
0900	0	31	2	1	2	1	37	41
1000	0	32	3	1	1	0	37	39
1100	0	33	7	1	1	0	42	44
1200	0	33	5	1	3	1	43	48
1300	0	31	4	1	4	0	40	46
1400	0	42	5	1	2	0	50	53
1500	0	40	10	0	0	0	50	50
1600	0	56	13	3	1	1	74	78
1700	0	59	10	0	0	0	69	69
1800	0	54	3	0	0	0	57	57
1900	0	23	2	0	0	0	25	25
2000	0	31	0	1	0	0	32	33
2100	0	21	0	0	0	0	21	21
2200	0	13	0	0	0	0	13	13
2300	0	2	0	0	0	0	2	2
07-19	0	449	65	10	20	3	547	581
06-22	0	530	68	11	21	3	633	669
06-00	0	545	68	11	21	3	648	684
00-00	0	550	68	11	21	3	653	689

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Tuesday 16 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0
0100	0	2	0	0	0	0	2	2
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	0	4	0	0	0	0	4	4
0500	0	6	2	0	0	0	8	8
0600	0	34	5	0	0	0	39	39
0700	0	40	8	0	0	0	48	48
0800	0	56	6	1	1	0	64	66
0900	0	34	5	1	2	0	42	45
1000	1	34	8	0	2	0	45	47
1100	1	30	2	2	1	0	36	38
1200	0	26	4	2	1	0	33	35
1300	0	41	7	1	1	0	50	52
1400	0	40	2	0	2	0	44	47
1500	0	42	3	1	2	0	48	51
1600	0	43	6	0	2	0	51	54
1700	0	22	4	0	1	0	27	28
1800	0	22	5	0	2	0	29	32
1900	1	19	1	0	0	0	21	20
2000	0	12	0	0	0	0	12	12
2100	0	7	0	0	0	0	7	7
2200	0	3	0	0	0	0	3	3
2300	0	0	0	0	0	0	0	0
07-19	2	430	60	8	17	0	517	542
06-22	3	502	66	8	17	0	596	620
06-00	3	505	66	8	17	0	599	623
00-00	3	518	68	8	17	0	614	638

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Tuesday 16 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	3	0	0	0	0	3	3
0600	0	3	1	1	0	0	5	6
0700	0	14	6	0	1	0	21	22
0800	0	22	6	1	1	0	30	32
0900	0	29	5	2	1	0	37	39
1000	0	37	2	0	3	0	42	46
1100	0	37	9	1	1	0	48	50
1200	0	40	4	0	2	0	46	49
1300	0	33	4	0	2	0	39	42
1400	0	39	8	1	1	0	49	51
1500	0	48	9	0	1	0	58	59
1600	0	45	13	1	0	0	59	60
1700	0	59	6	0	3	0	68	72
1800	1	41	4	0	1	0	47	48
1900	0	36	3	0	0	0	39	39
2000	0	17	3	0	0	0	20	20
2100	0	12	1	0	0	0	13	13
2200	0	6	1	0	0	0	7	7
2300	0	2	1	0	0	0	3	3
07-19	1	444	76	6	17	0	544	568
06-22	1	512	84	7	17	0	621	646
06-00	1	520	86	7	17	0	631	656
00-00	1	524	86	7	17	0	635	660

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Wednesday 17 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	1	0	0	0	0	1	1
0400	0	0	0	0	0	0	0	0
0500	0	9	4	0	0	0	13	13
0600	0	32	7	0	0	0	39	39
0700	0	32	10	3	3	0	48	53
0800	0	58	7	1	0	0	66	67
0900	0	44	5	1	0	0	50	51
1000	1	20	4	0	3	0	28	31
1100	0	26	6	1	3	0	36	40
1200	0	42	6	1	1	0	50	52
1300	0	45	4	0	1	0	50	51
1400	0	41	6	4	5	0	56	65
1500	0	22	4	0	1	0	27	28
1600	0	39	4	0	3	0	46	50
1700	0	20	4	0	2	0	26	29
1800	1	32	0	0	0	0	33	32
1900	0	10	2	0	0	0	12	12
2000	0	11	1	0	0	0	12	12
2100	0	8	0	0	0	0	8	8
2200	0	4	1	0	0	0	5	5
2300	0	2	0	0	0	0	2	2
07-19	2	421	60	11	22	0	516	549
06-22	2	482	70	11	22	0	587	620
06-00	2	488	71	11	22	0	594	627
00-00	2	498	75	11	22	0	608	641

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Wednesday 17 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	1	0	0	0	2	2
0100	0	1	0	0	0	0	1	1
0200	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
0500	0	2	0	0	0	0	2	2
0600	0	3	0	1	1	0	5	7
0700	0	13	5	0	0	0	18	18
0800	0	27	0	1	2	0	30	33
0900	1	21	5	0	3	0	30	33
1000	0	39	11	2	2	0	54	58
1100	1	37	4	2	2	0	46	49
1200	0	51	7	1	1	0	60	62
1300	0	37	3	0	1	0	41	42
1400	1	25	5	1	1	0	33	34
1500	0	40	10	0	1	0	51	52
1600	0	51	9	1	2	0	63	66
1700	0	57	9	0	1	0	67	68
1800	0	34	3	0	0	0	37	37
1900	0	25	3	0	0	0	28	28
2000	0	21	2	0	0	0	23	23
2100	0	12	0	0	0	0	12	12
2200	0	10	1	0	0	0	11	11
2300	0	6	0	0	0	0	6	6
07-19	3	432	71	8	16	0	530	552
06-22	3	493	76	9	17	0	598	622
06-00	3	509	77	9	17	0	615	639
00-00	3	513	78	9	17	0	620	644

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Thursday 18 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	9	1	0	0	0	10	10
0600	0	28	5	0	1	0	34	35
0700	0	37	11	1	1	1	51	54
0800	0	53	4	0	1	0	58	59
0900	0	37	7	1	1	0	46	48
1000	0	23	9	0	0	0	32	32
1100	0	28	4	0	1	0	33	34
1200	0	40	7	1	2	0	50	53
1300	0	22	6	1	6	0	35	43
1400	0	35	7	1	2	0	45	48
1500	1	32	6	1	3	0	43	47
1600	0	41	5	0	1	0	47	48
1700	0	31	3	0	2	0	36	39
1800	1	36	2	0	0	0	39	38
1900	0	21	0	1	0	0	22	23
2000	0	15	2	0	0	0	17	17
2100	0	13	0	0	0	0	13	13
2200	0	4	0	0	0	0	4	4
2300	0	1	2	0	0	0	3	3
07-19	2	415	71	6	20	1	515	543
06-22	2	492	78	7	21	1	601	631
06-00	2	497	80	7	21	1	608	638
00-00	2	507	81	7	21	1	619	649

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Thursday 18 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	1	0	0	0	0	1	1
0400	0	0	1	0	0	0	1	1
0500	0	1	0	0	0	0	1	1
0600	0	3	0	0	1	0	4	5
0700	0	16	3	0	0	1	20	21
0800	0	22	7	0	0	0	29	29
0900	1	39	7	0	2	0	49	51
1000	0	42	7	0	2	0	51	54
1100	1	33	4	4	2	0	44	48
1200	1	33	8	0	2	0	44	46
1300	0	41	8	0	3	0	52	56
1400	0	22	3	0	5	0	30	37
1500	0	49	15	0	3	0	67	71
1600	0	45	12	0	1	0	58	59
1700	1	56	5	0	1	0	63	64
1800	1	49	2	0	3	0	55	58
1900	0	30	0	1	0	0	31	32
2000	0	26	4	0	0	0	30	30
2100	0	21	1	0	0	0	22	22
2200	0	8	1	0	0	0	9	9
2300	0	3	0	0	0	0	3	3
07-19	5	447	81	4	24	1	562	592
06-22	5	527	86	5	25	1	649	681
06-00	5	538	87	5	25	1	661	693
00-00	5	541	88	5	25	1	665	697

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **SITE 01** **WEEK COMMENCING:** **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **NORTHBOUND** **TRA/24/035**

TIME PERIOD	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	Average
0000	1	3	3	1	0	0	0	1
0100	0	0	5	0	2	0	0	1
0200	0	0	0	0	0	0	1	0
0300	3	0	1	0	1	1	0	1
0400	0	2	1	1	4	0	0	1
0500	11	2	0	8	8	13	10	7
0600	38	7	4	42	39	39	34	29
0700	45	20	14	42	48	48	51	38
0800	67	23	15	69	64	66	58	52
0900	35	40	32	36	42	50	46	40
1000	38	34	45	32	45	28	32	36
1100	49	51	77	41	36	36	33	46
1200	43	71	113	40	33	50	50	57
1300	55	87	109	37	50	50	35	60
1400	52	68	72	44	44	56	45	54
1500	49	66	100	35	48	27	43	53
1600	91	100	102	41	51	46	47	68
1700	32	44	36	26	27	26	36	32
1800	29	23	27	35	29	33	39	31
1900	23	9	16	22	21	12	22	18
2000	19	18	10	30	12	12	17	17
2100	7	10	4	8	7	8	13	8
2200	11	5	6	7	3	5	4	6
2300	9	4	2	0	0	2	3	3
07-19	585	627	742	478	517	516	515	569
06-22	672	671	776	580	596	587	601	640
06-00	692	680	784	587	599	594	608	649
00-00	707	687	794	597	614	608	619	661

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS | **SITE 01** | **WEEK COMMENCING:** | **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS | **SOUTHBOUND** | **TRA/24/035**

TIME PERIOD	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	Average
0000	1	6	3	3	1	2	1	2
0100	1	2	6	0	0	1	0	1
0200	0	0	0	0	0	0	0	0
0300	1	0	1	1	0	0	1	1
0400	2	0	0	0	0	0	1	0
0500	0	0	0	1	3	2	1	1
0600	4	2	2	8	5	5	4	4
0700	19	12	7	14	21	18	20	16
0800	32	19	15	34	30	30	29	27
0900	37	37	51	37	37	30	49	40
1000	65	65	80	37	42	54	51	56
1100	51	93	111	42	48	46	44	62
1200	68	96	89	43	46	60	44	64
1300	64	67	108	40	39	41	52	59
1400	58	84	90	50	49	33	30	56
1500	64	68	83	50	58	51	67	63
1600	74	50	27	74	59	63	58	58
1700	65	23	32	69	68	67	63	55
1800	45	36	26	57	47	37	55	43
1900	37	24	25	25	39	28	31	30
2000	18	26	19	32	20	23	30	24
2100	14	16	7	21	13	12	22	15
2200	14	13	6	13	7	11	9	10
2300	6	6	4	2	3	6	3	4
07-19	642	650	719	547	544	530	562	599
06-22	715	718	772	633	621	598	649	672
06-00	735	737	782	648	631	615	661	687
00-00	740	745	792	653	635	620	665	693

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS
AUTOMATIC TRAFFIC COUNTS

WEEK COMMENCING: Friday 12 April 2024
TRA/24/035

SITE 01
NORTHBOUND

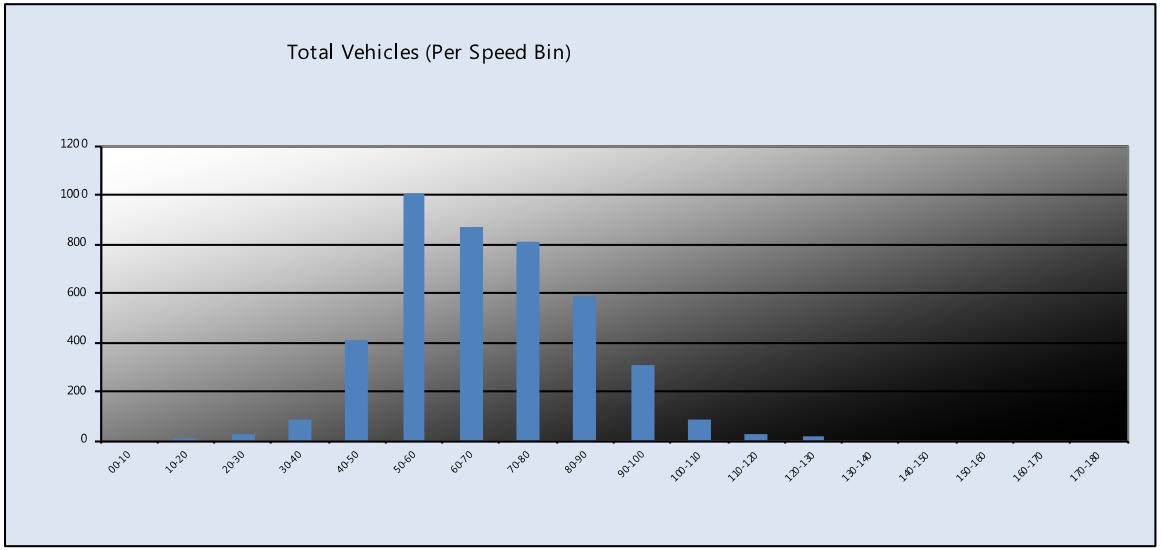
Profile:

Filter time: 00:00 12th April 2024 => 23:59 18th April 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 4219
Maximum = 129.2 km/h, Minimum = 12.7 km/h, Mean = 68.0 km/h
85% Speed = 82.28 km/h, 95% Speed = 94.86 km/h, Median = 66.42 km/h
20 km/h Pace = 51 - 71, Number in Pace = 1885 (44.68%)
Variance = 267.66, Standard Deviation = 16.36 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	1	0.0
20-30	26	0.6
30-40	83	2.0
40-50	410	9.7
50-60	1004	23.8
60-70	866	20.5
70-80	809	19.2
80-90	589	14.0
90-100	308	7.3
100-110	84	2.0
110-120	25	0.6
120-130	14	0.3
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 II TRAFFIC COUNT/SPEED SURVEYS
AUTOMATIC TRAFFIC COUNTS

WEEK COMMENCING: Friday 12 April 2024
TRA/24/035

SITE 01
SOUTHBOUND

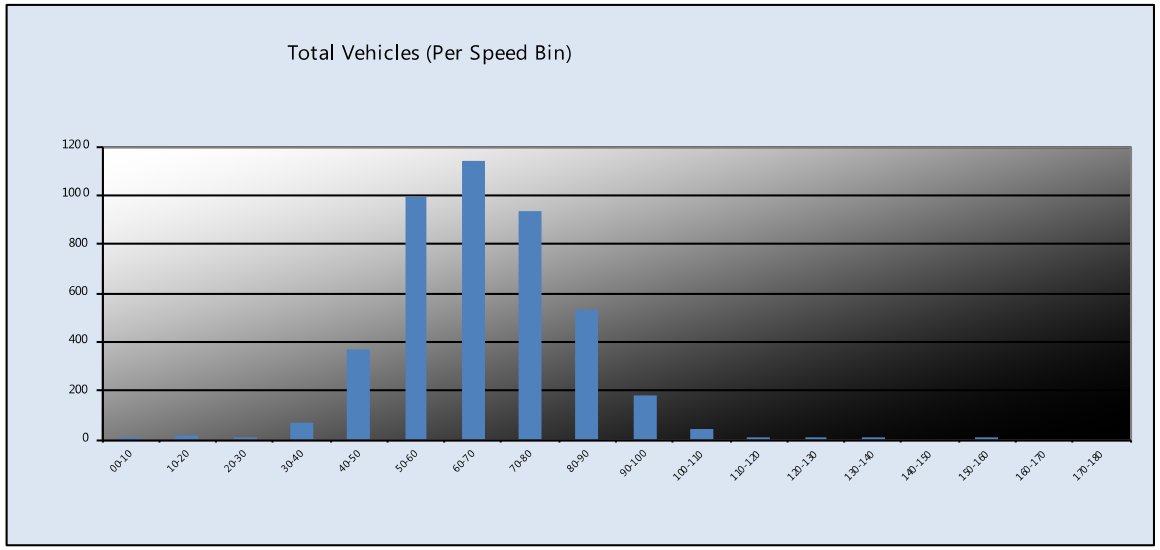
Profile:

Filter time: 00:00 12th April 2024 => 23:59 18th April 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 4293
Maximum = 151.9 km/h, Minimum = 9.9 km/h, Mean = 66.7 km/h
85% Speed = 81.89 km/h, 95% Speed = 90.72 km/h, Median = 65.79 km/h
20 km/h Pace = 53 - 73, Number in Pace = 2252 (52.46%)
Variance = 206.47, Standard Deviation = 14.37 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	1	0.0
10-20	15	0.3
20-30	10	0.2
30-40	66	1.5
40-50	369	8.6
50-60	991	23.1
60-70	1139	26.5
70-80	938	21.8
80-90	528	12.3
90-100	184	4.3
100-110	41	1.0
110-120	7	0.2
120-130	2	0.0
130-140	1	0.0
140-150	0	0.0
150-160	1	0.0
160-170	0	0.0
170-180	0	0.0



SLR

TRAFFINOMICS LIMITED

CLASSIFICATION SCHEMES:

Scheme F Classification Scheme (Non-metric)

Scheme F is an attempt to implement the FWHA's visual classification scheme as an axle-based classification scheme. This is one of several interpretations.

