

RPS



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N56 Leitirmacaward to Glenties (Kilraine) Road Improvement Scheme

Environmental Impact Statement

December 2011

Non Technical Summary



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NON TECHNICAL SUMMARY

1.0 Introduction

This Environmental Impact Statement (EIS) for the N56 Leitirnacaward to Glenties (Kilraine) Road Scheme has been prepared by RPS on behalf of Donegal County Council.

The EIS comprises of four parts namely:

Non Technical Summary

Volume 1 Text

Volume 2 Figures

Volume 3 Appendices

This report is a non technical summary of the Environmental Impact Statement (EIS) for the proposed N56 Leitirnacaward to Glenties (Kilraine) Road Scheme. The principle objective of this summary is to draw attention to the most significant issues associated with the scheme and to provide information on other significant topics. Where a topic is of particular interest, it can be investigated in greater detail in the EIS Volumes 1 to 3.

2.0 Description of the Proposed Scheme

The National Secondary Route N56 links the towns of Donegal in the South West of the County with Letterkenny in the North East via the towns of Mountcharles, Dunkineely, Ardara, Glenties Dungloe, Loughanure, Gweedore, Gortahork, Falcarragh, Dunfanaghy, Creeslough and Kilmacrenan. Much of the area served by the existing N56 is sparsely populated and as such traffic volumes are relative low making economic justification of major projects difficult. The existing N56 between Leitirnacaward and Glenties falls short of the standard expected for a national route. For much of the route the existing road is approx. 5.5m – 6.0m wide. A lot of the road is characterised by sharp bends, often found in combination with sharp crests and dips. The existing road is mainly a bog rampart road and features such as hard strips, shoulders or verges are rarely present.

Accesses are frequent, and include public roads, commercial access, private access and field accesses. They are made up of a combination of priority at grade junctions and priority junctions incorporating right turning lanes. For many of the existing access points visibility is well below standard.

Implementation of a Do-minimum strategy, i.e. pavement strengthening and minor widening, would result in this section of the N56 continuing to offer a low level of service into the future, particularly for non-motorised road users.

This scheme is designed to upgrade the N56 route between Leitirnacaward and the Kilraine Junction south of Glenties to Type 3 Single Carriageway Standard (See Figure 2.1). The upgrade will consist of approximately 15.3km of Type 3 Single Carriageway (N56 route), 1.0km of re-aligned side roads and 15.3km of cycle track. 10.7km of the T3SC will be online widening and 4.6km will be offline.

The design approach to T3SC roads is to focus in the first instance on online improvements. A formal route selection process therefore has not been carried out. Where online improvements were not feasible alternative options were assessed against relevant criteria and a preferred option was selected on the basis of a basic comparison matrix.

There will be a total of 25 road junctions on the scheme, two of which will be at grade priority junctions with ghost islands and the remainder being standard at grade priority junctions. Three new bridge structures will be provided over existing watercourses and two existing structures will be widened. New road drainage will be provided for the full length of the route and will generally consist of 'over the edge' to drainage/ storage ditches except at locations where environmental factors are particularly sensitive in which case treatment/ attenuation ponds are proposed. Two new controlled viewing areas

are proposed at Gweebarra and Maas. The scheme includes approximately 32km of new walls or fences and involves approximately 60ha of land acquisition.

3.0 Human Environment

This Chapter of the EIS provides an assessment of the potential impact(s) of the proposals on the Human Environment. The quality of the human environment along the road corridor is influenced by many factors, some of which are discussed at length in separate Chapters of the present report. These include for example, impact upon the visual landscape, impact upon agriculture, noise, air and water quality etc.

With the exception of the settlement of Glenties (to the southern extent of the scheme) the immediate study area is largely reflective of the rural nature of the wider County context with sporadic residential development (single dwellings and / or farm houses) being located along or close to the existing N56 and associated road network.

The small village of Leitirmacaward is located at the commencement of the scheme, along the existing N56, north of Gweebarra River. The village consists of a number of individual dwellings, a few commercial operations and a primary school and church; the population of the village is less than 1000.

In addition to the concentration of commercial land uses within Glenties, there are a number of commercial properties located along the existing N56 and to a lesser extent, the associated road network of the wider study area. Similarly, there are a small number of community related land uses within the study area, concentrated along the existing N56 and the adjoining road network.

The proposal is located within the Donegal Gaeltacht.

Within the study area, movement is concentrated on the existing N56 which carries traffic travelling between Glenties and Dungloe with associated minor roads acting as distributor roads to serve residential development as noted above. These minor roads are rural in nature and accommodate only relatively small levels of (local) vehicular traffic movements. As a National Secondary Road, the N56 experiences comparatively high levels of vehicular activity and as such, pedestrians and cyclist movements are likely to be concentrated on the minor roads given the relatively busy nature of the existing N56.

Pedestrian and cyclist movements are likely to be relatively short trips given the rural nature of the study area and shortage of typical destinations such as commercial and / or community facilities.

Relevant policies and designations for the study include the following:

- The National Development Plan Transforming Ireland: A Better Quality of Life for All 2007 – 2013;
- National Spatial Strategy for Ireland 2002–2020 People, Places and Potential;
- Transport 21;
- Draft Regional Planning Guidelines for the Border Region
- County Donegal Development Plan 2006 – 2012.

Consideration has been given to the presence of to planning applications which occur along the existing N56 corridor.

Impact Assessment

Construction Phase

In general terms impacts which relate to the construction phase of the proposal are temporary in nature such as road closures, movement of heavy plant and machinery on local road network, noise and dust emissions resulting from construction processes.

Operational Phase

At a regional level, the completion of the scheme will benefit communities within the settlement of Glenties and throughout the wider study area. The road will contribute to a more reliable and safer road network with an increased traffic capacity facilitating enhanced movement of people and goods between the aforementioned settlements throughout, the study area and the wider context of Ireland. The scheme will contribute to the expansion of markets for industries and services, improve competitiveness and encourage economic and development opportunities.

Impact of Private Property

In reflection of the largely online nature of the scheme, the proposal will not result in the demolition of any residential properties (with the exception of a derelict property at 12740.00m – this property is presently partially demolished).