Vehicle Class	Class	Vehicle Type	No. of Axles	Axle spacing in feet				
				Axle 1 to 2	Axle 2 to 3	Axle 3 to 4	Axle 4 to 5	Axle 5 to 6
PCL/MCL	1	motorcycle	2	<6.0				
CAR*	2	passenger car	2	6.0 - 10.0				
		car + 1 axle trailer	3	<10.0	10.0 - 18.0			
		car + 2 axle trailer	4	<10.0		<3.5		
LGV**	3	pickup	2	10.0 - 15.0				
		pickup + 1 axle trailer	3	10.0 - 15.0	10.0 - 18.0			
		pickup + 2 axle trailer	4	10.0 -15.0		<3.5		
		pickup + 3 axle trailer	5	9.9 - 15.0			<3.5	
BUS	4	bus	2	>20.0				
		bus	3	>19.0				
OGV 1	5	single unit truck - dual rear axle	2	14.9 - 20.0			<3.5	
	6	3 axle truck	3		<18.0			
OGV 2	7	4 axle truck	4					
	8	2S1	3		>18.0			
		2S2	4		>5.0	>3.5		
		3S1	4		<5.0	>10.0		
	9	3S2	5		<6.1		3.5 - 8.0	
		5 axle combination	5					
	10	6 axle combination	6			3.5 - 5.0		
		3S3	6					
	11	2S1-2	5		>6.0			
	12	3S1-2	6					>10.0
	13	truck	7 or more					

Car* Cars and LGV based cars
LGV** Light Goods Vehicles with the exception of LGV based on cars

Automatic Traffic Count ATC2 L1157 Near Ballinclare Quarry Access

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS — SUMMARY — WEEK COMMENCING: Friday 12 April 202
AUTOMATIC TRAFFIC COUNTS — TRA/24/035

SITE 02

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

SPEED SURVEY SUMMARY:

NORTHBOUND	85% Speed = 75.25 km/h, 95% Speed = 86.80 km/h, Median = 63.72 km/h	Maximum = 130.6 km/h, Minimum = 9.7 km/h, Mean = 64.0 km/h
SOUTHBOUND	85% Speed = 74.98 km/h, 95% Speed = 91.54 km/h, Median = 64.80 km/h	Maximum = 158.8 km/h, Minimum = 22.3 km/h, Mean = 65.1 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	No. Vehicles	7 day Mean
NORTHBOUND	07-19	210	189	220	172	202	195	185	1373	196
SOUTHBOUND	07-19	198	187	252	159	187	183	183	1349	193
NORTHBOUND	00-00	250	216	246	202	236	223	216	1589	227
SOUTHBOUND	00-00	229	212	285	179	222	210	213	1550	221

PEAK FLOW SUMMARY:

Peak	AM	IP	PM
Most Frequent Peak Hour	0900	1200	1600
Average Vehicles per Peak Hour	18	23	18

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	3	0	0	0	0	3	3
0600	0	4	0	0	1	0	5	6
0700	0	7	1	0	3	0	11	15
0800	0	17	1	0	0	0	18	18
0900	0	16	7	0	1	0	24	25
1000	1	11	3	0	0	0	15	14
1100	0	14	3	0	0	0	17	17
1200	0	12	1	1	3	0	17	21
1300	0	19	2	0	3	0	24	28
1400	0	18	3	0	1	0	22	23
1500	0	13	1	1	0	0	15	16
1600	0	16	3	0	0	0	19	19
1700	0	13	2	0	0	0	15	15
1800	0	13	0	0	0	0	13	13
1900	0	7	0	0	0	0	7	7
2000	0	9	3	0	0	0	12	12
2100	0	3	0	0	0	0	3	3
2200	0	7	0	0	0	0	7	7
2300	0	3	0	0	0	0	3	3
07-19	1	169	27	2	11	0	210	225
06-22	1	192	30	2	12	0	237	253
06-00	1	202	30	2	12	0	247	263
00-00	1	205	30	2	12	0	250	266

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0
0100	0	1	0	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	1	0	1	2
0400	0	0	0	0	1	0	1	2
0500	0	0	0	0	0	0	0	0
0600	0	2	0	0	0	0	2	2
0700	0	4	3	0	0	0	7	7
0800	0	17	1	0	1	0	19	20
0900	0	8	4	1	1	0	14	16
1000	0	14	3	0	2	0	19	22
1100	0	4	0	0	0	0	4	4
1200	0	11	2	1	0	0	14	15
1300	0	15	2	0	1	0	18	19
1400	0	13	1	0	2	0	16	19
1500	0	23	4	0	2	0	29	32
1600	0	18	3	0	0	0	21	21
1700	0	22	1	0	0	0	23	23
1800	0	14	0	0	0	0	14	14
1900	0	10	1	0	0	0	11	11
2000	0	6	0	0	0	0	6	6
2100	0	3	0	0	0	0	3	3
2200	0	3	1	0	0	0	4	4
2300	0	1	1	0	0	0	2	2
07-19	0	163	24	2	9	0	198	211
06-22	0	184	25	2	9	0	220	233
06-00	0	188	27	2	9	0	226	239
00-00	0	189	27	2	11	0	229	244

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Saturday 13 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	1	0	0	0	3	3
0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	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
0700	0	2	0	0	0	0	2	2
0800	0	7	2	0	0	0	9	9
0900	0	11	5	0	0	0	16	16
1000	3	18	1	1	0	0	23	21
1100	3	20	2	1	0	0	26	24
1200	1	21	3	0	0	0	25	24
1300	3	17	1	0	1	0	22	21
1400	2	12	0	0	0	0	14	12
1500	0	10	4	0	1	0	15	16
1600	0	15	0	0	0	0	15	15
1700	0	11	1	0	1	0	13	14
1800	0	8	0	0	1	0	9	10
1900	0	7	0	0	0	0	7	7
2000	2	5	0	0	0	0	7	5
2100	0	1	0	0	1	0	2	3
2200	0	1	1	0	0	0	2	2
2300	0	0	0	0	0	0	0	0
07-19	12	152	19	2	4	0	189	186
06-22	14	168	20	2	6	0	210	208
06-00	14	169	21	2	6	0	212	210
00-00	14	172	22	2	6	0	216	214

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Saturday 13 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	0	1	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	0	2	0	0	0	0	2	2
0400	0	0	0	0	0	0	0	0
0500	0	1	0	0	0	0	1	1
0600	0	1	0	0	0	0	1	1
0700	0	1	2	1	0	0	4	5
0800	0	10	2	0	0	0	12	12
0900	1	10	2	0	0	0	13	12
1000	1	18	1	0	0	0	20	19
1100	0	13	1	0	1	0	15	16
1200	0	19	5	0	0	0	24	24
1300	0	26	5	0	0	0	31	31
1400	0	18	0	0	1	0	19	20
1500	0	9	0	1	0	0	10	11
1600	0	12	3	1	0	0	16	17
1700	1	12	0	0	0	0	13	12
1800	0	7	2	0	1	0	10	11
1900	0	7	1	0	1	0	9	10
2000	0	4	1	0	0	0	5	5
2100	0	1	1	0	0	0	2	2
2200	0	2	0	0	0	0	2	2
2300	0	0	1	0	0	0	1	1
07-19	3	155	23	3	3	0	187	190
06-22	3	168	26	3	4	0	204	208
06-00	3	170	27	3	4	0	207	211
00-00	3	174	28	3	4	0	212	216

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Sunday 14 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	0	0	0	0	0	0	0
0200	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
0500	0	0	0	0	0	0	0	0
0600	0	1	0	0	0	0	1	1
0700	0	4	0	0	0	0	4	4
0800	0	7	1	0	0	0	8	8
0900	1	6	1	0	0	0	8	7
1000	1	19	1	0	1	0	22	23
1100	2	12	0	0	0	0	14	12
1200	3	23	2	0	0	0	28	26
1300	1	29	3	0	0	0	33	32
1400	1	26	2	0	0	0	29	28
1500	0	25	0	0	1	0	26	27
1600	0	22	2	0	1	0	25	26
1700	1	10	0	0	1	0	12	13
1800	0	8	2	0	1	0	11	12
1900	1	6	0	0	0	0	7	6
2000	1	5	0	0	0	0	6	5
2100	0	7	0	0	0	0	7	7
2200	0	0	0	0	0	0	0	0
2300	0	1	1	0	0	0	2	2
07-19	10	191	14	0	5	0	220	219
06-22	12	210	14	0	5	0	241	238
06-00	12	211	15	0	5	0	243	240
00-00	12	214	15	0	5	0	246	243

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Sunday 14 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	0	0	0	0	0	0	0
0200	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
0500	0	0	0	0	0	0	0	0
0600	0	0	0	0	0	0	0	0
0700	0	3	0	0	0	0	3	3
0800	0	6	0	0	0	0	6	6
0900	1	11	1	0	0	0	13	12
1000	0	3	0	0	0	0	3	3
1100	1	25	0	0	1	0	27	28
1200	1	30	2	0	1	0	34	35
1300	1	24	2	0	1	0	28	29
1400	1	32	4	1	0	0	38	38
1500	0	27	5	0	1	0	33	34
1600	0	29	1	0	2	0	32	35
1700	0	16	2	0	1	0	19	20
1800	0	15	0	0	1	0	16	17
1900	0	9	1	0	1	0	11	12
2000	0	9	2	0	0	0	11	11
2100	0	4	0	0	0	0	4	4
2200	0	3	1	0	0	0	4	4
2300	0	1	0	0	0	0	1	1
07-19	5	221	17	1	8	0	252	259
06-22	5	243	20	1	9	0	278	286
06-00	5	247	21	1	9	0	283	291
00-00	5	249	21	1	9	0	285	293

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Monday 15 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	0	0	0	0	2	2
0100	0	2	0	0	0	0	2	2
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	1	0	0	0	0	1	1
0500	0	1	0	0	0	0	1	1
0600	0	2	0	0	0	0	2	2
0700	0	3	1	0	0	0	4	4
0800	0	4	1	0	0	0	5	5
0900	0	9	1	0	0	0	10	10
1000	2	9	0	0	0	0	11	9
1100	1	19	2	1	0	0	23	23
1200	0	23	0	0	0	0	23	23
1300	0	17	2	0	1	0	20	21
1400	0	20	2	0	0	0	22	22
1500	0	14	2	0	0	0	16	16
1600	1	11	1	0	0	0	13	12
1700	0	15	0	0	0	0	15	15
1800	0	8	1	0	1	0	10	11
1900	0	8	0	0	1	0	9	10
2000	0	8	1	0	0	0	9	9
2100	0	1	1	0	0	0	2	2
2200	0	1	1	0	0	0	2	2
2300	0	0	0	0	0	0	0	0
07-19	4	152	13	1	2	0	172	172
06-22	4	171	15	1	3	0	194	195
06-00	4	172	16	1	3	0	196	197
00-00	4	178	16	1	3	0	202	203

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Monday 15 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	0	0	0	0	2	2
0100	0	1	0	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	0	0	1	0	0	0	1	1
0400	0	0	0	0	0	0	0	0
0500	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
0800	0	7	1	0	0	0	8	8
0900	1	7	0	1	0	0	9	9
1000	0	11	0	1	0	0	12	13
1100	2	12	0	0	0	0	14	12
1200	0	13	2	1	1	0	17	19
1300	0	16	0	0	0	0	16	16
1400	0	17	2	0	0	0	19	19
1500	0	11	0	0	1	0	12	13
1600	1	17	1	0	0	0	19	18
1700	0	17	1	0	0	0	18	18
1800	0	11	1	0	0	0	12	12
1900	0	5	0	0	0	0	5	5
2000	0	8	0	0	0	0	8	8
2100	0	1	1	0	0	0	2	2
2200	0	0	0	0	0	0	0	0
2300	0	0	0	0	0	0	0	0
07-19	4	141	9	3	2	0	159	160
06-22	4	155	10	3	2	0	174	175
06-00	4	155	10	3	2	0	174	175
00-00	4	159	11	3	2	0	179	180

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Tuesday 16 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0
0100	0	1	0	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	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
0600	0	5	0	0	0	0	5	5
0700	0	8	3	0	1	0	12	13
0800	0	15	2	0	2	0	19	22
0900	0	17	3	0	5	0	25	32
1000	1	10	3	0	2	0	16	18
1100	1	9	1	2	0	0	13	13
1200	0	10	0	1	3	0	14	18
1300	0	14	3	0	1	0	18	19
1400	0	17	1	1	0	0	19	20
1500	0	17	2	0	2	0	21	24
1600	0	11	1	0	4	0	16	21
1700	0	11	4	0	1	0	16	17
1800	0	10	3	0	0	0	13	13
1900	1	11	0	1	0	0	13	13
2000	0	6	0	0	0	0	6	6
2100	0	3	0	0	0	0	3	3
2200	0	5	0	0	0	0	5	5
2300	0	0	0	0	0	0	0	0
07-19	2	149	26	4	21	0	202	230
06-22	3	174	26	5	21	0	229	256
06-00	3	179	26	5	21	0	234	261
00-00	3	181	26	5	21	0	236	263

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Tuesday 16 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	1	0	1	2
0500	0	2	0	0	0	0	2	2
0600	0	2	0	0	0	0	2	2
0700	0	7	2	0	2	0	11	14
0800	0	19	2	0	1	0	22	23
0900	0	9	2	2	3	0	16	21
1000	0	6	0	0	3	0	9	13
1100	0	11	2	0	0	0	13	13
1200	0	12	1	1	0	0	14	15
1300	0	10	1	0	2	0	13	16
1400	0	14	2	0	1	0	17	18
1500	0	14	3	0	1	0	18	19
1600	0	12	3	0	2	0	17	20
1700	0	19	1	0	1	0	21	22
1800	1	13	2	0	0	0	16	15
1900	0	15	1	0	0	0	16	16
2000	0	3	2	0	0	0	5	5
2100	0	4	0	0	0	0	4	4
2200	0	3	1	0	0	0	4	4
2300	0	0	0	0	0	0	0	0
07-19	1	146	21	3	16	0	187	209
06-22	1	170	24	3	16	0	214	236
06-00	1	173	25	3	16	0	218	240
00-00	1	176	25	3	17	0	222	245

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Wednesday 17 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	1	0	0	0	0	1	1
0600	0	2	1	0	0	0	3	3
0700	0	9	2	0	2	0	13	16
0800	0	17	5	0	2	0	24	27
0900	0	10	3	1	2	0	16	19
1000	1	8	1	0	1	0	11	12
1100	0	7	4	0	2	0	13	16
1200	0	16	0	2	3	0	21	26
1300	0	16	2	0	1	0	19	20
1400	0	7	5	0	2	0	14	17
1500	0	12	4	0	4	0	20	25
1600	0	12	3	0	1	0	16	17
1700	0	12	2	0	2	0	16	19
1800	0	12	0	0	0	0	12	12
1900	0	9	1	0	0	0	10	10
2000	0	3	2	0	0	0	5	5
2100	0	5	0	0	0	0	5	5
2200	0	1	1	0	0	0	2	2
2300	0	2	0	0	0	0	2	2
07-19	1	138	31	3	22	0	195	224
06-22	1	157	35	3	22	0	218	247
06-00	1	160	36	3	22	0	222	251
00-00	1	161	36	3	22	0	223	252

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Wednesday 17 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	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
0600	0	1	1	0	0	0	2	2
0700	0	9	2	1	1	0	13	15
0800	0	22	0	1	1	0	24	26
0900	1	5	3	0	4	0	13	17
1000	0	5	3	1	0	0	9	10
1100	0	13	1	1	2	0	17	20
1200	0	13	2	0	1	0	16	17
1300	0	15	4	0	1	0	20	21
1400	0	11	4	0	0	0	15	15
1500	0	7	3	0	3	0	13	17
1600	0	11	3	0	2	0	16	19
1700	0	8	3	1	1	0	13	15
1800	0	7	7	0	0	0	14	14
1900	0	12	1	0	0	0	13	13
2000	0	6	1	0	0	0	7	7
2100	0	2	0	0	0	0	2	2
2200	0	1	1	0	0	0	2	2
2300	0	0	1	0	0	0	1	1
07-19	1	126	35	5	16	0	183	206
06-22	1	147	38	5	16	0	207	230
06-00	1	148	40	5	16	0	210	233
00-00	1	148	40	5	16	0	210	233

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Thursday 18 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	1	0	0	0	0	1	1
0500	0	1	0	0	0	0	1	1
0600	0	3	1	0	0	0	4	4
0700	0	10	1	0	0	0	11	11
0800	0	10	3	0	0	0	13	13
0900	0	16	2	0	2	0	20	23
1000	0	11	2	0	2	0	15	18
1100	0	6	1	0	1	0	8	9
1200	0	14	3	0	1	0	18	19
1300	0	14	1	1	0	0	16	17
1400	0	11	0	0	2	0	13	16
1500	0	16	3	0	3	0	22	26
1600	0	13	3	0	2	0	18	21
1700	0	15	3	0	1	0	19	20
1800	0	11	0	0	1	0	12	13
1900	0	8	2	0	0	0	10	10
2000	0	5	1	0	0	0	6	6
2100	0	4	1	0	0	0	5	5
2200	0	2	0	0	0	0	2	2
2300	0	1	1	0	0	0	2	2
07-19	0	147	22	1	15	0	185	205
06-22	0	167	27	1	15	0	210	230
06-00	0	170	28	1	15	0	214	234
00-00	0	172	28	1	15	0	216	236

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Thursday 18 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 02
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	0	0	0	0	0	0	0
0400	0	1	0	0	1	0	2	3
0500	0	0	0	0	0	0	0	0
0600	0	0	1	1	0	0	2	3
0700	0	7	2	0	0	0	9	9
0800	0	19	3	1	0	0	23	24
0900	0	7	2	1	1	0	11	13
1000	0	8	4	1	1	0	14	16
1100	0	12	2	1	3	0	18	22
1200	0	10	1	0	2	0	13	16
1300	0	14	3	0	1	0	18	19
1400	0	12	3	0	1	0	16	17
1500	0	9	4	1	2	0	16	19
1600	0	12	3	0	1	0	16	17
1700	0	10	4	0	1	0	15	16
1800	0	8	5	0	1	0	14	15
1900	0	14	2	0	0	0	16	16
2000	0	4	2	0	0	0	6	6
2100	0	3	0	0	0	0	3	3
2200	0	0	0	0	0	0	0	0
2300	0	1	0	0	0	0	1	1
07-19	0	128	36	5	14	0	183	204
06-22	0	149	41	6	14	0	210	231
06-00	0	150	41	6	14	0	211	232
00-00	0	151	41	6	15	0	213	236

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **SITE 02** **WEEK COMMENCING:** **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **NORTHBOUND** **TRA/24/035**

TIME PERIOD	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	Average
0000	0	3	1	2	0	0	0	1
0100	0	0	0	2	1	0	0	0
0200	0	0	2	0	0	0	0	0
0300	0	1	0	0	0	0	0	0
0400	0	0	0	1	1	0	1	0
0500	3	0	0	1	0	1	1	1
0600	5	5	1	2	5	3	4	4
0700	11	2	4	4	12	13	11	8
0800	18	9	8	5	19	24	13	14
0900	24	16	8	10	25	16	20	17
1000	15	23	22	11	16	11	15	16
1100	17	26	14	23	13	13	8	16
1200	17	25	28	23	14	21	18	21
1300	24	22	33	20	18	19	16	22
1400	22	14	29	22	19	14	13	19
1500	15	15	26	16	21	20	22	19
1600	19	15	25	13	16	16	18	17
1700	15	13	12	15	16	16	19	15
1800	13	9	11	10	13	12	12	11
1900	7	7	7	9	13	10	10	9
2000	12	7	6	9	6	5	6	7
2100	3	2	7	2	3	5	5	4
2200	7	2	0	2	5	2	2	3
2300	3	0	2	0	0	2	2	1
07-19	210	189	220	172	202	195	185	196
06-22	237	210	241	194	229	218	210	220
06-00	247	212	243	196	234	222	214	224
00-00	250	216	246	202	236	223	216	227