A number of residential properties are affected by the land take requirements of the scheme relating to land which falls within the land take boundary. The impacts relate to land take required to accommodate the proposed road including necessary verges and services, accesses and tie-ins to other local roads.

Whilst the level of impact due to land take varies throughout the extent of the scheme, the proposal results in a Major Adverse impact being attributed to a single residential property this property (plot) which is subsequently is to be acquired in its entirety as part of the CPO.

In addition to the direct loss of land associated with particular residential properties, some are also impacted upon through the revision of access arrangements which in turn results in an increase in journey length.

There are relatively few commercial properties within close proximity to the proposed scheme which are affected through direct land take; there are however no demolitions with the exception of the Maas Inn which is derelict.

In addition to impact through direct land take, a number of businesses may be impacted through the severance or loss of access as a result of alterations to the existing road network. The proposed scheme results in severance of three commercial properties.

In terms of community severance, the nature of the proposed alignment in relation to the existing N56 alignment and the lack of considerable deviation from the same, limits the opportunity for severance to occur. Access to and across the proposed N56 alignment via the associated minor roads, remains relatively unaltered.

The existing N56 has no dedicated provision for cyclists; the proposed scheme provides a designated cycle lane throughout the extent of the scheme. The cycle lane follows the alignment of the proposed scheme with the exception of a number sections.

The scheme design retains and or improves existing junction arrangements in respect of the associated (minor) road network.

Mitigation

The implementation of the following mitigation measures (where possible) will significantly reduce the adverse impacts associated with the construction phase:

- Confine heavy construction vehicles to those roads that are capable of carrying the predicted number of movements of these vehicles;
- Restrict the number of access points to the construction site;
- Control the movement of work vehicles close to sensitive receptors such as residential or commercial properties;

- Residents to be kept informed of the works to be carried out and of any proposals for work outside normal hours;
- Ensure that the main compounds are located in areas away from sensitive receptors such as residential or commercial properties, and can be accessed from roads that can cater for the expected volume of site traffic;
- Phase the construction programme to limit disruption to road users,
- Limit the number and duration of temporary road closures;
- Provide reasonable and safe facilities for pedestrians and cyclists; and
- Advanced warning shall be given of any necessary route diversions.

Construction working hours are proposed to be between the hours of 07:00 and 19:00 from Monday to Friday and 08:00 to 16:30 on Saturdays.

As the proposed alignment is located within the Donegal Gaeltacht, the proposal shall incorporate bilingual road signage to be erected with Irish and the predominant language.

Operational Phase

The alignment has been designed to, where possible, minimise land take and the need for demolition. Where there is loss of lands and buildings detailed consultations would take place with affected parties; this is applicable to all land (regardless of its nature) which is in private ownership. Where part of the curtilage of a property is to be acquired, agreement shall be reached with the landowner during the land purchase negotiations in relation to the provision of *like for like* boundary walls treatments. Replacement accesses shall be provided for any property whose existing access is affected by the scheme.

Any existing service (e.g. electricity, gas, telecommunications and water) permanently affected by the scheme shall be reinstated.

The design of the road shall ensure that as many existing roads as possible remain open through the use of over or underpasses, maintaining access where possible. Footpaths that may be affected by the scheme shall be reinstated where practical to maintain the present standard of pedestrian facilities where present.

4.0 Agriculture

The potential impacts on agriculture from the proposed N56 Leitirmacaward to Glenties (Kilraine) road improvement scheme were considered and assessed.

The lands associated with the proposed scheme are generally of poor quality and as such would present challenges to any agricultural activity. Because of the poor soils and other aspects such as rainfall in the location, the farming practiced in this area is generally of low intensity and consists of grazing drystock (sheep and cattle). In addition to farming there was some forestry activities and turf cutting occurring in the location of the proposed scheme.

As the proposed scheme is the improvement of an existing road and as the farming activities are generally low intensity drystock it will not have a significant impact on agriculture from a national or regional perspective. The proposed scheme will have an impact from a local perspective due to loss of agricultural, forestry and turf harvesting land. However, allowing for the quality of the land potentially affected, the current land usage and the individual areas to be acquired, the overall residual impact would be considered minor.

5.0 Soils, Geology and Hydrogeology

The proposed road scheme will require the excavation of significant amounts of rock, subsoil and peat. New cuttings up to 14m deep will be created along with new embankments up to 8m high. However, much of the proposed scheme is simply a widening of the existing road without major earthworks. No sites of geological heritage will be affected.

The area through which the proposal passes comprises relatively impermeable geology, where water abstractions from groundwater are rare.

The overall impact of the proposed scheme on soils, geology and hydrogeology will be small.

The proposed road scheme will cross a number of medium to small watercourses. In each case a new bridge or culvert will be provided, or else the existing crossing will be maintained.

The proposed road scheme will require the infilling of a small amount of Toome Lough near Leitirmacaward village.

The road drainage system will be designed to modern standards with flood prevention in mind. It is expected that the scheme will not have a significant impact on the hydrology of the area as a whole.

6.0 Water Quality/Aquatic Ecology

Water quality and aquatic ecology surveys and impact assessment was undertaken on the water body features of the study area for the proposed road scheme in accordance with National Roads Authority guidelines. A comprehensive desktop review was complemented by water quality sampling, assessment of physical modification of water bodies, macroinvertebrate (insects), Freshwater Pearl Mussel and River Corridor surveys. Survey work was undertaken between March 2010 and June 2011.

The scheme impinges upon one European Designated Natura 2000 site, namely West of Ardara/ Maas Road candidate Special Area of Conservation (cSAC). Freshwater Pearl Mussel is one of the species for which this site has been designated and populations exist within the Owenea River. This species requires pristine water quality and is very sensitive to elevated levels of siltation.

Twenty five watercourses are crossed by the proposed scheme the majority of which are un-named streams with a width of 0.5m or less which can be considered as low importance in terms of their hydrological attributes. Significant sensitive water courses include the Owenea and tributaries, Stracashel and Maas Rivers. Toome Lough will be directly impacted by the scheme as a small portion of the lake bed will be reclaimed to facilitate road improvements. The existing N56 crosses the Gweebarra Estuary and a coastal inlet immediately south of the Gweebarra Bridge (Gweebarra Burn). There will be no direct impact on the estuary however the revetment across the coastal inlet at Gweebarra Burn (outlet of Lough Derkmore) requires remediate work so there will be a temporary impact at this location while remediation works are carried out.