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **SITE 02** **WEEK COMMENCING:** **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **SOUTHBOUND** **TRA/24/035**

TIME PERIOD	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	Average
0000	0	1	1	2	1	0	0	1
0100	1	1	0	1	0	0	0	0
0200	0	0	1	0	0	0	0	0
0300	1	2	0	1	0	0	0	1
0400	1	0	0	0	1	0	2	1
0500	0	1	0	1	2	0	0	1
0600	2	1	0	0	2	2	2	1
0700	7	4	3	3	11	13	9	7
0800	19	12	6	8	22	24	23	16
0900	14	13	13	9	16	13	11	13
1000	19	20	3	12	9	9	14	12
1100	4	15	27	14	13	17	18	15
1200	14	24	34	17	14	16	13	19
1300	18	31	28	16	13	20	18	21
1400	16	19	38	19	17	15	16	20
1500	29	10	33	12	18	13	16	19
1600	21	16	32	19	17	16	16	20
1700	23	13	19	18	21	13	15	17
1800	14	10	16	12	16	14	14	14
1900	11	9	11	5	16	13	16	12
2000	6	5	11	8	5	7	6	7
2100	3	2	4	2	4	2	3	3
2200	4	2	4	0	4	2	0	2
2300	2	1	1	0	0	1	1	1
07-19	198	187	252	159	187	183	183	193
06-22	220	204	278	174	214	207	210	215
06-00	226	207	283	174	218	210	211	218
00-00	229	212	285	179	222	210	213	221

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS
AUTOMATIC TRAFFIC COUNTS

WEEK COMMENCING: Friday 12 April 202
TRA/24/035

SITE 02
NORTHBOUND

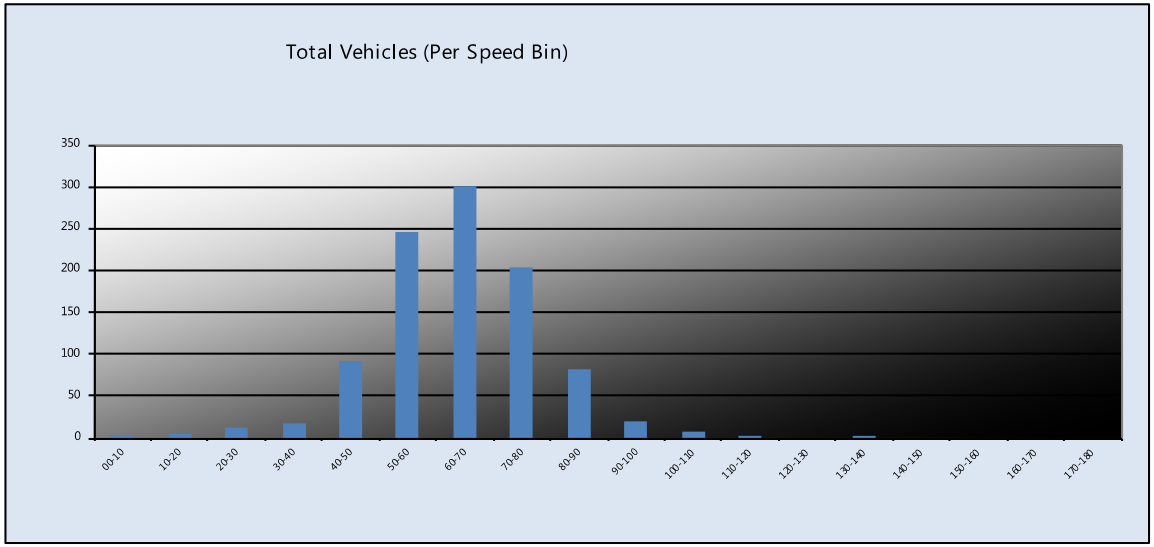
Profile:

Filter time: 00:00 12th April 2024 => 23:59 18th April 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 990
Maximum = 130.6 km/h, Minimum = 9.7 km/h, Mean = 64.0 km/h
85% Speed = 75.25 km/h, 95% Speed = 86.80 km/h, Median = 63.72 km/h
20 km/h Pace = 54 - 74, Number in Pace = 585 (59.09%)
Variance = 194.53, Standard Deviation = 13.95 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	1	0.1
10-20	4	0.4
20-30	13	1.3
30-40	18	1.8
40-50	92	9.3
50-60	245	24.7
60-70	301	30.4
70-80	204	20.6
80-90	81	8.2
90-100	21	2.1
100-110	7	0.7
110-120	2	0.2
120-130	0	0.0
130-140	1	0.1
140-150	0	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS
AUTOMATIC TRAFFIC COUNTS

WEEK COMMENCING: Friday 12 April 202
TRA/24/035

SITE 02
SOUTHBOUND

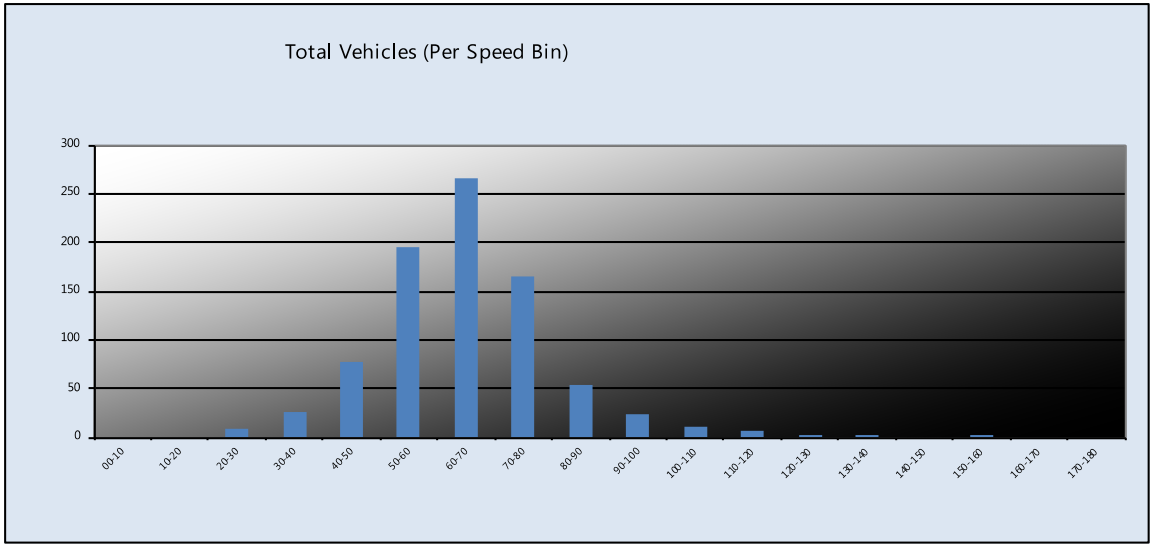
Profile:

Filter time: 00:00 12th April 2024 => 23:59 18th April 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 837
Maximum = 158.8 km/h, Minimum = 22.3 km/h, Mean = 65.1 km/h
85% Speed = 74.98 km/h, 95% Speed = 91.54 km/h, Median = 64.80 km/h
20 km/h Pace = 52 - 72, Number in Pace = 477 (56.99%)
Variance = 246.21, Standard Deviation = 15.69 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	0	0.0
20-30	8	1.0
30-40	26	3.1
40-50	78	9.3
50-60	195	23.3
60-70	265	31.7
70-80	164	19.6
80-90	53	6.3
90-100	24	2.9
100-110	10	1.2
110-120	7	0.8
120-130	3	0.4
130-140	3	0.4
140-150	0	0.0
150-160	1	0.1
160-170	0	0.0
170-180	0	0.0



TRAFFINOMICS LIMITED

CLASSIFICATION SCHEMES:

Scheme F Classification Scheme (Non-metric)

Scheme F is an attempt to implement the FWHA's visual classification scheme as an axle-based classification scheme. This is one of several interpretations.

Vehicle Class	Class	Vehicle Type	No. of Axles	Axle spacing in feet				
				Axle 1 to 2	Axle 2 to 3	Axle 3 to 4	Axle 4 to 5	Axle 5 to 6
PCL/MCL	1	motorcycle	2	<6.0				
CAR*	2	passenger car	2	6.0 - 10.0				
		car + 1 axle trailer	3	<10.0	10.0 - 18.0			
		car + 2 axle trailer	4	<10.0		<3.5		
LGV**	3	pickup	2	10.0 - 15.0				
		pickup + 1 axle trailer	3	10.0 - 15.0	10.0 - 18.0			
		pickup + 2 axle trailer	4	10.0 -15.0		<3.5		
		pickup + 3 axle trailer	5	9.9 - 15.0			<3.5	
BUS	4	bus	2	>20.0				
		bus	3	>19.0				
OGV 1	5	single unit truck - dual rear axle	2	14.9 - 20.0			<3.5	
	6	3 axle truck	3		<18.0			
OGV 2	7	4 axle truck	4					
	8	2S1	3		>18.0			
		2S2	4		>5.0	>3.5		
		3S1	4		<5.0	>10.0		
	9	3S2	5		<6.1		3.5 - 8.0	
		5 axle combination	5					
	10	6 axle combination	6			3.5 - 5.0		
		3S3	6					
	11	2S1-2	5		>6.0			
	12	3S1-2	6					>10.0
	13	truck	7 or more					

Car* Cars and LGV based cars
LGV** Light Goods Vehicles with the exception of LGV based on cars

Automatic Traffic Count ATC3 R772

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS — SUMMARY — WEEK COMMENCING: Friday 12 April 202
AUTOMATIC TRAFFIC COUNTS — TRA/24/035

SITE 03

LOCATION: R772 North of L1157 Green Angel Public House Junction (Google Maps Ref: 52.925732, -6.116905)

SPEED SURVEY SUMMARY:

NORTHBOUND	85% Speed = 84.49 km/h, 95% Speed = 94.12 km/h, Median = 75.78 km/h	Maximum = 123.1 km/h, Minimum = 13.5 km/h, Mean = 75.2 km/h
SOUTHBOUND	85% Speed = 86.32 km/h, 95% Speed = 100.42 km/h, Median = 78.99 km/h	Maximum = 139.1 km/h, Minimum = 16.6 km/h, Mean = 82.5 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	No. Vehicles	7 day Mean
NORTHBOUND	07-19	884	785	828	868	861	904	886	6016	859
SOUTHBOUND	07-19	1039	784	717	858	914	935	898	6145	878
NORTHBOUND	00-00	1119	984	1005	1050	1079	1118	1111	7466	1067
SOUTHBOUND	00-00	1299	1019	912	1028	1111	1150	1151	7670	1096

PEAK FLOW SUMMARY:

Peak	AM	IP	PM
Most Frequent Peak Hour	0800	1300	1600
Average Vehicles per Peak Hour	105	80	71

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	0	0	0	0	2	2
0100	0	2	0	0	0	0	2	2
0200	0	3	0	0	0	0	3	3
0300	0	2	0	0	0	0	2	2
0400	0	3	0	0	1	0	4	5
0500	0	17	5	0	0	0	22	22
0600	0	55	4	0	0	1	60	61
0700	0	76	6	1	3	1	87	92
0800	1	106	11	1	0	1	120	121
0900	2	76	5	2	1	1	87	89
1000	0	53	2	1	1	0	57	59
1100	1	67	7	0	1	1	77	79
1200	0	50	4	1	2	1	58	62
1300	1	60	9	0	1	0	71	72
1400	1	61	7	0	1	1	71	73
1500	0	53	12	1	0	0	66	67
1600	2	55	2	0	1	1	61	62
1700	1	55	3	0	1	0	60	61
1800	5	60	3	1	0	0	69	66
1900	1	50	3	0	0	0	54	53
2000	1	43	3	0	0	0	47	46
2100	0	23	1	0	0	0	24	24
2200	0	5	1	0	0	0	6	6
2300	0	9	0	0	0	0	9	9
07-19	14	772	71	8	12	7	884	899
06-22	16	943	82	8	12	8	1069	1084
06-00	16	957	83	8	12	8	1084	1099
00-00	16	986	88	8	13	8	1119	1135

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	1	4	0	0	0	0	5	4
0200	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
0500	0	0	2	0	0	0	2	2
0600	0	4	0	0	0	0	4	4
0700	0	19	8	2	0	0	29	30
0800	0	39	4	3	0	0	46	48
0900	2	50	7	0	0	1	60	59
1000	1	41	10	0	0	0	52	51
1100	1	51	10	1	2	1	66	69
1200	0	61	10	0	2	0	73	76
1300	0	81	9	0	3	1	94	99
1400	2	74	11	0	3	0	90	92
1500	0	96	15	1	1	1	114	117
1600	1	128	22	0	2	0	153	155
1700	3	132	19	0	2	0	156	156
1800	3	92	10	0	0	1	106	105
1900	0	71	10	1	0	0	82	83
2000	0	54	5	0	1	0	60	61
2100	0	44	6	0	1	0	51	52
2200	0	22	3	3	0	0	28	30
2300	0	21	4	0	0	0	25	25
07-19	13	864	135	7	15	5	1039	1057
06-22	13	1037	156	8	17	5	1236	1257
06-00	13	1080	163	11	17	5	1289	1311
00-00	14	1087	165	11	17	5	1299	1320

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Saturday 13 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	6	0	0	0	0	6	6
0100	0	2	1	0	0	0	3	3
0200	0	4	0	0	0	0	4	4
0300	0	2	0	0	0	0	2	2
0400	0	0	0	0	0	0	0	0
0500	0	10	1	0	0	0	11	11
0600	0	14	3	0	0	0	17	17
0700	1	22	1	0	0	0	24	23
0800	0	40	5	0	0	0	45	45
0900	3	43	6	0	2	0	54	54
1000	2	69	6	1	1	1	80	81
1100	9	70	2	2	1	0	84	79
1200	1	60	3	0	3	0	67	70
1300	2	71	7	0	1	0	81	81
1400	3	77	3	0	0	1	84	83
1500	2	64	5	0	0	0	71	69
1600	0	60	8	2	1	0	71	73
1700	0	63	5	0	0	0	68	68
1800	0	52	3	0	1	0	56	57
1900	1	42	2	0	0	0	45	44
2000	1	45	0	0	0	0	46	45
2100	0	34	2	0	0	0	36	36
2200	0	19	0	0	0	0	19	19
2300	0	10	0	0	0	0	10	10
07-19	23	691	54	5	10	2	785	784
06-22	25	826	61	5	10	2	929	927
06-00	25	855	61	5	10	2	958	956
00-00	25	879	63	5	10	2	984	982

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Saturday 13 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	9	0	0	0	0	9	9
0100	0	2	1	0	0	0	3	3
0200	0	3	0	0	0	0	3	3
0300	0	3	0	0	0	0	3	3
0400	0	1	0	0	0	0	1	1
0500	0	3	1	0	0	0	4	4
0600	0	7	0	0	0	0	7	7
0700	0	10	1	0	0	0	11	11
0800	1	21	1	2	1	0	26	28
0900	1	28	4	0	0	0	33	32
1000	4	50	9	0	1	0	64	62
1100	6	54	9	0	1	0	70	67
1200	2	90	9	0	0	0	101	99
1300	3	69	8	0	1	1	82	82
1400	1	75	12	1	0	0	89	89
1500	0	78	4	0	0	0	82	82
1600	0	72	4	1	2	1	80	84
1700	0	64	5	0	0	0	69	69
1800	0	68	8	0	1	0	77	78
1900	0	56	3	0	0	0	59	59
2000	1	43	2	1	0	0	47	47
2100	0	43	4	0	0	0	47	47
2200	0	29	0	0	0	0	29	29
2300	0	23	0	0	0	0	23	23
07-19	18	679	74	4	7	2	784	783
06-22	19	828	83	5	7	2	944	942
06-00	19	880	83	5	7	2	996	994
00-00	19	901	85	5	7	2	1019	1017

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Sunday 14 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	9	0	0	0	0	9	9
0100	0	8	0	0	0	0	8	8
0200	0	4	1	0	0	0	5	5
0300	0	2	0	0	0	0	2	2
0400	0	0	0	0	0	0	0	0
0500	0	5	0	0	0	0	5	5
0600	0	10	0	0	0	0	10	10
0700	0	14	0	1	0	0	15	16
0800	2	18	1	0	1	0	22	22
0900	6	43	4	0	0	0	53	48
1000	7	64	6	1	0	0	78	73
1100	13	76	9	1	1	0	100	91
1200	5	79	7	0	1	0	92	89
1300	6	89	3	0	1	0	99	96
1400	5	79	6	0	1	0	91	88
1500	3	67	3	0	0	0	73	71
1600	1	71	3	1	0	0	76	76
1700	0	76	2	0	0	0	78	78
1800	0	49	2	0	0	0	51	51
1900	2	49	5	0	0	0	56	54
2000	0	34	0	0	0	0	34	34
2100	0	29	1	0	0	0	30	30
2200	0	11	2	0	0	0	13	13
2300	0	5	0	0	0	0	5	5
07-19	48	725	46	4	5	0	828	798
06-22	50	847	52	4	5	0	958	927
06-00	50	863	54	4	5	0	976	945
00-00	50	891	55	4	5	0	1005	974

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Sunday 14 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	15	0	0	0	0	15	15
0100	0	4	0	0	0	0	4	4
0200	0	8	1	0	0	0	9	9
0300	0	5	0	0	0	0	5	5
0400	0	1	0	0	0	0	1	1
0500	0	3	0	0	0	0	3	3
0600	0	3	0	0	0	0	3	3
0700	2	8	0	0	0	0	10	8
0800	3	18	1	0	0	0	22	20
0900	3	28	0	0	0	0	31	29
1000	10	28	1	0	1	0	40	33
1100	6	72	8	0	0	0	86	81
1200	3	59	4	0	0	0	66	64
1300	3	97	7	1	1	0	109	108
1400	2	64	16	0	0	0	82	80
1500	1	66	4	0	1	0	72	73
1600	1	69	4	0	0	1	75	75
1700	1	57	5	0	0	0	63	62
1800	0	58	2	1	0	0	61	62
1900	0	43	8	0	0	0	51	51
2000	0	42	1	1	0	0	44	45
2100	0	29	0	0	0	0	29	29
2200	0	15	0	0	0	0	15	15
2300	0	14	2	0	0	0	16	16
07-19	35	624	52	2	3	1	717	695
06-22	35	741	61	3	3	1	844	822
06-00	35	770	63	3	3	1	875	853
00-00	35	806	64	3	3	1	912	890