An assessment of the water quality status was carried out in terms of the chemical and ecological status in accordance with the Water Framework Directive and the North Western International River Basin District. Surveys for Freshwater Pearl Mussel and suitable habitat was carried out with populations of the mussel occurring downstream of the proposed scheme on the Owenea main channel. Water quality analysis established that water quality was generally good in terms of physico-chemical parameters, however the biological sampling and in particular the unfavourable status of the Freshwater Pearl Mussel in the Owenea catchment has resulted in a less than good ecological status.

A range of potential negative effects were identified for the designated sites and habitats of the scheme including pollution, habitat loss, degradation and water quality. Potential negative effects upon aquatic species and in particular the Freshwater Pearl Mussel were identified. Pollution in the form of increased siltation of the Freshwater Pearl Mussel habitats from construction activities is the greatest risk to this species.

A comprehensive range of mitigation measures and construction method statements has been specified to reduce the residual negative effects of habitat loss and pollution to the aquatic environment. No permanent works in the Gweebarra River are proposed. No excavation of peat within the Owenea River catchment will occur.

A detailed Construction Management Plan and an Environmental Operating Plan will be prepared and will contain a comprehensive suite of mitigation measures and monitoring designed to offset negative impacts and reduce risks to the aquatic environment. With the successful implementation of the

mitigation measures proposed along the length of the scheme, the residual impact on water quality and aquatic ecology is not considered to be significant.

7.0 Terrestrial Ecology

Ecological survey and impact assessment was undertaken on the terrestrial ecology features of the proposed road scheme study area in accordance with National Roads Authority guidelines. A comprehensive desktop review was complemented by extended multi-disciplinary Phase 1 habitat surveys; badger, otter, bird and bat surveys. Ecological survey work was undertaken between March 2010 and June 2011.

The proposed scheme impinges upon one European Designated Natura 2000 site, namely West of Ardara/ Maas Road candidate Special Area of Conservation (cSAC). The scheme land take includes 6.8 hectares (ha) within this cSAC. Gannivegil Bog cSAC is located 1.3km north of the scheme at its northern end. Lough Nillan Bog is another Natura 2000 site located 760m south of the scheme at Glenties. Derkmore Wood Nature Reserve is a proposed Natural Heritage Area located 1.25km southeast of the scheme at the Gweebarra Bridge.

23 terrestrial habitats were recorded within the study area. In summary, almost 40% of the proposed scheme (23ha) is comprised of grassland habitats; 25% of the proposed scheme comprises artificial built surfaces (15ha), and mainly the existing N56; with the remainder made up of woodland and hedgerow (10ha), peatland (8ha) and scrub (6ha). Of the habitats identified, 1 is of international importance; 6 are of County importance; 8 are of local importance at a higher value; 6 are of local importance at a lower value; and 2 are of negligible importance.

47 species of bird were identified within 1km of the proposed scheme. 5 species of bat were recorded in the study area. 3 bat roosts were recorded in buildings, none of which will be demolished. No field signs indicating badger or otter activity in the locale of the proposal were found north of the Gweebarra River crossing. No signs of otter were evident at Toome Lough, but otter is very likely to be using this Lough. Some mammal trails were recorded in woodland and grassland on the south bank of the Gweebarra River. Beyond these locations, no significant mammal tracks or field evidence was observed either along the N56 where the proposed scheme is online or in woodland where the proposed scheme runs offline. No structures belonging to protected mammals were recorded during survey.

All locations along the proposed scheme where the larval food plant of marsh fritillary butterfly was recorded were searched at the correct time of year for larval webs. None were recorded. One moulted skin of common lizard was observed in gorse scrub south of Toome Lough. During the molluscan survey for the freshwater pearl mussel survey, suitable habitat for three protected whorl snails was searched for. None was recorded within the zone of influence of the scheme. A single red squirrel was observed during habitat survey in coniferous forestry near the Gweebarra River. A single Irish hare was spotted in wet grassland at Leitirnacaward.

Harbour seal haul sites are known from further out in the Gweebarra estuary from Farragans to Dooey Point on the north side and Clooney to Portnoo and Inishkeel on the south side. No haul sites are known from the Gweebarra Bridge to Maas junction stretch where the proposed scheme passes. No seals were observed during ecology surveys; however, seals are likely to use the full extent of the Gweebarra River and estuary.

A range of potential negative effects were identified for the designated sites and habitats of the scheme including pollution, habitat loss, degradation and water quality. Potential negative effects upon species include direct effects of mortality, displacement and indirect effects of pollution, noise and human presence upon disturbance, habitat and prey availability.

A comprehensive range of mitigation measures and construction method statements has been specified to reduce the residual negative effects of habitat loss and pollution to the aquatic environment. No permanent works in the Gweebarra River are proposed. No excavation of peat within the Owenea River catchment will occur. 7ha of native woodland planting is proposed to replace woodland lost in the West of Ardara/Maas Road cSAC. A residual impact will result from the net loss of acidic and wet grassland habitats.

Donegal County Council and the successful Contractor will implement a Construction Management Plan and an Environmental Operating Plan containing a comprehensive suite of mitigation measures designed to offset negative residual impacts and reduce risks to the natural environment. A Natura Impact Statement has been prepared. It is considered that the proposed scheme will not adversely affect the conservation objectives of any Natura 2000 site. With the successful implementation of the mitigation measures proposed along the length of the proposed scheme, the residual impact on wildlife is not considered to be significant.

8.0 Fisheries

This Chapter has examined the impact of the proposed scheme on the fisheries interests of water bodies (rivers, streams, lakes) encountered along the route of the development. On the principal water bodies fisheries status was evaluated in some detail through consultation and stream habitat assessments for running waters.

There will be no in-channel works at the principal crossings over the Gweebarra, Stracashel and Owenea rivers, and therefore no impacts on resident or migratory fish stocks or their habitats. Significant in-channel works will be necessary at only one significant watercourse crossing, the Maas River, where a realignment of the channel is required. The new channel will be constructed to include standard stream habitat features required by indigenous fish and should recover fully. However, most of the minor watercourse crossings required in the scheme will have no impacts on fisheries.