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Monday 15 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	0	0	0	0	0	0	0
0200	0	1	0	0	0	0	1	1
0300	0	0	0	0	0	0	0	0
0400	0	3	0	0	1	0	4	5
0500	0	16	2	0	0	0	18	18
0600	0	59	7	1	0	0	67	68
0700	0	86	13	1	1	1	102	105
0800	1	117	7	2	0	1	128	129
0900	1	83	10	2	4	1	101	107
1000	1	50	7	1	3	0	62	66
1100	0	60	8	0	2	1	71	75
1200	0	47	8	1	0	0	56	57
1300	0	51	5	0	1	0	57	58
1400	0	61	10	1	4	1	77	84
1500	0	54	5	1	1	0	61	63
1600	1	44	8	2	1	0	56	58
1700	0	51	3	0	0	0	54	54
1800	0	38	4	0	0	1	43	44
1900	0	37	5	0	0	0	42	42
2000	0	19	4	1	0	0	24	25
2100	0	12	2	0	0	0	14	14
2200	0	9	0	0	0	0	9	9
2300	0	2	0	0	0	0	2	2
07-19	4	742	88	11	17	6	868	898
06-22	4	869	106	13	17	6	1015	1046
06-00	4	880	106	13	17	6	1026	1057
00-00	4	901	108	13	18	6	1050	1083

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Monday 15 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	4	0	0	0	0	4	4
0100	0	4	0	0	0	0	4	4
0200	0	1	0	0	0	0	1	1
0300	0	0	0	0	0	0	0	0
0400	0	0	1	0	0	0	1	1
0500	0	1	0	0	0	0	1	1
0600	0	3	0	0	0	0	3	3
0700	0	29	10	1	0	0	40	41
0800	1	34	8	3	0	0	46	47
0900	0	39	11	0	1	0	51	52
1000	0	25	9	0	1	0	35	36
1100	0	42	7	1	5	1	56	64
1200	0	53	9	1	0	0	63	64
1300	0	46	12	0	1	0	59	60
1400	0	58	6	0	0	0	64	64
1500	0	71	9	0	2	1	83	87
1600	2	88	14	2	0	1	107	107
1700	0	123	25	0	0	1	149	150
1800	0	92	12	0	0	1	105	106
1900	0	50	8	0	0	0	58	58
2000	0	42	3	0	0	0	45	45
2100	0	27	0	2	0	0	29	30
2200	0	18	0	0	0	1	19	20
2300	0	5	0	0	0	0	5	5
07-19	3	700	132	8	10	5	858	878
06-22	3	822	143	10	10	5	993	1014
06-00	3	845	143	10	10	6	1017	1039
00-00	3	855	144	10	10	6	1028	1050

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Tuesday 16 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	1	0	0	0	0	1	1
0400	0	4	0	0	1	0	5	6
0500	0	16	4	0	0	0	20	20
0600	0	69	8	0	2	0	79	82
0700	0	72	6	0	2	1	81	85
0800	0	128	8	3	1	1	141	145
0900	1	63	10	0	2	0	76	78
1000	0	51	5	1	1	1	59	62
1100	0	49	10	1	3	2	65	71
1200	1	49	4	1	0	0	55	55
1300	0	56	8	0	1	0	65	66
1400	3	56	8	0	1	1	69	69
1500	1	51	6	1	2	0	61	63
1600	0	65	3	1	1	0	70	72
1700	0	60	6	0	0	0	66	66
1800	1	48	3	1	0	0	53	53
1900	1	45	4	0	0	0	50	49
2000	1	29	1	2	0	0	33	33
2100	0	17	0	0	0	0	17	17
2200	0	6	2	0	0	0	8	8
2300	0	4	0	0	0	0	4	4
07-19	7	748	77	9	14	6	861	884
06-22	9	908	90	11	16	6	1040	1065
06-00	9	918	92	11	16	6	1052	1077
00-00	9	940	96	11	17	6	1079	1105

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Tuesday 16 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	0	0	0	0	2	2
0100	0	3	1	0	0	0	4	4
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	0	0	0	0	0	0	0	0
0500	0	0	1	0	0	0	1	1
0600	0	4	0	0	0	0	4	4
0700	0	26	4	3	0	0	33	35
0800	1	50	5	4	0	0	60	61
0900	3	42	8	0	1	0	54	53
1000	0	27	13	1	1	1	43	46
1100	0	41	4	3	2	1	51	56
1200	1	43	3	1	2	0	50	52
1300	1	69	8	1	2	0	81	83
1400	2	65	12	2	0	0	81	80
1500	1	71	18	0	1	0	91	92
1600	2	109	19	2	2	1	135	138
1700	0	127	15	1	1	1	145	148
1800	1	74	14	0	0	1	90	90
1900	0	60	5	0	0	0	65	65
2000	1	39	5	0	1	1	47	49
2100	0	31	2	1	1	0	35	37
2200	0	27	1	0	1	0	29	30
2300	0	9	0	0	0	0	9	9
07-19	12	744	123	18	12	5	914	934
06-22	13	878	135	19	14	6	1065	1088
06-00	13	914	136	19	15	6	1103	1128
00-00	13	920	138	19	15	6	1111	1136

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Wednesday 17 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	1	0	0	0	0	1	1
0200	0	2	0	0	0	0	2	2
0300	0	1	0	0	1	0	2	3
0400	0	2	0	0	0	0	2	2
0500	0	22	3	0	1	0	26	27
0600	0	70	13	1	1	0	85	87
0700	0	103	3	1	0	1	108	110
0800	0	97	10	1	0	1	109	111
0900	1	81	11	0	2	1	96	99
1000	0	47	8	0	0	1	56	57
1100	0	50	9	1	0	0	60	61
1200	0	76	8	1	1	2	88	92
1300	0	61	3	0	0	0	64	64
1400	0	54	11	1	1	1	68	71
1500	0	60	7	3	1	0	71	74
1600	0	47	4	2	2	0	55	59
1700	0	62	7	0	1	0	70	71
1800	0	53	4	0	1	1	59	61
1900	0	41	3	2	1	0	47	49
2000	0	18	0	0	0	0	18	18
2100	0	15	0	0	0	0	15	15
2200	0	9	0	0	0	0	9	9
2300	0	6	0	0	0	0	6	6
07-19	1	791	85	10	9	8	904	928
06-22	1	935	101	13	11	8	1069	1097
06-00	1	950	101	13	11	8	1084	1112
00-00	1	979	104	13	13	8	1118	1149

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Wednesday 17 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	5	1	0	0	0	6	6
0100	0	2	0	0	0	0	2	2
0200	0	2	0	0	0	0	2	2
0300	0	0	0	0	0	0	0	0
0400	0	1	0	0	0	0	1	1
0500	0	1	1	0	0	0	2	2
0600	0	3	1	0	1	0	5	6
0700	0	29	7	2	0	0	38	39
0800	1	44	11	3	0	0	59	60
0900	0	38	8	0	0	0	46	46
1000	1	24	8	0	3	0	36	39
1100	0	70	7	3	1	1	82	86
1200	0	55	6	1	0	0	62	63
1300	0	64	14	1	0	1	80	82
1400	0	74	18	2	0	0	94	95
1500	0	72	9	1	1	1	84	87
1600	1	88	20	2	2	1	114	118
1700	1	116	13	0	2	0	132	134
1800	0	95	11	0	1	1	108	110
1900	2	68	6	0	1	0	77	77
2000	0	54	6	1	0	0	61	62
2100	0	27	0	0	0	0	27	27
2200	0	15	1	0	0	1	17	18
2300	0	14	1	0	0	0	15	15
07-19	4	769	132	15	10	5	935	957
06-22	6	921	145	16	12	5	1105	1129
06-00	6	950	147	16	12	6	1137	1162
00-00	6	961	149	16	12	6	1150	1175

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Thursday 18 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	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
0300	0	2	0	0	0	0	2	2
0400	0	4	2	0	2	0	8	11
0500	0	15	3	0	0	0	18	18
0600	0	61	8	0	1	0	70	71
0700	0	76	9	0	1	1	87	89
0800	0	118	13	1	0	1	133	135
0900	2	67	7	1	3	0	80	83
1000	2	42	7	2	5	1	59	66
1100	1	60	5	0	1	1	68	70
1200	0	44	7	2	3	1	57	63
1300	0	63	6	0	0	0	69	69
1400	2	52	7	1	4	0	66	70
1500	2	51	10	2	1	0	66	67
1600	1	44	10	3	2	0	60	63
1700	0	54	3	2	1	0	60	62
1800	3	73	3	2	0	0	81	80
1900	1	50	7	0	0	0	58	57
2000	1	27	1	0	0	0	29	28
2100	1	21	2	0	0	0	24	23
2200	0	9	0	0	0	0	9	9
2300	0	6	0	0	0	0	6	6
07-19	13	744	87	16	21	5	886	916
06-22	16	903	105	16	22	5	1067	1096
06-00	16	918	105	16	22	5	1082	1111
00-00	16	940	110	16	24	5	1111	1142

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS **Thursday 18 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/035**

SITE 03
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	2	0	0	0	0	2	2
0200	0	1	0	0	0	0	1	1
0300	0	0	0	0	0	0	0	0
0400	0	0	1	0	0	0	1	1
0500	0	1	0	0	1	0	2	3
0600	0	4	1	0	0	0	5	5
0700	0	30	5	2	0	0	37	38
0800	1	43	7	4	1	0	56	59
0900	2	47	10	4	2	0	65	68
1000	1	31	10	1	0	0	43	43
1100	1	41	11	0	2	1	56	59
1200	1	57	9	1	1	0	69	70
1300	0	51	10	2	0	1	64	66
1400	0	58	7	0	0	0	65	65
1500	0	65	15	0	1	1	82	84
1600	1	107	17	1	3	3	132	139
1700	1	110	11	1	2	1	126	129
1800	4	84	13	1	0	1	103	101
1900	0	67	8	0	0	0	75	75
2000	1	57	9	1	0	0	68	68
2100	0	49	0	0	1	0	50	51
2200	0	25	1	0	0	1	27	28
2300	1	17	1	0	0	0	19	18
07-19	12	724	125	17	12	8	898	921
06-22	13	901	143	18	13	8	1096	1120
06-00	14	943	145	18	13	9	1142	1166
00-00	14	950	146	18	14	9	1151	1176

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS | **SITE 03** | **WEEK COMMENCING:** | **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS | **NORTHBOUND** | **TRA/24/035**

TIME PERIOD	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	Average
0000	2	6	9	1	1	1	0	3
0100	2	3	8	0	0	1	0	2
0200	3	4	5	1	0	2	1	2
0300	2	2	2	0	1	2	2	2
0400	4	0	0	4	5	2	8	3
0500	22	11	5	18	20	26	18	17
0600	60	17	10	67	79	85	70	55
0700	87	24	15	102	81	108	87	72
0800	120	45	22	128	141	109	133	100
0900	87	54	53	101	76	96	80	78
1000	57	80	78	62	59	56	59	64
1100	77	84	100	71	65	60	68	75
1200	58	67	92	56	55	88	57	68
1300	71	81	99	57	65	64	69	72
1400	71	84	91	77	69	68	66	75
1500	66	71	73	61	61	71	66	67
1600	61	71	76	56	70	55	60	64
1700	60	68	78	54	66	70	60	65
1800	69	56	51	43	53	59	81	59
1900	54	45	56	42	50	47	58	50
2000	47	46	34	24	33	18	29	33
2100	24	36	30	14	17	15	24	23
2200	6	19	13	9	8	9	9	10
2300	9	10	5	2	4	6	6	6
07-19	884	785	828	868	861	904	886	859
06-22	1069	929	958	1015	1040	1069	1067	1021
06-00	1084	958	976	1026	1052	1084	1082	1037
00-00	1119	984	1005	1050	1079	1118	1111	1067

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS | **SITE 03** | **WEEK COMMENCING:** | **Friday 12 April 2024**
AUTOMATIC TRAFFIC COUNTS | **SOUTHBOUND** | **TRA/24/035**

TIME PERIOD	Friday 12 April 2024	Saturday 13 April 2024	Sunday 14 April 2024	Monday 15 April 2024	Tuesday 16 April 2024	Wednesday 17 April 2024	Thursday 18 April 2024	Average
0000	1	9	15	4	2	6	3	6
0100	5	3	4	4	4	2	2	3
0200	2	3	9	1	0	2	1	3
0300	0	3	5	0	1	0	0	1
0400	0	1	1	1	0	1	1	1
0500	2	4	3	1	1	2	2	2
0600	4	7	3	3	4	5	5	4
0700	29	11	10	40	33	38	37	28
0800	46	26	22	46	60	59	56	45
0900	60	33	31	51	54	46	65	49
1000	52	64	40	35	43	36	43	45
1100	66	70	86	56	51	82	56	67
1200	73	101	66	63	50	62	69	69
1300	94	82	109	59	81	80	64	81
1400	90	89	82	64	81	94	65	81
1500	114	82	72	83	91	84	82	87
1600	153	80	75	107	135	114	132	114
1700	156	69	63	149	145	132	126	120
1800	106	77	61	105	90	108	103	93
1900	82	59	51	58	65	77	75	67
2000	60	47	44	45	47	61	68	53
2100	51	47	29	29	35	27	50	38
2200	28	29	15	19	29	17	27	23
2300	25	23	16	5	9	15	19	16
07-19	1039	784	717	858	914	935	898	878
06-22	1236	944	844	993	1065	1105	1096	1040
06-00	1289	996	875	1017	1103	1137	1142	1080
00-00	1299	1019	912	1028	1111	1150	1151	1096

TRAFFINOMICS LIMITED

KILSARAN BALLINCLARE II TRAFFIC COUNT/SPEED SURVEYS
AUTOMATIC TRAFFIC COUNTS

WEEK COMMENCING: Friday 12 April 2024
TRA/24/035

SITE 03
NORTHBOUND

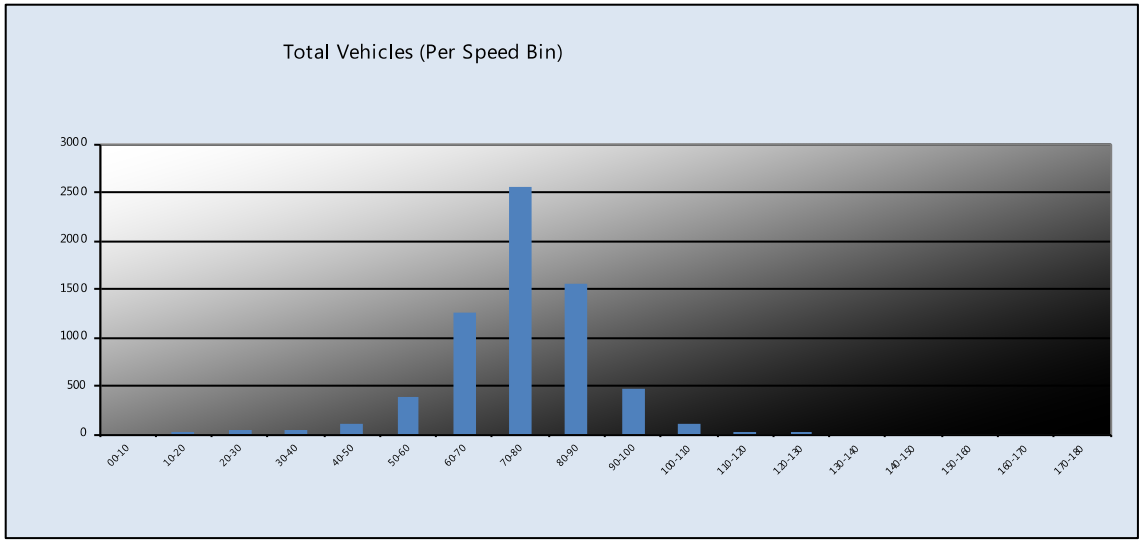
Profile:

Filter time: 00:00 12th April 2024 => 23:59 18th April 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 6564
Maximum = 123.1 km/h, Minimum = 13.5 km/h, Mean = 75.2 km/h
85% Speed = 84.49 km/h, 95% Speed = 94.12 km/h, Median = 75.78 km/h
20 km/h Pace = 67 - 87, Number in Pace = 4332 (66.00%)
Variance = 154.78, Standard Deviation = 12.44 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	8	0.1
20-30	45	0.7
30-40	36	0.5
40-50	115	1.8
50-60	381	5.8
60-70	1251	19.1
70-80	2563	39.0
80-90	1562	23.8
90-100	465	7.1
100-110	108	1.6
110-120	25	0.4
120-130	5	0.1
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 II TRAFFIC COUNT/SPEED SURVEYS
AUTOMATIC TRAFFIC COUNTS

WEEK COMMENCING: Friday 12 April 2024
TRA/24/035

SITE 03
SOUTHBOUND

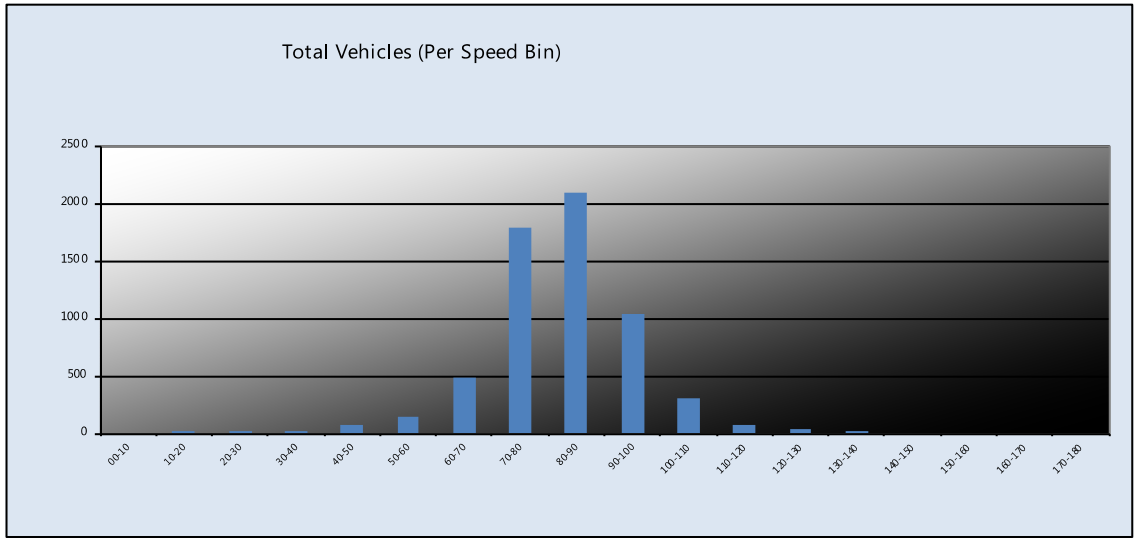
Profile:

Filter time: 00:00 12th April 2024 => 23:59 18th April 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 6027
Maximum = 139.1 km/h, Minimum = 16.6 km/h, Mean = 82.5 km/h
85% Speed = 86.32 km/h, 95% Speed = 100.42 km/h, Median = 78.99 km/h
20 km/h Pace = 72 - 92, Number in Pace = 3934 (65.27%)
Variance = 157.98, Standard Deviation = 12.57 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	1	0.0
20-30	3	0.0
30-40	24	0.4
40-50	67	1.1
50-60	135	2.2
60-70	478	7.9
70-80	1778	29.5
80-90	2082	34.5
90-100	1032	17.1
100-110	312	5.2
110-120	79	1.3
120-130	30	0.5
130-140	6	0.1
140-150	0	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



TRAFFINOMICS LIMITED

CLASSIFICATION SCHEMES:

Scheme F Classification Scheme (Non-metric)

Scheme F is an attempt to implement the FWHA's visual classification scheme as an axle-based classification scheme. This is one of several interpretations.

Vehicle Class	Class	Vehicle Type	No. of Axles	Axle spacing in feet				
				Axle 1 to 2	Axle 2 to 3	Axle 3 to 4	Axle 4 to 5	Axle 5 to 6
PCL/MCL	1	motorcycle	2	<6.0				
CAR*	2	passenger car	2	6.0 - 10.0				
		car + 1 axle trailer	3	<10.0	10.0 - 18.0			
		car + 2 axle trailer	4	<10.0		<3.5		
LGV**	3	pickup	2	10.0 - 15.0				
		pickup + 1 axle trailer	3	10.0 - 15.0	10.0 - 18.0			
		pickup + 2 axle trailer	4	10.0 -15.0		<3.5		
		pickup + 3 axle trailer	5	9.9 - 15.0			<3.5	
BUS	4	bus	2	>20.0				
		bus	3	>19.0				
OGV 1	5	single unit truck - dual rear axle	2	14.9 - 20.0			<3.5	
	6	3 axle truck	3		<18.0			
OGV 2	7	4 axle truck	4					
	8	2S1	3		>18.0			
		2S2	4		>5.0	>3.5		
		3S1	4		<5.0	>10.0		
	9	3S2	5		<6.1		3.5 - 8.0	
		5 axle combination	5					
	10	6 axle combination	6			3.5 - 5.0		
		3S3	6					
	11	2S1-2	5		>6.0			
	12	3S1-2	6					>10.0
	13	truck	7 or more					

Car* Cars and LGV based cars
LGV** Light Goods Vehicles with the exception of LGV based on cars

APPENDIX 14-B

Haul Route Structural Analysis Survey – June 2015

Falling Weight Deflectometer Survey – October 2024

Haul Route Structural Analysis Survey – June 2015

MILESTONE
Pavement Technologies

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:

Milestone Pavement Technologies Page 1

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

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.

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

Chainage	D1	D1-D2	D9
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

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

Chainage	D1	D1-D2	D9
3200	754	338	2
3250	740	341	7
3300	709	253	20
3350	458	134	32
3400	577	186	24
3450	661	222	30
3500	881	293	26
3550	594	235	12
3600	696	271	22
3650	663	243	22
3700	758	247	18
3750	701	325	19
3800	371	109	22
3850	743	316	7
3900	1007	295	24
3955	588	176	14
4000	574	189	8
4050	367	137	8
4100	779	324	5
4150	754	307	14
4200	498	191	21
4250	777	233	16
4300	740	212	34
4350	507	144	13
4400	468	132	6
4450	224	50	2
4500	442	148	13
4550	400	107	27
4600	415	122	31
4650	455	160	20
4700	377	120	19
4750	305	75	20
4800	344	102	23

Chainage	D1	D1-D2	D9
4850	418	118	31
4900	366	160	12
4950	345	122	11
5000	254	86	6
5050	370	121	7
5100	572	191	9
5150	374	159	3
5200	1456	547	37
5250	544	133	73
5300	539	191	40
5350	818	275	52
5400	670	277	38
5450	465	167	17
5500	633	283	15
5550	538	239	8
5600	537	258	12
5650	717	277	8
5700	666	255	15
5750	540	247	10
5800	109	24	8
5855	120	27	5
5900	115	29	4
5950	61	18	0
6000	65	12	13
6050	172	86	1
6100	356	103	14
6150	368	127	3
6200	387	134	15
6250	520	175	12
6300	354	113	17
6350	531	228	15
6400	311	107	5
6435	252	73	12

Appendix B

Deflection Graphs

Ballinclare Quarry Appendix B: Deflection Graphs

Milestone Pavement Technologies Page 11

Falling Weight Deflectometer Survey – October 2024

MILESTONE
Pavement Technologies

Falling Weight Deflectometer Survey

L1157 Ballinclare

Unit M Kells Business Park, Cavan Road, Kells, Co. Meath Ph. 086-7947688

Client: Kilsaran

Address: Piercetown, Dunboyne, Co. Meath.

Site: L1157 Ballinclare

Date: 25-October-2024

Contents:

1. Introduction:

A Falling Weight Deflectometer (FWD) survey was required by Kilsaran to assess the impact of quarry traffic on the L1157 at Ballinclare. Based on the FWD results, coring to determine pavement structure, and traffic information provided, pavement layer stiffness values were estimated, and strengthening proposed as necessary.

2. Description of testing

2.1. FWD Testing

Testing was carried out using a trailer mounted Primax FWD manufactured by Sweco. 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. Readings were taken from 7 geophones positioned as follows:

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

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.

Longitudinal spacing of measurements was at 50 metre intervals in the left-hand wheel-track of each lane.

2.2. Coring

Cores were cut from the bound pavement layers using the standard coring rig with a 150mm barrel/bit.

3. Survey Details

3.1. Date of Survey

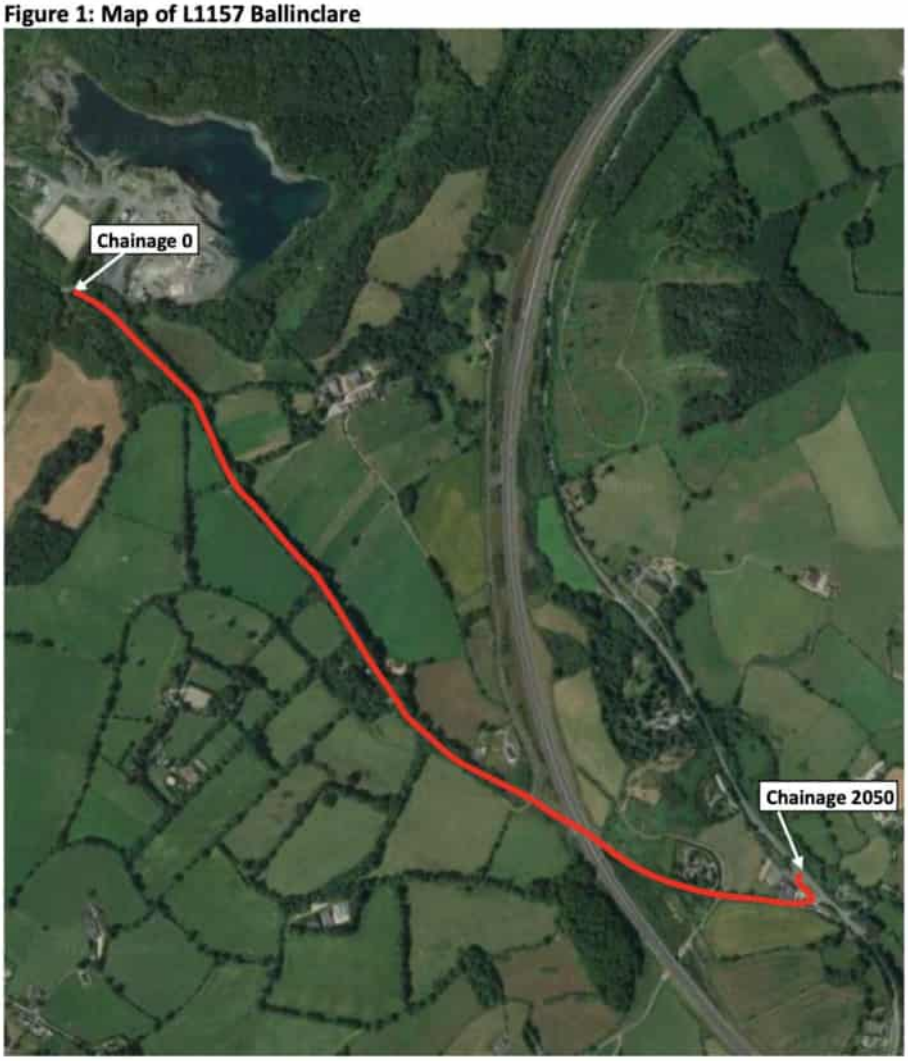
The survey took place on July 9th, 2024.

3.2. Survey Details

Testing commenced at the entrance to Ballinclare Quarry (Chainage 0) and south for 2050 metres, finishing at its northern junction with the R772, as shown in Figure 1.

Deflection measurements were taken at 50 metre intervals in each lane, staggered by 25 metres between lanes.

Figure 1: Map of L1157 Ballinclare



3.3. Tabulated Deflections

The deflection bowl created by the FWD load pulse is influenced by the stiffness of the different pavement layers. Deflection values are tabulated in Appendix A as follows:

D1: Indication of overall pavement performance

D1-D2: Indicates condition of upper pavement layers

D9: Indication of sub-grade condition

Lower deflections generally indicate better pavement condition. Guidance on the interpretation of deflection values is given in DTTAS publication '*Guidelines on Depth of Overlay to be used on Rural Regional and Local Roads*' and is reproduced in Table 1 and Table 2.

Table 1: Upper Pavement Layer Condition

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

Table 2: Subgrade Condition

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

Deflection values for each test point are tabulated in Appendix A. Average values for four sub-sections with deflections of similar magnitude are shown in Table 3. The measured values identify a particularly poor sub-section from Chainage 750 to 1325.

Table 3: Average Deflection Values

Chainage	Southbound Lane			Northbound Lane		
	D1	D1-D2	D9	D1	D1-D2	D9
0 to 725	384	148	22	429	143	20
750 to 1325	635	286	22	789	327	30
1350 to 1600	95	19	7	106	25	11
1625 to 2050	357	132	14	405	126	18

3.4. Deflection Plots

The selected deflection parameters were plotted against distance and are presented in Appendix B. Deflection and deflection difference plots are useful for showing relative differences in the condition of the layers.

3.5. Pavement Construction

Pavement structure information was determined by coring at four locations and results are presented in Table 4.

Table 4: Pavement Structure Information

Core No.	L1157-1	L1157-2	L1157-3	L1157-4
Chainage	250	750	1250	1750
Lane	Southbound	Northbound	Southbound	Northbound
Layer 1 (top)	235mm Bituminous Bound Material (7 layers)	95mm Bituminous Bound Material (2 layers)	160mm Bituminous Bound Material (3 layers)	130mm Bituminous Bound Material (4 layers)
Layer 2	60mm 0-40mm Crushed Rock	100mm 0-40mm Crushed Rock	60mm 0-40mm Crushed Rock (with clay)	200mm 0-40mm Crushed Rock
Layer 3	+100mm 0-50mm Crushed Rock	Stoney Clay	Stoney Clay	Crushed Rock with clay

3.6. Traffic Loading

For the purpose of calculating the overlay requirements of the pavement an estimate of the number of Heavy Goods Vehicles (HGV), or standard axles (8.16 tonnes) is required. Traffic information (AADT + %HGV) was provided by Trafficwise for three different scenarios. The information was used to calculate the traffic loading in million standard axles (M.S.A.) for each scenario over a 25-year design life, as shown in Table 5.

Table 5: Predicted Traffic Loading for L1157

Scenario	2026		2051		M.S.A.
	AADT	HGV	AADT	HGV	
No Development	464	10%	554	13%	1.2
Permitted Development	636	31%	717	32%	4.2
Proposed Development	681	35%	762	35%	5.1

4. Back-analysis

Pavement layer moduli values were estimated from the FWD deflections by the RoSy Design program using the back calculation method. The calculation of road surface deflection is based on the theory of elasticity and the method of equivalent thickness as framed by J.M. Kirk and N. Odemark on the basis of Boussinesq's equations. The main inputs include surface deflection, structural layer thickness, Poissons ratio and initial moduli estimates.

5. Strengthening Proposals

Once the back-analysis is complete and the stresses and strains in the pavement are estimated, the number of axles to failure can be calculated. Where this is less than the predicted traffic loading for the design period an overlay can be designed.

Overlay proposals based on the 85th percentile and a 25-year design life were estimated using the traffic loading for each of the three scenarios in Table 5. These proposals are presented in Table 6.

Table 6: Overlay Strengthening Proposals for L1157

Chainage	Overlay Strengthening (mm)		
	No Development	Permitted Development	Proposed Development
0 to 50	0	0	0
50 to 150	70	105	110
150 to 250	0	0	0
250 to 350	55	95	100
350 to 450	0	0	0
450 to 575	55	90	95
575 to 725	0	0	0
725 to 1025	125	165	175
1025 to 1125	50	80	85
1125 to 1340	75	120	125
1340 to 1660	0	0	0
1660 to 1900	0	50	55
1900 to 2000	80	115	120
2000 to 2050	0	0	0

A number of deflection values in Appendix A are highlighted in red, particularly from Chainage 775 to Chainage 950. These excessive values normally indicate failure. Replacement of existing layers with good quality, well compacted material should be considered before strengthening in these areas.

Appendix A

Tabulated Deflections

Table A1: L1157 Southbound Values

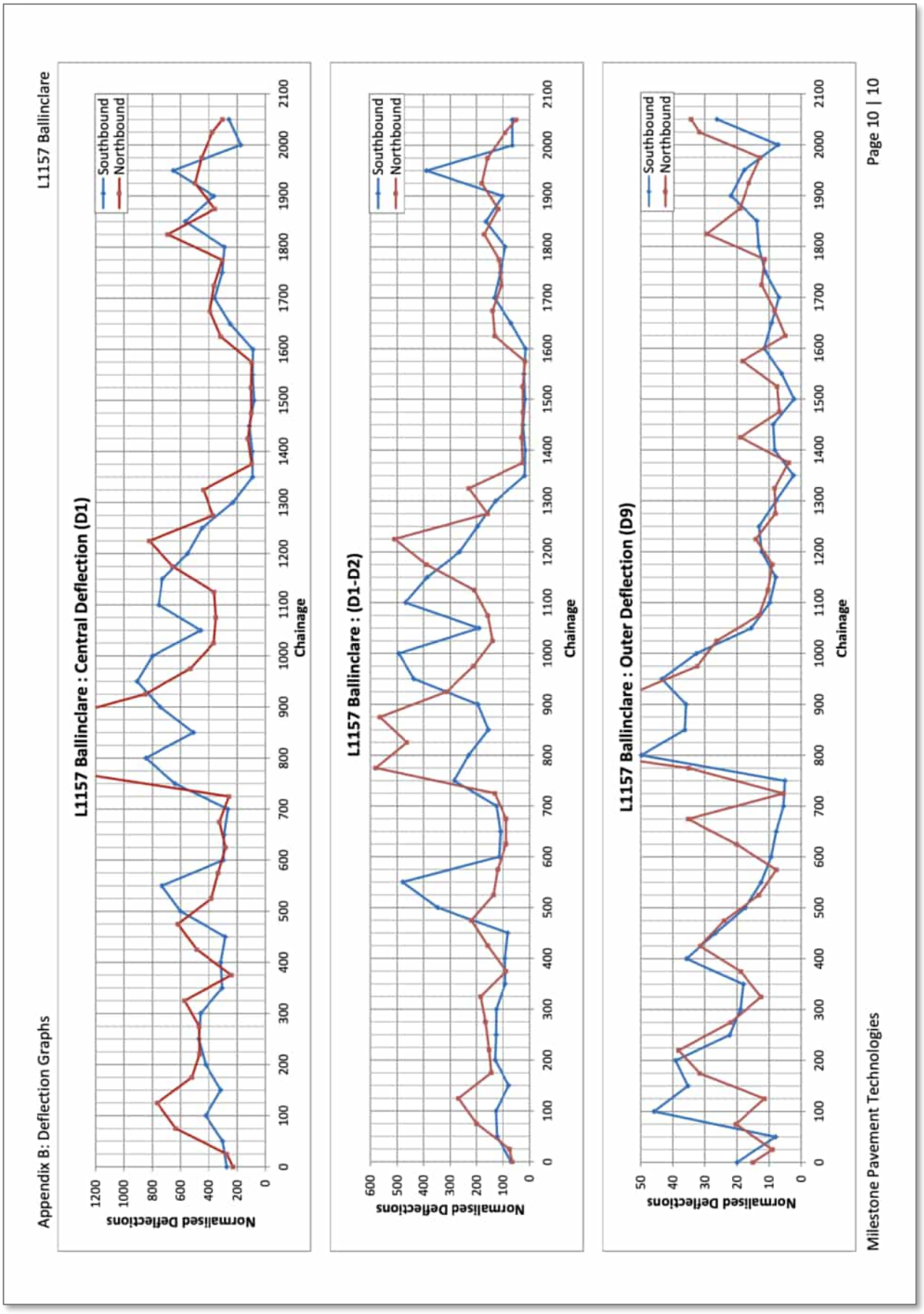
Chainage	D1	D1-D2	D9
0	273	69	20
50	302	123	8
100	422	127	46
150	316	79	35
200	423	130	39
250	471	127	22
300	459	126	19
350	305	92	18
400	316	92	36
450	284	82	27
500	600	347	18
550	732	479	13
600	297	114	9
650	292	110	8
700	264	125	6
750	639	284	5
800	846	230	50
850	509	156	36
900	744	195	36
950	907	437	43
1000	799	494	33
1050	458	191	16
1100	754	468	10
1150	730	386	8
1200	551	264	12
1250	449	196	13
1300	232	129	8
1350	93	19	2
1400	96	16	8
1450	115	25	9
1500	82	17	2
1550	93	21	6
1600	90	15	12
1650	249	70	9
1700	359	133	7
1750	305	111	11
1800	290	92	13
1850	566	165	14
1900	364	101	22
1950	651	389	18
2000	175	65	7
2050	259	64	26