Realignment of the road adjacent to Toome Lough will encroach on the lake resulting in the loss of a small area of habitat, but equivalent to only 1.1% of the overall lake area.

9.0 Air Quality & Climate

The baseline air quality monitoring and modelling were carried out in accordance with the relevant standard methodologies. Baseline air quality monitoring was carried out for oxides of nitrogen (as NO₂). The emissions from traffic were modelled as a function of traffic flow, traffic composition and traffic speed.

There are various sensitive receptors located along the proposed route and these receptors vary in distance from the centreline of the scheme. There are no significant sources of air pollutants along the route. The land use is mainly agricultural, which may have effects on the existing air quality in terms of odours, dusts and minor emissions from agricultural plant machinery. The main urban build-up in the vicinity of the proposed scheme is the village of Glenties. Scattered mixed use (although predominantly residential) buildings are located throughout the route.

The DMRB screening method (Version 1.03c July 2007) was used for the prediction of ground level concentrations of various pollutants, at sensitive receptors close to proposal. In this study, the DMRB has been used to determine the impact, in terms of air quality, of the increased traffic associated with the development. As the model involves a screening procedure, a worst-case scenario is investigated. Firstly, the emission factors for each pollutant has been biased to overestimate the actual emission rate (but without generating unrealistically high results). Additionally, wind speeds are assumed to be 2 m/s, which is lower than that typically found in Ireland. Background concentrations have also been incorporated into the model and represent worst-case values for the site.

All predicted levels of atmospheric pollution concentrations at representative sensitive receptors are significantly below Irish or European threshold levels for NO_x, NO₂, PM₁₀, Benzene, and CO. Any changes are small and are negligible in terms of air quality. The limits presented in the EU Directives on Air Quality take into account people with respiratory illness and the limits include a margin of tolerance for such people, as well as children and the elderly. The limits are largely based on World Health Organisation (WHO) review of epidemiological studies on health impacts around the world. For example, oxides of nitrogen (NO, NO₂ and NO_x) are known to affect the pulmonary function of the lungs in short term doses.

Emissions with the potential to cause climate change include carbon dioxide (the main greenhouse gas), which will arise from site materials as well as vehicles delivering this material to the construction site. These emissions are expected to be negligible in the context of national targets.

Relevant mitigation methods have also been outlined, which in particular will be adhered to during the construction phase of the project. A dust minimisation plan will be formulated for the construction phase of the project, as construction activities are likely to generate some dust emissions. The majority of any dust produced will be deposited close to the source and impacts from dust deposition will typically be within several hundred metres of the construction area. An environmental impact minimisation plan will be implemented in order to ensure that the effect of construction on air quality will not be significant. This will include a dust minimisation plan, including e.g. regular cleaning of site roads, speed restrictions for vehicles using on-site roads, washing of all vehicles leaving the site, etc.

10.0 Noise and Vibration

An assessment was undertaken to determine the likely noise and vibration impact from the proposed road scheme on the nearest noise sensitive properties to the proposal. The assessment included consideration of both the construction phase and operation phases of the proposed road scheme and was undertaken with due consideration of all of the relevant legislation and guidance pertaining to the noise and vibration assessment.

As part of the assessment process, a baseline noise measurement survey was completed at a range of properties in the vicinity of the proposal. The purpose of the measurement survey was to record the existing noise environment in the vicinity of the proposed road scheme and the recorded noise levels also acted as a tool to validate the noise level predictions undertaken in the noise model.

Using existing data of the landscape in the vicinity of the proposed development and predicted traffic flows for the proposed development, a detailed noise model was created using a reputable noise modelling software package. In this noise model, noise levels were predicted at all of the nearest noise sensitive properties for the existing scenario, the opening year with and without the scheme in place and the design year (i.e. opening year + 15 years) with and without the proposed scheme in place.

In all, 169 properties were included in the noise model. Not all properties within 300m of the proposed road have been included in the noise model on account of the large number of properties that are within the study area. Nevertheless, all properties likely to experience any significant noise impact from the proposed road have been included and in some instances, the worst impacted of a cluster of similar properties has been included in order to be representative of that cluster of properties.

Of the 169 modelled receptors included in the noise model, none satisfied the three conditions outlined in the NRA *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* where mitigation measures were required. All modelled receptors were deemed to have satisfied the design goal for noise stipulated in the same document.

The noise assessment indicated that there was potential for significant short-term noise impacts from construction activities at the nearest noise sensitive properties to the proposed road scheme if measures were not put in place to control construction activities. A range of mitigation measures were suggested in order to reduce this potential impact as much as practicable.

There is potential for vibration impacts during the construction phase of the proposed road scheme on account of heavy plant used during the construction phase. Mitigation measures have been included in the section to address activities such as blasting or piling in the event of them being required. It is not expected that there will be any vibration impact from the operational phase of the proposed road.

11.0 Landscape and Visual Impact

The proposed road scheme is located directly within three landscape character areas that have been established as Lowland Open Hills and Lakes, Gweebarra River Valley and Glenties Urban/Rural

Fringe Landscape Character Areas. Due to the presence of the existing N56 road and the low level of landscape resource change predicted for the new road no significant landscape impacts have been predicted for any of the three landscape character areas.

The proposed road improvement scheme is not located near a designated landscape and while located directly on a protected view at Gweebarra Bridge there will be no significant alteration to the existing protected view. Residential properties follow the existing road corridor and the potential visual impact of the road scheme on all properties with a potential view has been assessed. Overall only 7 properties are predicted to have a significant visual impact as a result of the proposed road scheme and specific mitigation measures have been set out to address these impacts through planting of suitable native trees and shrubs.

Mitigation measures have been proposed not only to address these impacts but also to assist the road scheme to blend with its surroundings. On the slopes of cuttings and embankments mixtures of shrubs and native tree planting will resemble the local areas of woodland scrub. As the planting matures the road will, in general, become an acceptable component of the landscape, with reduced landscape impact on the existing character.