Table A2: L1157 Northbound Values

Chainage	D1	D1-D2	D9
0	230	65	15
25	275	75	9
75	634	200	20
125	764	267	11
175	521	144	32
220	468	153	38
275	469	166	22
325	572	184	12
375	241	89	19
425	485	158	31
475	619	219	24
525	383	136	13
575	334	120	8
625	282	88	20
675	325	88	35
725	259	131	6
775	1436	580	35
825	1777	463	92
875	1513	565	58
925	850	312	51
975	532	211	32
1025	365	140	26
1075	350	158	13
1125	363	209	10
1175	655	389	9
1225	821	510	14
1275	370	158	8
1325	439	228	8
1375	99	26	4
1425	125	29	19
1475	102	25	7
1525	103	25	8
1575	99	17	18
1625	316	131	5
1675	392	140	8
1725	363	106	12
1775	305	115	11
1825	690	171	29
1875	357	119	19
1925	498	180	16
1975	451	159	13
2025	374	93	32
2050	302	51	34

Appendix B

Deflection Graphs


L1157 Ballinclare
Appendix B: Deflection Graphs
L1157 Ballinclare : Central Deflection (D1)
L1157 Ballinclare : (D1-D2)
L1157 Ballinclare : Outer Deflection (D9)
Southbound
Northbound
Normalised Deflections
Chainage
Page 10 | 10
Milestone Pavement Technologies

APPENDIX 14-C

Proposed Entry System

02991-24-INT-01 Sightlines, Entry Lane and Weighbridge
02991-24-INT-02 Queuing Provision

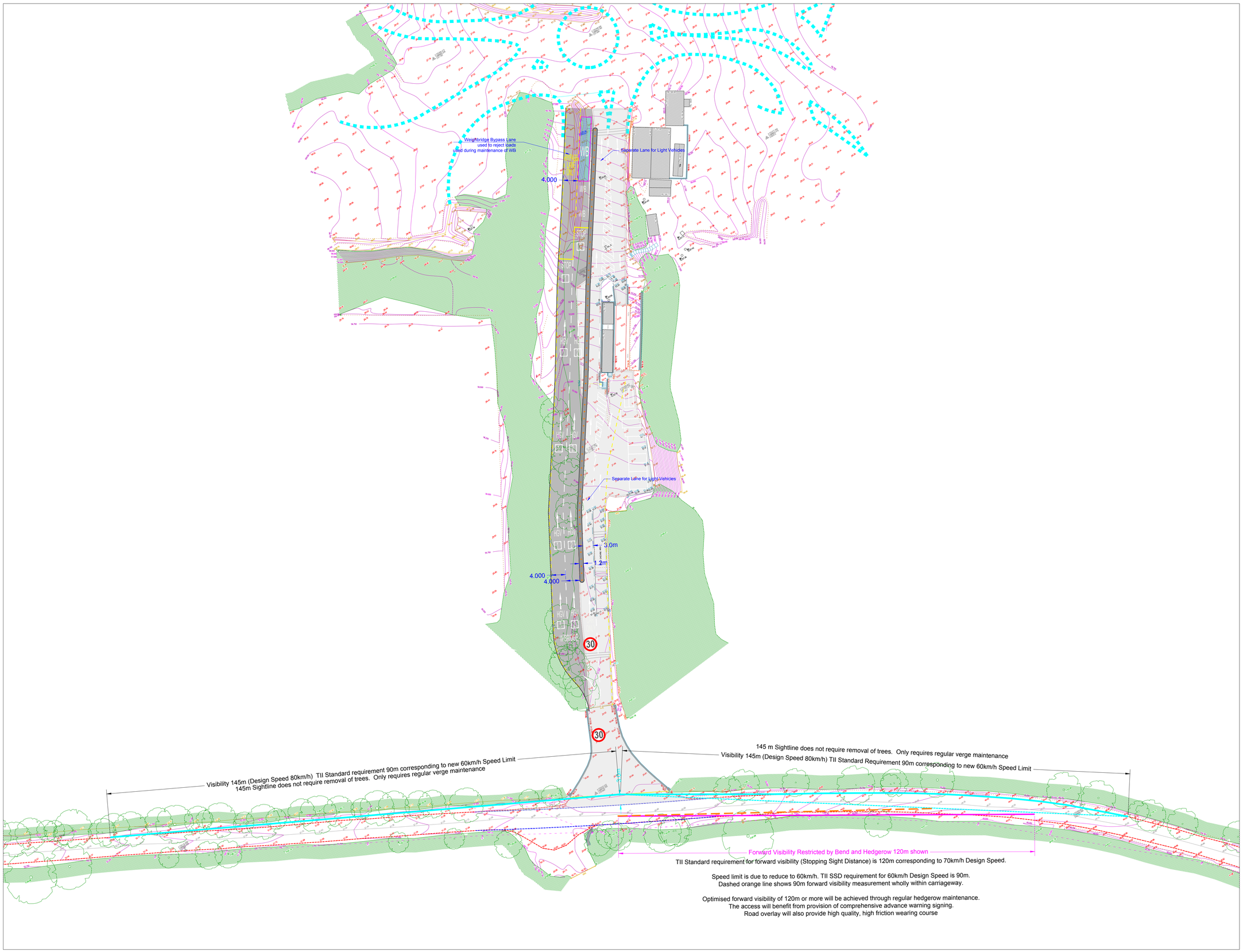
Haul Route Strengthening and Widening Scheme Drawings

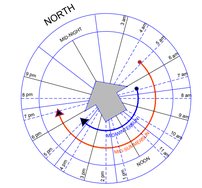
Series WD – Road Widening Works

02991-24-WD-00A Road Widening (NTS) General Layout
02991-24-WD-01A Road Widening - Chainage +0 to +500
02991-24-WD-02A Road Widening - Chainage +500 to +1180
02991-24-WD-03A Road Widening - Chainage +1180 to +2500

Series ST – Road Strengthening Works

02991-24-ST-00A Road Strengthening (NTS) General Layout
02991-24-ST-01A Road Strengthening - Chainage +0 to +500
02991-24-ST-02A Road Strengthening - Chainage +500 to +1180
02991-24-ST-03A Road Strengthening - Chainage +1180 to +2500





KEY:

- Existing Fence
- Existing Edge of Road
- Weighbridge
- Existing Road Surface
- Proposed New Road Construction
- Proposed Road Strengthening
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
- Proposed Concrete Lego Blocks
- Bollards
- Raised Dividing Island
- HGV Lane Number

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Website: www.trafficwise.ie

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

stage
Planning Application

title
Proposed Entry System

contents
Sightlines
Entry Lane and Weighbridge

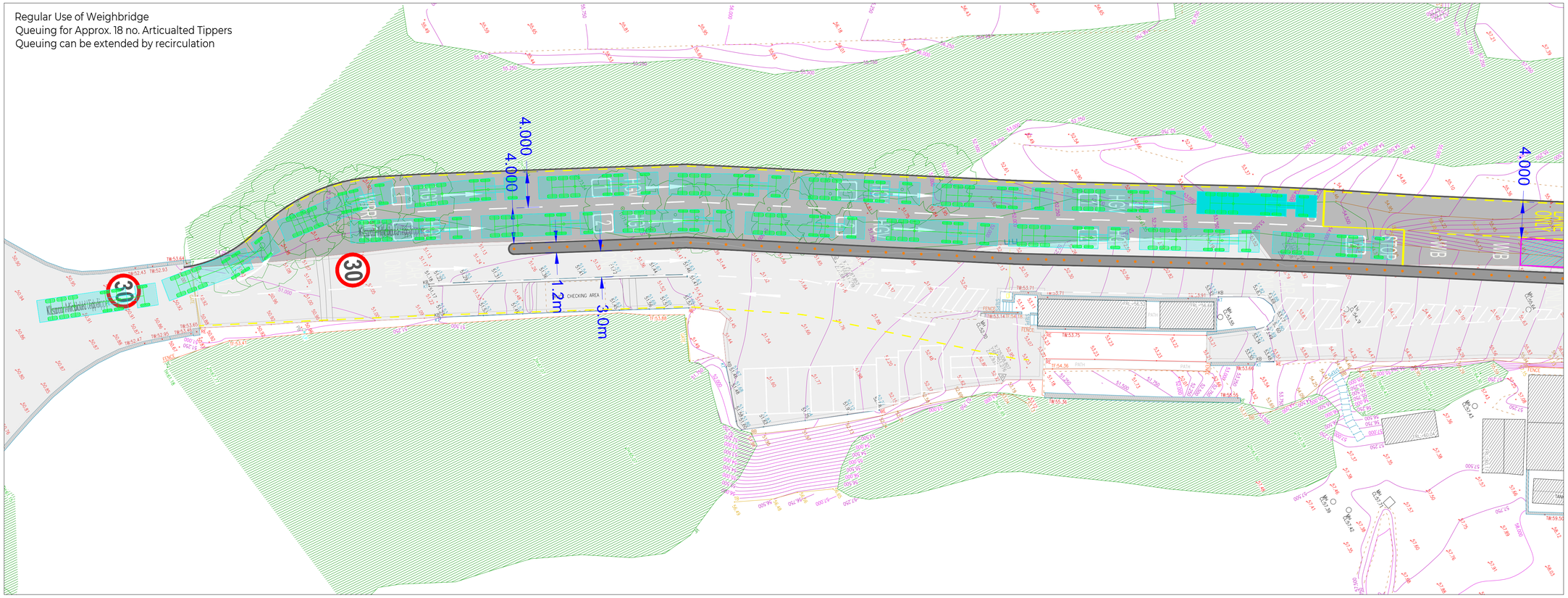
surveyed	drawn	checked	date
TECHSOL June 2024	TWL	JMK	Oct 2024

scale 1:500 (A1)

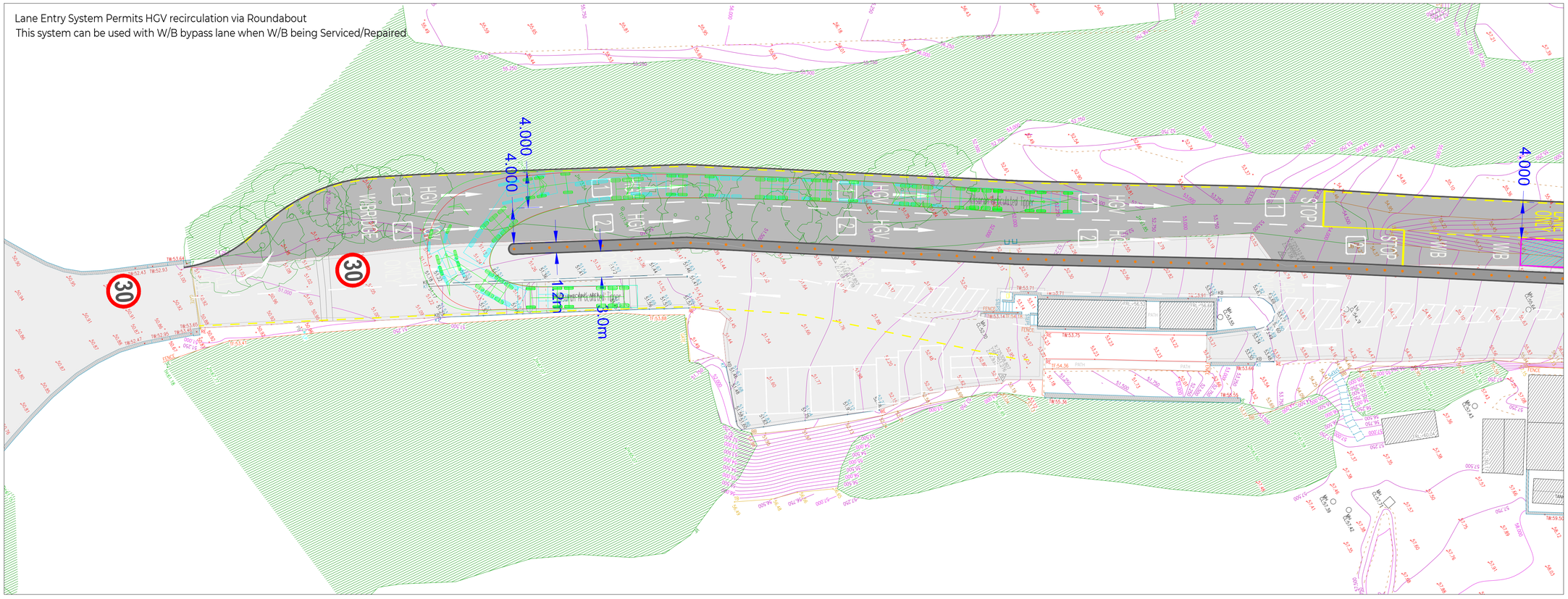
Kilsaran

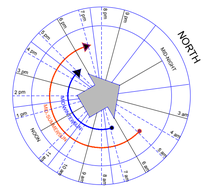
drawing no.	revision
02991-24-INT-01	

Regular Use of Weighbridge
Queuing for Approx. 18 no. Articualted Tippers
Queuing can be extended by recirculation



Lane Entry System Permits HGV recirculation via Roundabout
This system can be used with W/B bypass lane when W/B being Serviced/Repaired





KEY:

- Existing Fence
- Existing Edge of Road
- Weighbridge
- Existing Road Surface
- Proposed New Road Construction
- Proposed Road Strengthening
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
- Proposed Concrete Lego Blocks
- Bollards
- Raised Dividing Island
- Articualted Truck Queuing Space
- HGV Lane Number

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title
Proposed Entry System

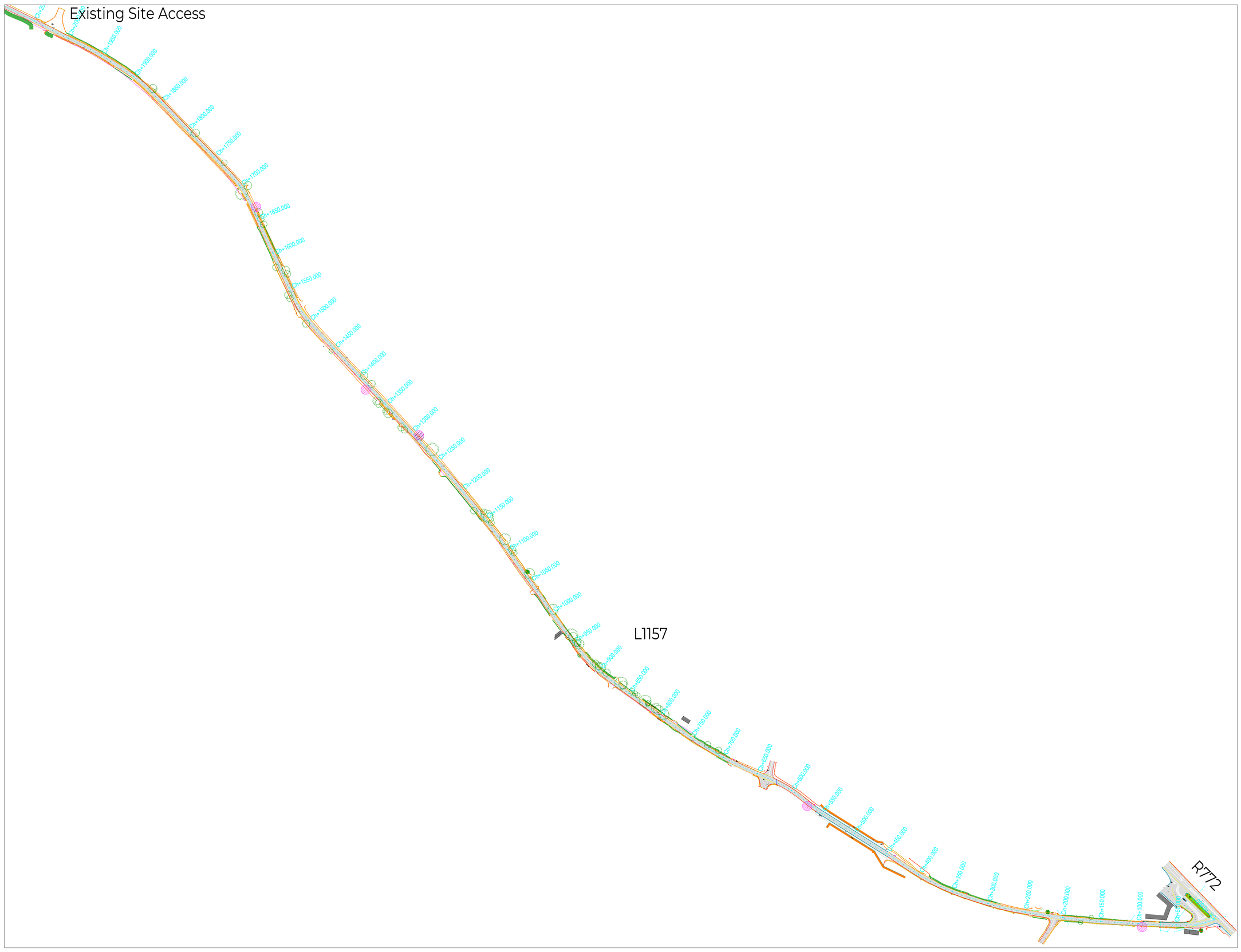
contents
Queuing Provision

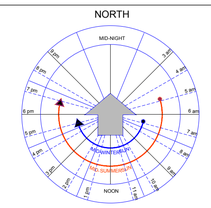
surveyed	drawn	checked	date
TECHSOL June 2024	TWL	JMK	Oct 2024

scale 1:250 (A1)

Kilsaran

drawing no.	revision
02991-24-INT-02	





KEY:

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- Existing Edge of Road
- Existing Road Width (0.28)
- Proposed Road Width (0.28)
- Existing Road Surface
- Proposed Widening (2.08)
- Proposed Road Strengthening (0.28)
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
- Existing Top of Bank
- Centreline of 6m Roadway
- Road Edge Marking 6m Roadway
- Chainage (Start R772, every 50m) (Ch+100.0)
- Chainage Marker (every 10m)
- Centreline Existing Road (Chaninage)
- Potential Site for Feedback Sign

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

stage
Planning Application

title
Road Improvement Works - Widening

contents
Location Plan Showing
Road Widening Scheme

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Oct 2024

scale Not to Scale [A1]