12.0 Cultural Heritage

The study area assessed for the proposed road scheme revealed a dearth of recorded archaeological sites and the potential for hitherto unrecorded archaeological features to be present along the proposed scheme is considered to be low.

This conclusion is in part based upon the documentary evidence, as well as field survey assessment, and landscape and terrain factors that would have been unlikely to be conducive to past settlement. However, in extensive areas land-take containing peat, particularly in the northern extent of the scheme and in extended land-take areas of rough pasture in the southerly extent of the scheme, the presence of sub-surface archaeological features cannot be negated. As such, it is recommended that a programme of archaeological testing take place in advance of construction and that should any features be uncovered that these are fully excavated (in agreement with Department of Arts Heritage and the Gaeltacht). Furthermore, for any areas with archaeological potential within the site limits where test excavations have not been carried out in advance of construction, monitoring of relevant earthworks by a suitably qualified archaeologist shall take place.

A ringfort/cashel (DG074-001---) in the townland of Letterilly is located in close proximity to the proposed scheme land-take. There is potential to uncover associated archaeological features, finds or deposits in the area within the land-take, northeast of the monument. Thus pre-development licensed archaeological testing is proposed for this area, with full excavation of any features found as appropriate and in agreement with Department of Arts Heritage and the Gaeltacht.

Adequate protective temporary fencing should be provided for the standing stone located in Glenties during construction to avoid any inadvertent damage to same.

There is a direct impact on the local architectural resource at Mullenierin Bridge, Maas Inn, an outbuilding and a post-box. It is recommended that for the latter that restorative works be undertaken and the feature is re-mounted at a suitable location within the immediate environs of its original location. For the built structures, it is recommended that a written and photographic record be undertaken in advance of construction and that the reporting is lodged in the local and county libraries for future archival research use.

13.0 Environmental Interactions

In addition to assessing impacts on human beings, soil, water, fauna, flora, fisheries, air, climate, noise, landscape and cultural heritage, the interrelationship between these factors has been taken into account as part of the EIS scoping and assessment process.

14.0 Schedule of Environmental Commitments

A chapter summarising the environmental commitments proposed for the N56 Leitirnacaward to Glenties (Kilraine) Road Scheme has been included in the Environmental Impact Statement (EIS). The purpose of these environmental commitments is to mitigate or ameliorate potentially significant adverse impacts that have been identified in each section of the EIS.

15.0 Inspection and Purchasing the EIS

Copies of the EIS are available for examination at the locations detailed in the published newspaper notices.

The EIS is also available to purchase in CD ROM and hardcopy format from:

Donegal County Council
National Roads Design Office
Public Services Centre
Drumlonagher
Donegal Town
Donegal

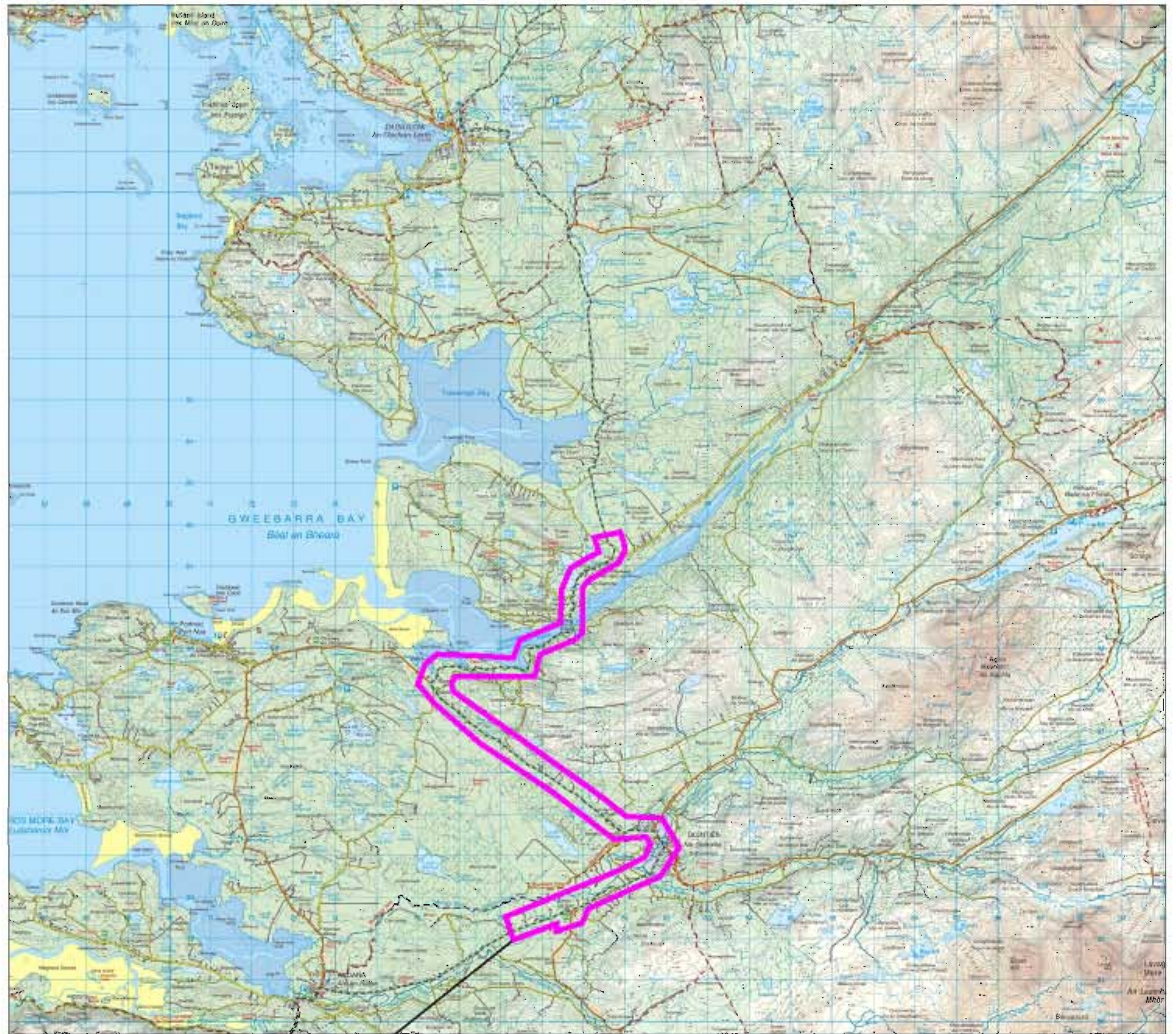
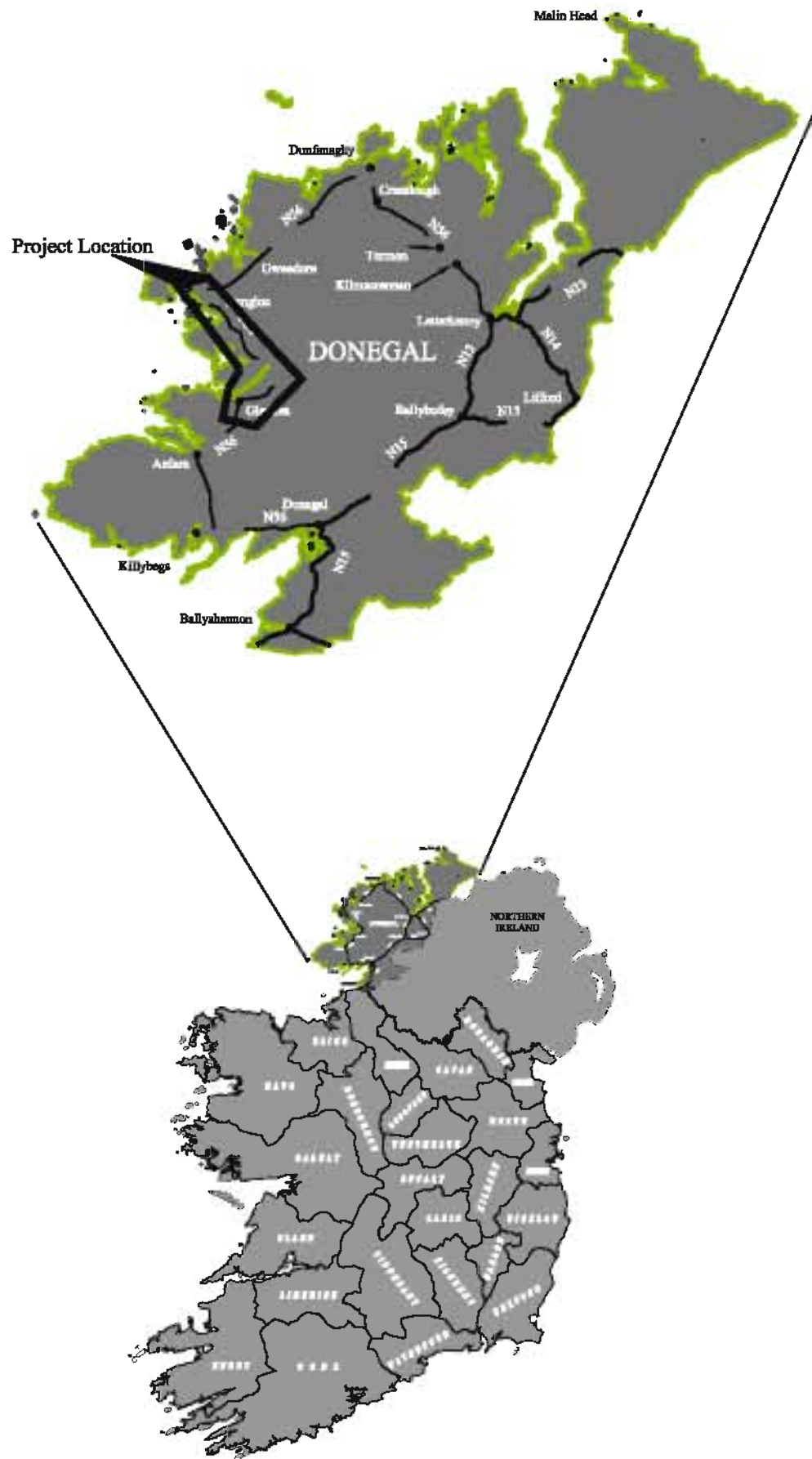
Prices are as shown in the published newspaper notices.