Kilsaran

drawing no. 02991-24-WD-00A

revision

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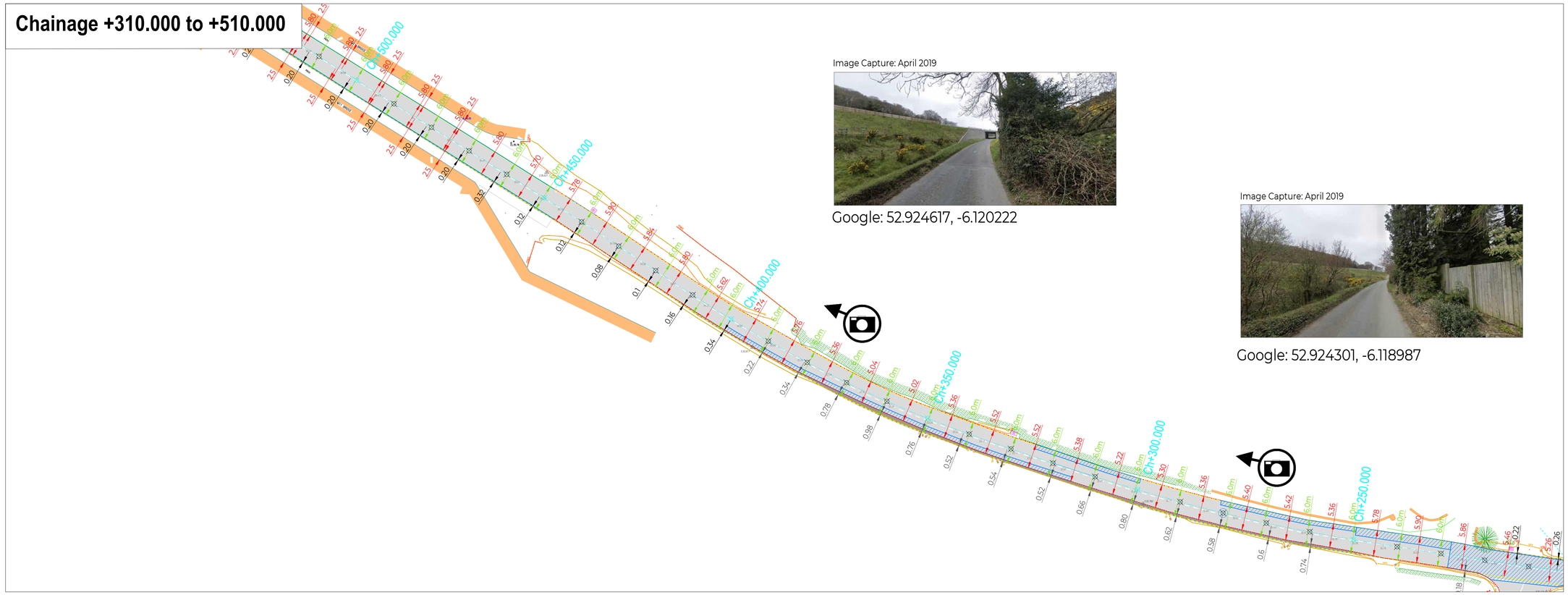

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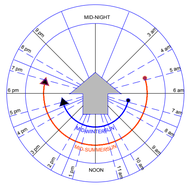

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- Existing Road Width (0.28)
- Proposed Road Width (0.28)
- Existing Road Surface
- Proposed Widening (2.08)
- Proposed Road Strengthening (0.90)
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- Telegraph Pole/Cable
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project
Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Road Improvement Works - Widening

contents
Carriageway Widening to 6.0m

Road strengthening works shown separately on 02991-24-ST Drawing Series)

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Oct 2024

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revision

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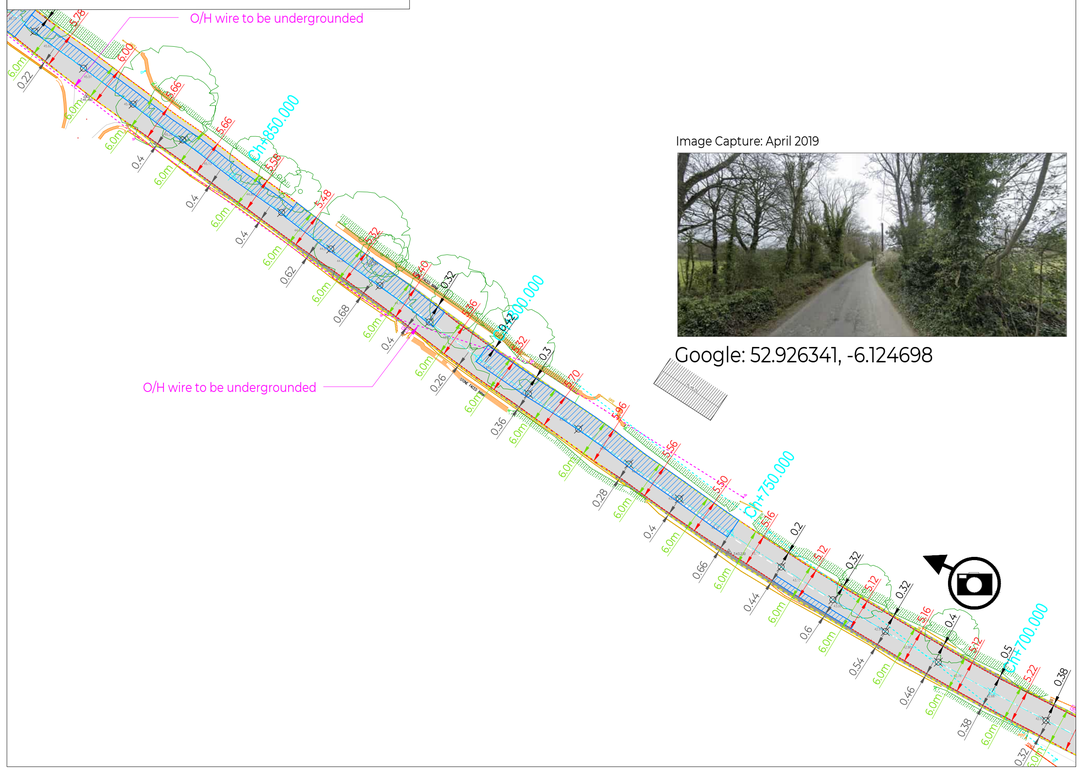

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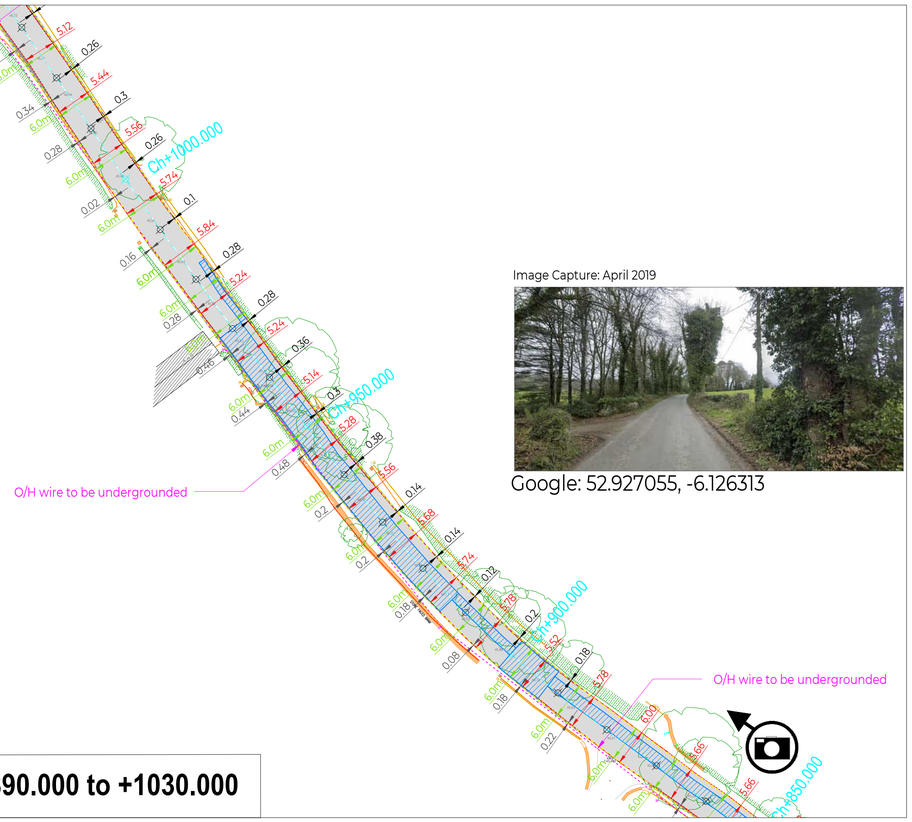

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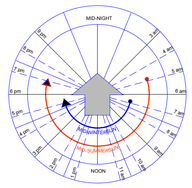

KEY:

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- Existing Road Width (0.28)
- Proposed Road Width (0.28)
- Existing Road Surface
- Proposed Widening (2.08)
- Proposed Road Strengthening (0.50)
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project
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Proposed Backfill and Restore

stage
Planning Application

title
Road Improvement Works - Widening

contents
Carriageway Widening to 6.0m

Road strengthening works shown separately on 02991-20-ST Drawing Series)

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Oct 2024

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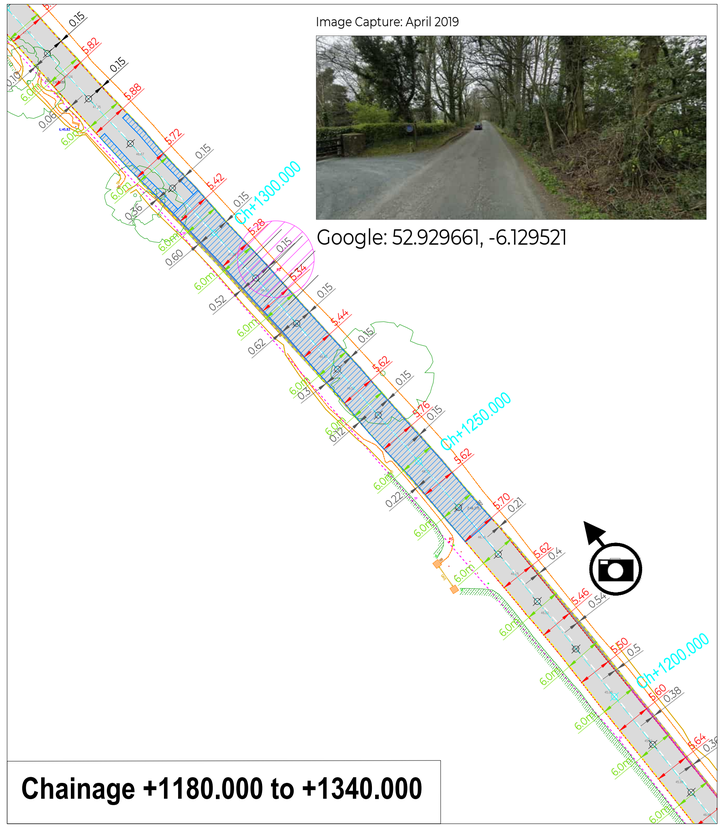
Kilsaran

drawing no.	revision
02991-24-WD-02A	



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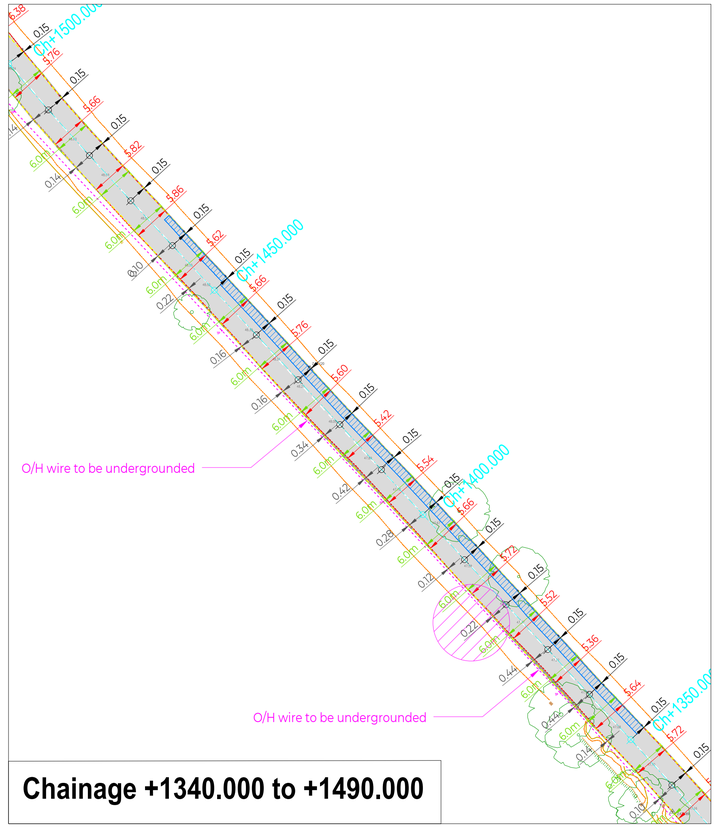

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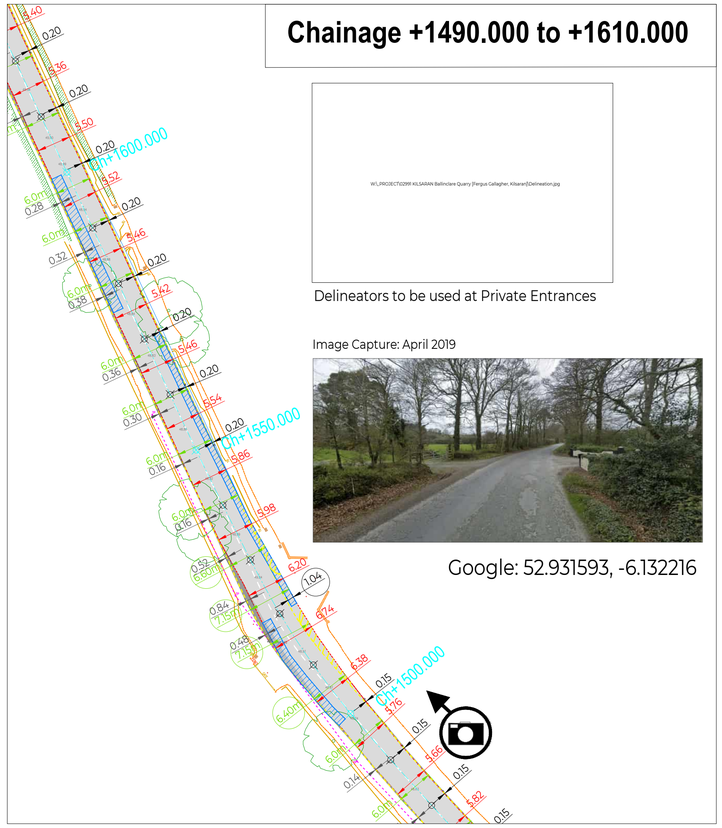

Chainage +1490.000 to +1610.000

Delineators to be used at Private Entrances

Image Capture: April 2019

Google: 52.931593, -6.132216

Image Capture: April 2019

Google: 52.932999, -6.133259

Chainage +1610.000 to +1750.000

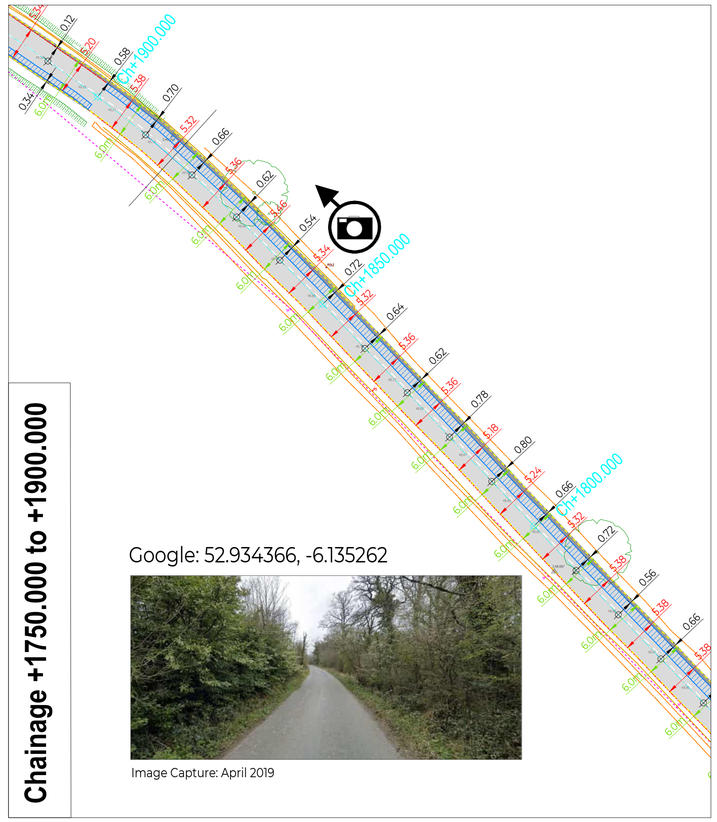

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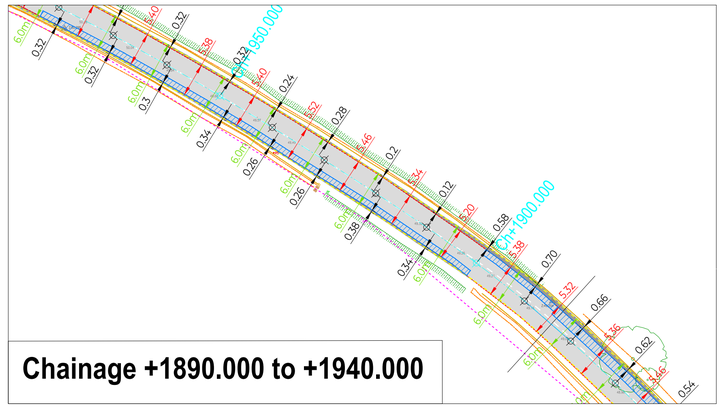
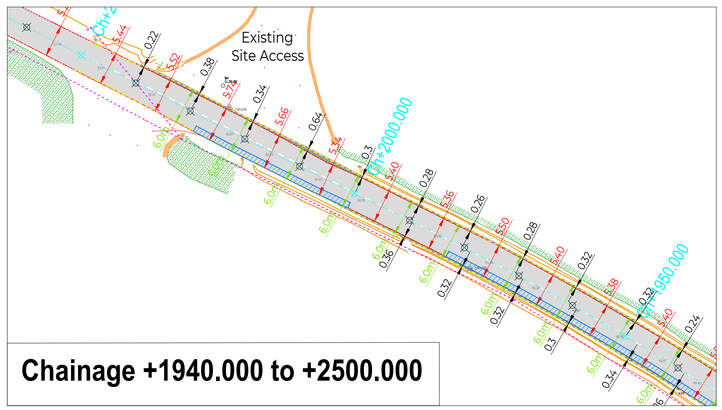
Image Capture: April 2019