N56 Leitirmacaward to Glenties (Kilraine) Road Scheme

Location Map

Typical Cross Section

Plan and Profile Sections of the Route



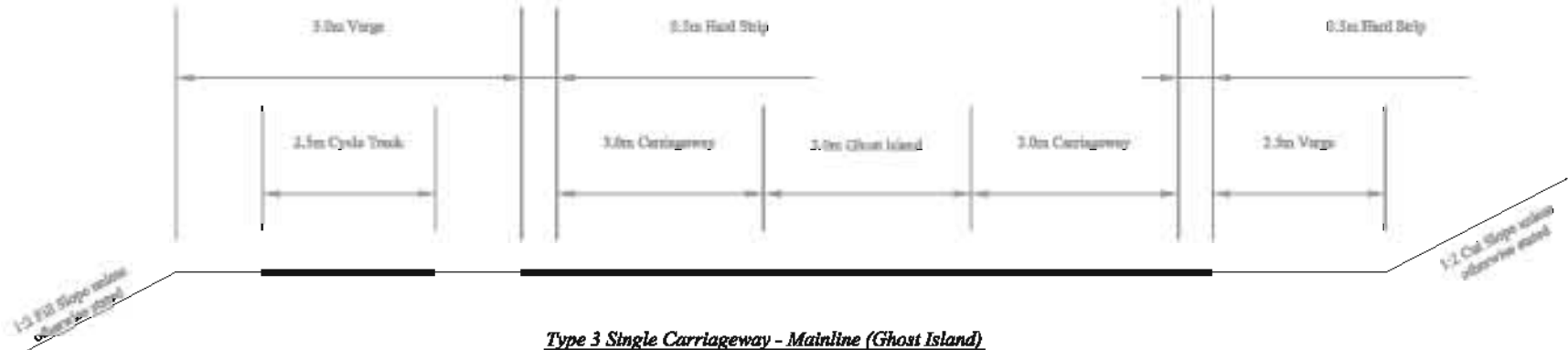
PROJECT LOCATION

Figure 2.1 Project Location



Rev	By	Date	Description

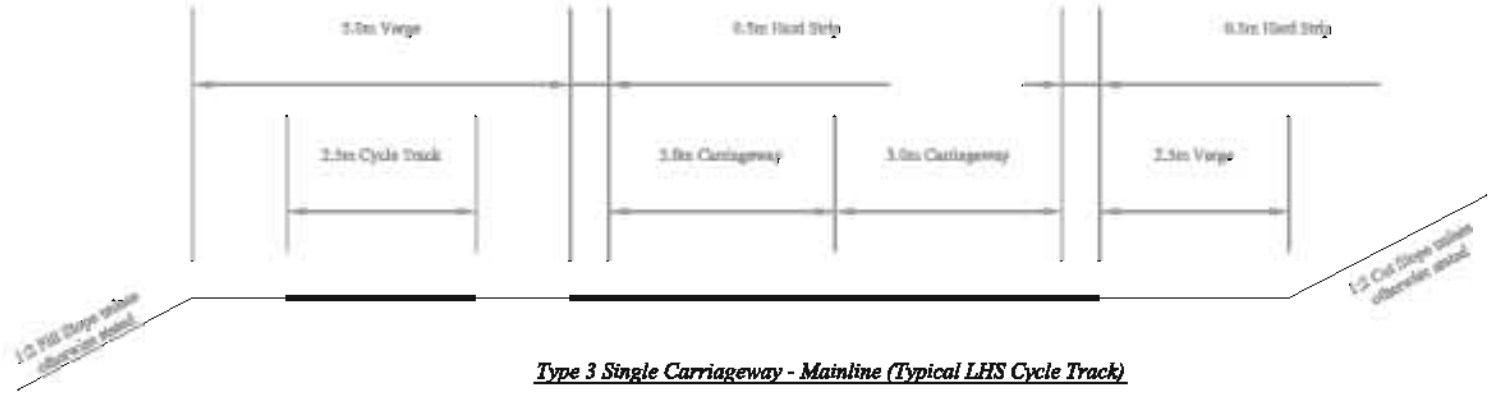
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Component: Figure 2.1 Project Location			
Title: Project Location			
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Discipline: FT	Author: Aid to Skala	DGD1-PD-LC-01	--
Approved: BOD	Date: November 2011		



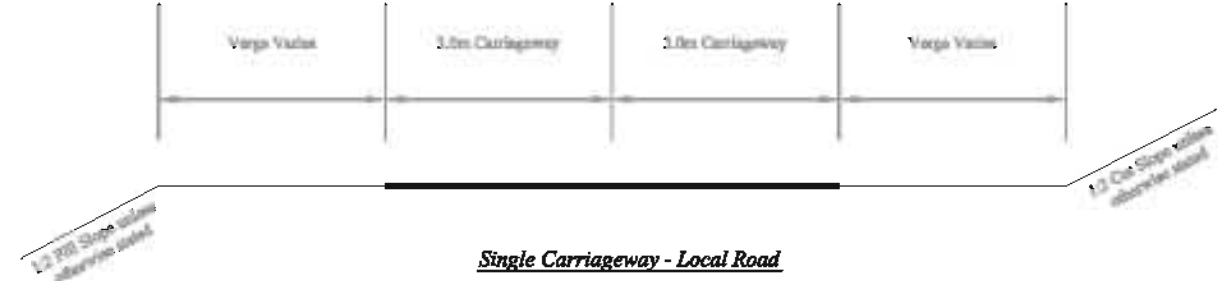
Type 3 Single Carriageway - Mainline (Ghost Island)