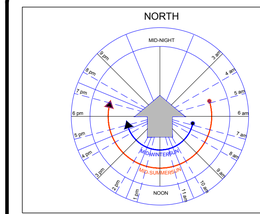
Chainage +1750.000 to +1900.000



Chainage +1890.000 to +1940.000



Chainage +1940.000 to +2500.000



KEY:

- Existing Fence
- Existing Edge of Road
- Existing Road Width (0.28)
- Proposed Road Width (0.28)
- Existing Road Surface
- Proposed Widening (2.08)
- Proposed Road Strengthening (0.90)
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
- Existing Top of Bank
- Centreline of 6m Roadway
- Road Edge Marking 6m Roadway
- Chainage (Start R772, every 50m) (Ch+100.0)
- Chainage Marker (every 10m)
- Centreline Existing Road (Chaninage)
- Potential Site for Feedback Sign

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Website: www.trafficwise.ie

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

stage
Planning Application

title
Road Improvement Works - Widening

contents
Carriageway Widening to 6.0m

Road strengthening works shown separately on 02991-20-ST Drawing Series

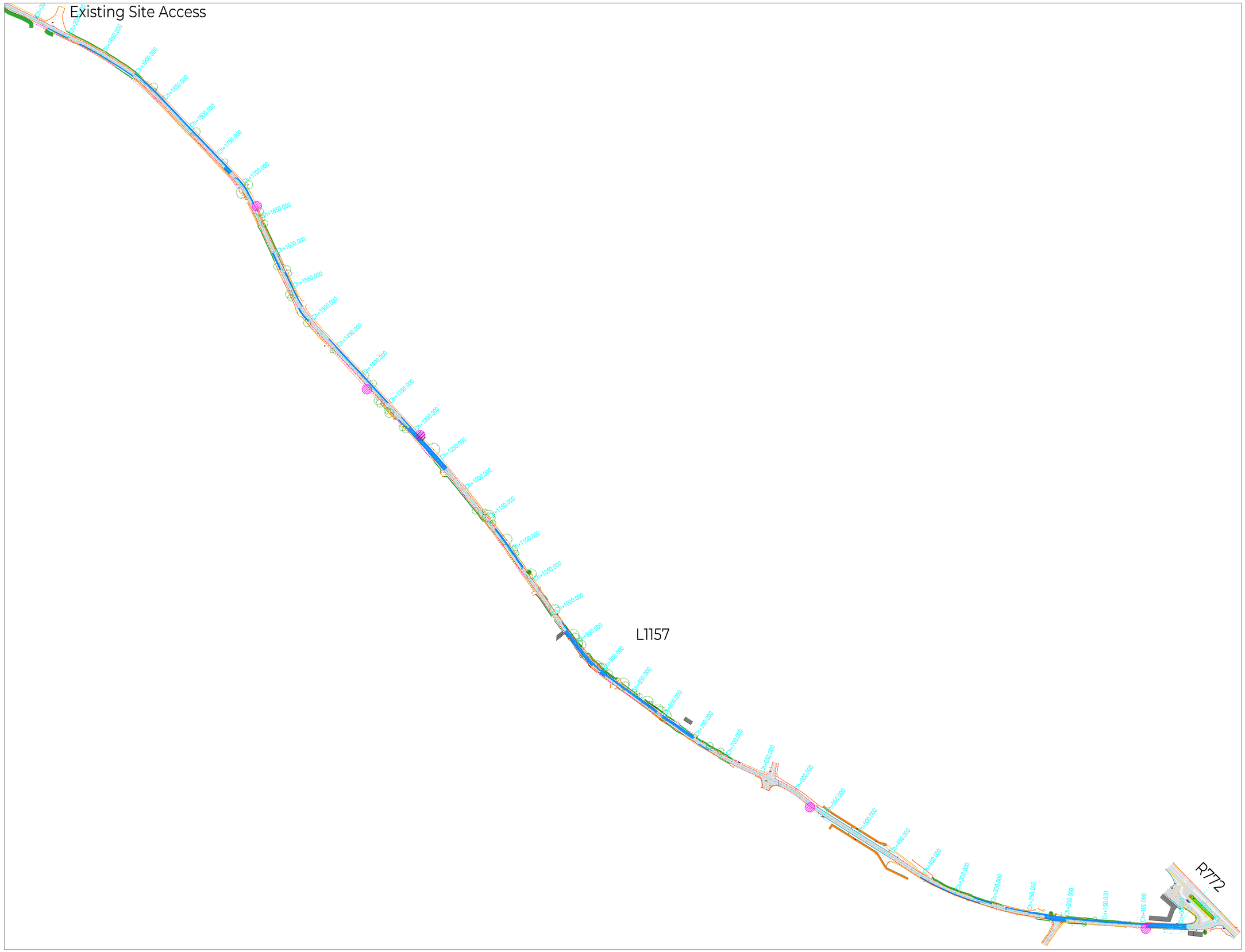
surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Oct 2024

scale 1:500 [A1] (Do not Scale, use figured dimensions)

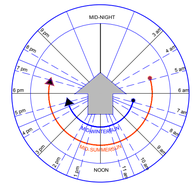
Kilsaran

drawing no. 02991-24-WD-03A

revision



NORTH



KEY:

- Existing Fence
- Existing Edge of Road
- Existing Road Width 0.28
- Proposed Road Width 0.28
- Existing Road Surface
- Proposed Widening 2.08
- Proposed Road Strengthening 6.00
- Existing Wall
- Electricity Pole/Cable
- Telegraph Pole/Cable
- Existing Hedgerow
- Existing Bottom of Bank
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project
Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Road Improvement Works - Strengthening

contents
Locations of carriageway strengthening works.
Note entire carriageway to receive final overlay wearing course.

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Oct 2024

scale Not to Scale [A1]

Kilsaran

drawing no.	revision
02991-24-ST-00A	

Chainage +000.000 to +310.000

Image Capture: April 2019

Google: 52.924301, -6.118987

Image Capture: April 2019

Google: 52.924089, -6.117048

Chainage +310.000 to +510.000

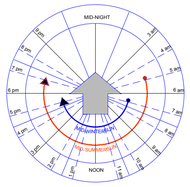
Image Capture: April 2019

Google: 52.924617, -6.120222

Image Capture: April 2019

Google: 52.924301, -6.118987

NORTH



KEY:

- Existing Fence
- Existing Edge of Road
- Existing Road Width (0.28)
- Proposed Road Width (0.28)
- Existing Road Surface
- Proposed Widening (2.08)
- Proposed Road Strengthening (0.95)
- Existing Wall
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Kilsaran Concrete, Ballinclare, Co. Wicklow
Proposed Backfill and Restore

stage
Planning Application

title
Road Improvement Works - Strengthening

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

surveyed	drawn	checked	date
TECHSOL June 2019	TWL	JMK	Oct 2024

scale 1:500 [A1] (Do not Scale, use figured dimensions)

Kilsaran

drawing no.	revision
02991-24-ST-01A	

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Image Capture: April 2019

Google: 52.925873, -6.123247

Chainage +700.000 to +890.000

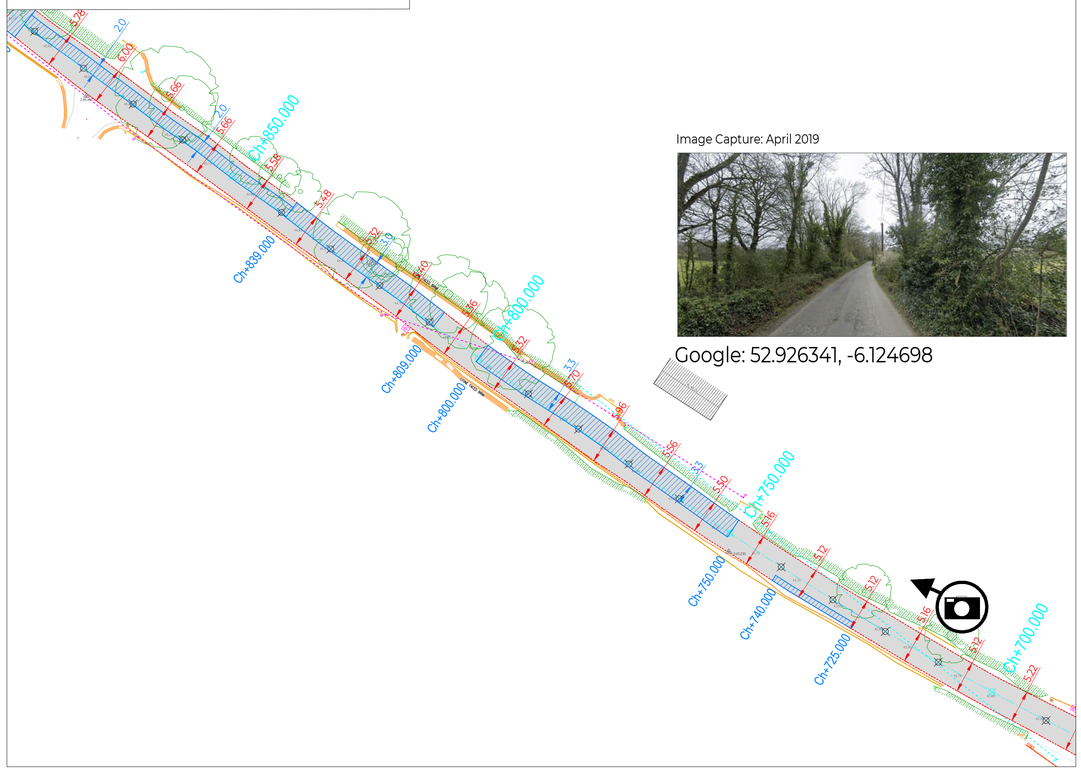

Image Capture: April 2019

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Image Capture: April 2019

Google: 52.927055, -6.126313

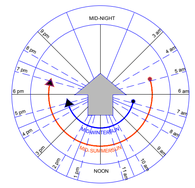
Chainage +890.000 to +1030.000

Image Capture: April 2019

Google: 52.928451, -6.128013

Chainage +1030.000 to +1180.000

NORTH



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- Existing Fence
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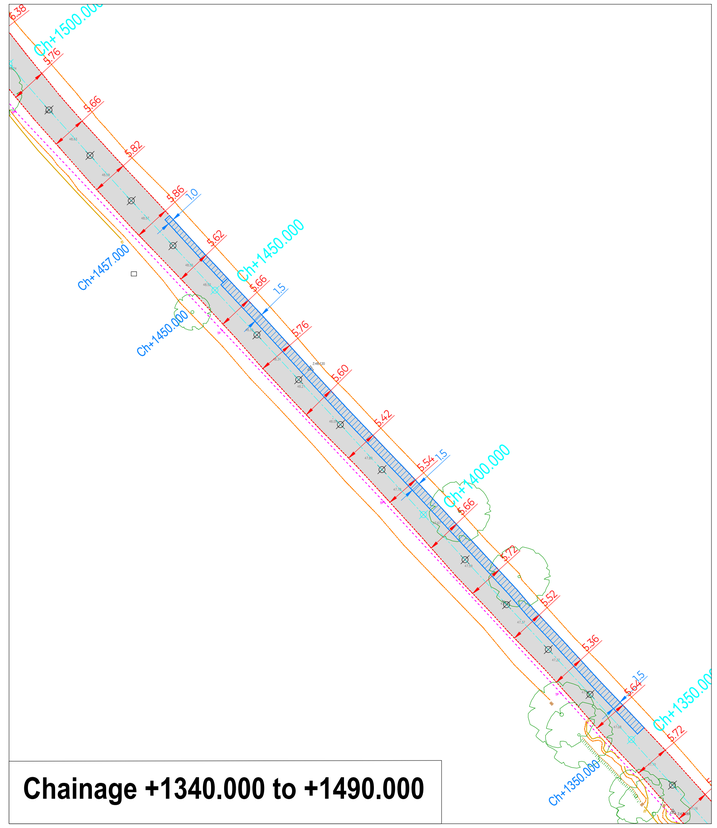
Kilsaran

drawing no.	revision
02991-24-ST-02A	

Image Capture: April 2019

Google: 52.929661, -6.129521

Chainage +1180.000 to +1340.000



Chainage +1340.000 to +1490.000

Chainage +1490.000 to +1610.000

Image Capture: April 2019

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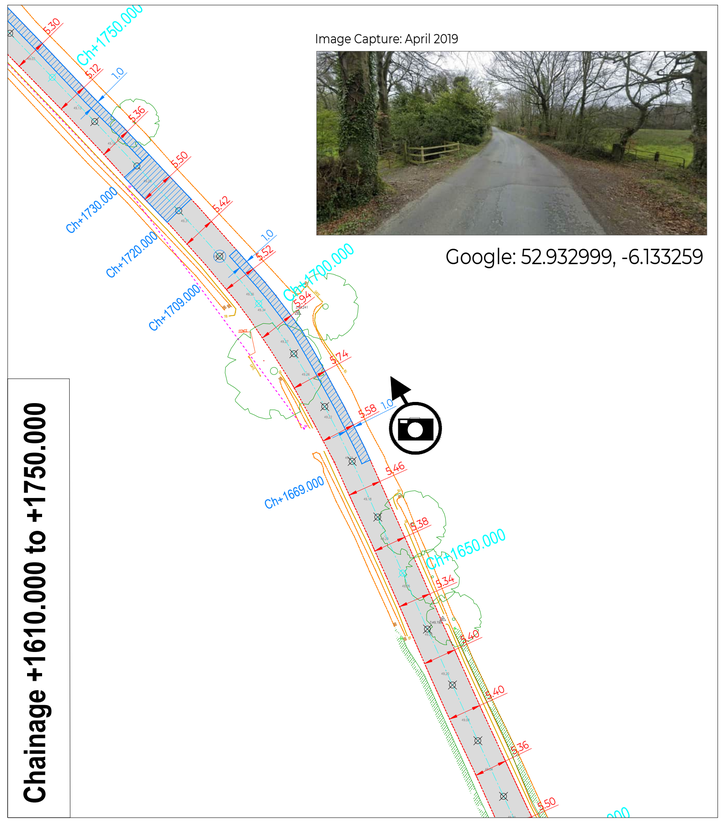

Image Capture: April 2019

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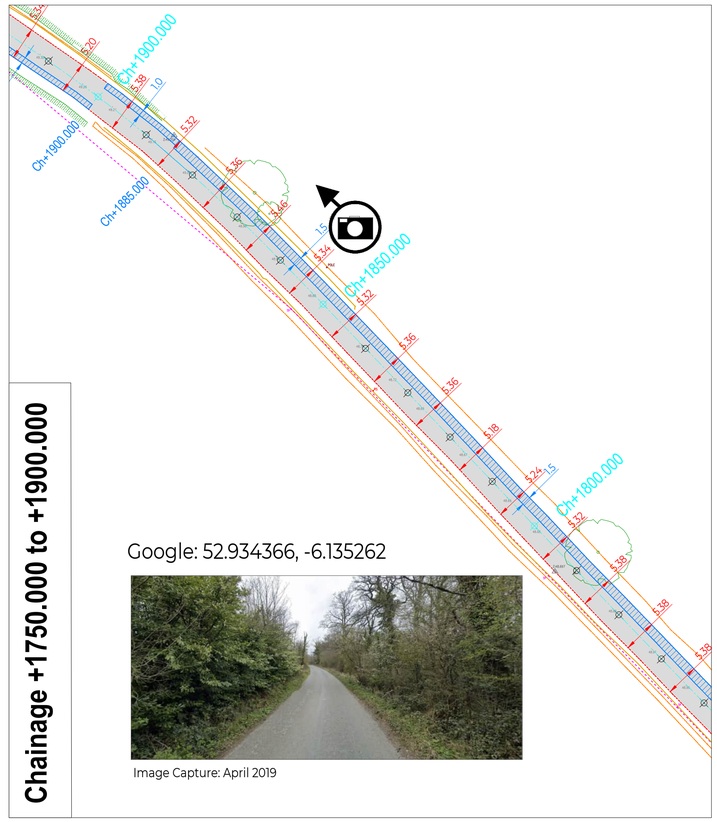
Chainage +1610.000 to +1750.000



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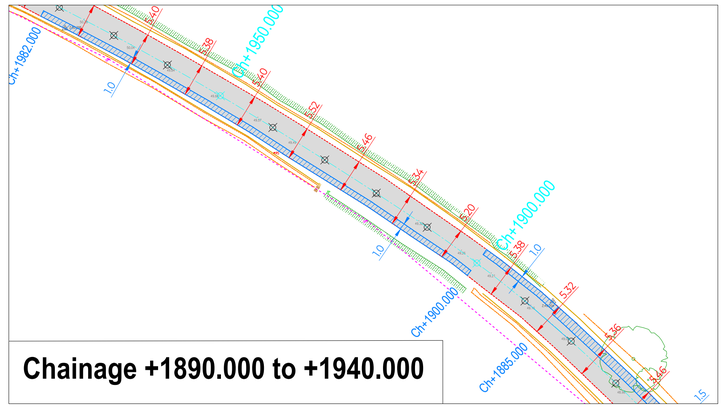
Chainage +1750.000 to +1900.000



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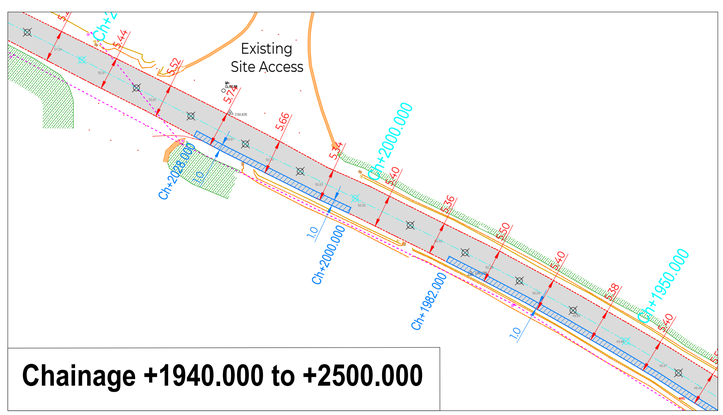

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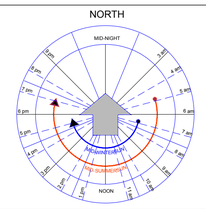

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02991-24-ST-03A	