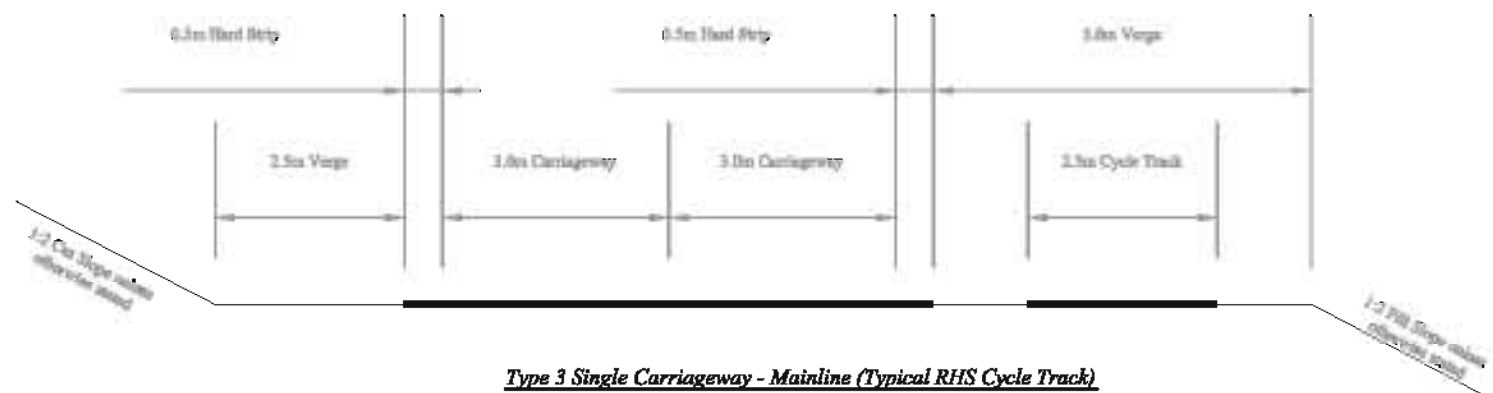
Accommodation Road



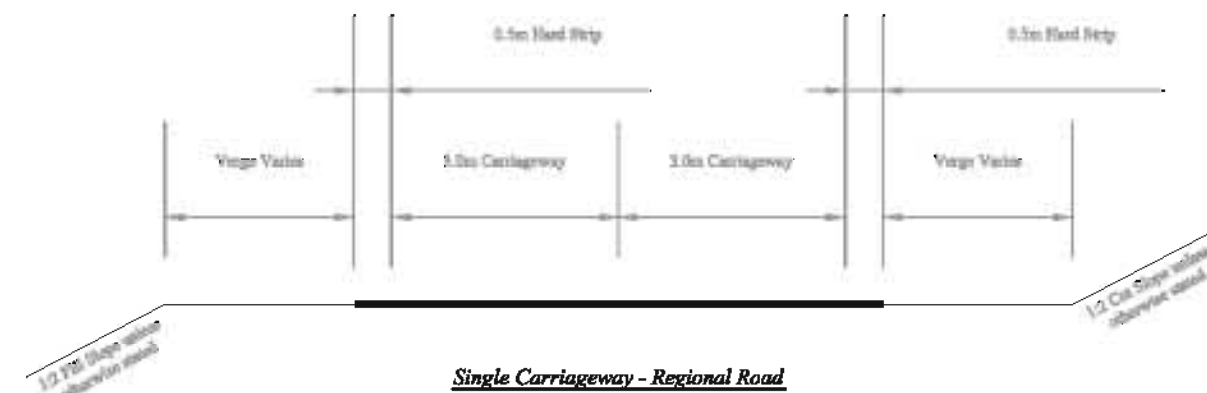
Type 3 Single Carriageway - Mainline (Typical LHS Cycle Track)



Single Carriageway - Local Road



Type 3 Single Carriageway - Mainline (Typical RHS Cycle Track)



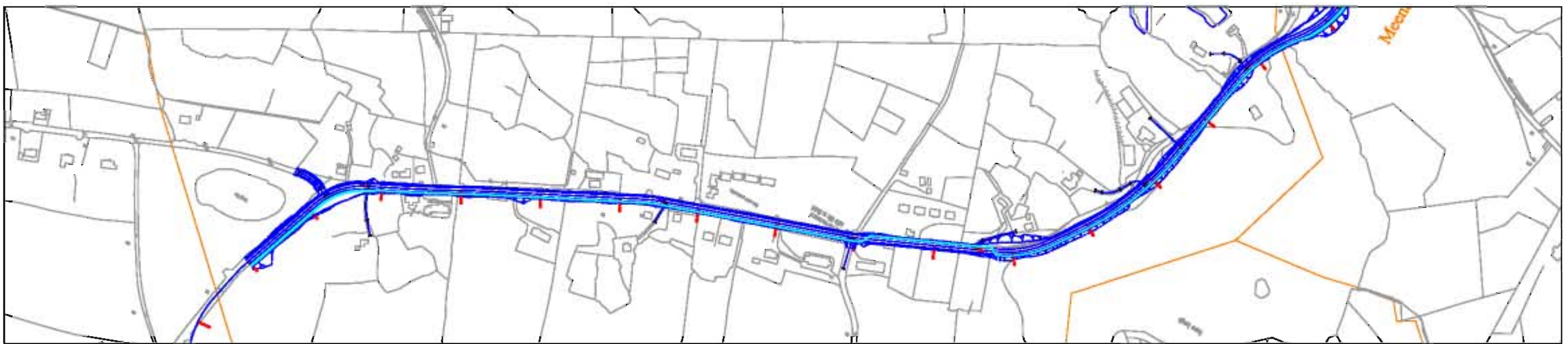
Single Carriageway - Regional Road

Figure 2.2 Typical Cross Sections



Rev	By	Date	Description

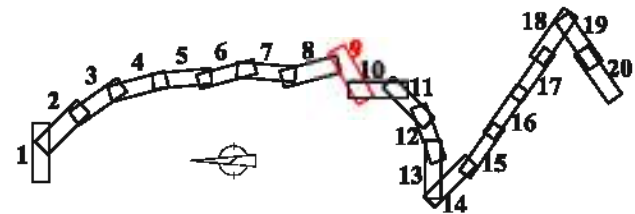
Project: N56 Lettermacward to Glenties (Kilraine) Road Scheme			
Component: Figure 2.2 Typical Cross Sections			
Title: Typical Cross Sections			
Drawn: MEO	File Name: P:\DGD1\GMA\CROSSSECTIONS.DWG	Drawing No:	
Checked: FT	Scale: 1:100		
Approved: BOD	Date: November 2011		
			DGD1-PD-CS01



Level Datum =6.000

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Existing Levels	35.947 34.973 34.116 33.651 33.100 32.778 32.666 32.854 32.546 31.589 30.533 30.268 30.233 29.888 29.523 29.144 28.888 28.862 29.054 28.502 28.128 28.089 28.505 29.661 30.769 31.717 33.059 34.687 35.496 35.943 35.978 36.032 36.670 37.160 37.603 37.968 38.324 38.672 39.057 39.413 38.882 38.256 37.752 36.817 35.857 34.850 33.951 32.983 32.521 32.473 32.280 32.216 32.566 31.515 30.712 31.176 30.678 32.604 32.650 32.154 31.476 30.869 31.018 31.163 31.677 31.931 32.804 34.417 33.270 32.465 31.923 30.611 31.536 33.056
Horizontal	L=118.591m L=70.865m L=207.355m L=64.134m L=175.871m L=127.000m L=266.000m L=122.250m L=142.000m
Vertical	Vertical curves with grades and lengths: L=65.883m, L=70.000m, L=61.777m, L=72.000m, L=130.000m, L=179.718m, L=121.000m, L=146.363m, L=136.000m, L=73.914m
Chainage	12410.000 12430.000 12450.000 12470.000 12490.000 12510.000 12530.000 12550.000 12570.000 12590.000 12610.000 12630.000 12650.000 12670.000 12690.000 12710.000 12730.000 12750.000 12770.000 12790.000 12810.000 12830.000 12850.000 12870.000 12890.000 12910.000 12930.000 12950.000 12970.000 12990.000 13010.000 13030.000 13050.000 13070.000 13090.000 13110.000 13130.000 13150.000 13170.000 13190.000 13210.000 13230.000 13250.000 13270.000 13290.000 13310.000 13330.000 13350.000 13370.000 13390.000 13410.000 13430.000 13450.000 13470.000 13490.000 13510.000 13530.000 13550.000 13570.000 13590.000 13610.000 13630.000 13650.000 13670.000 13690.000 13710.000 13730.000 13750.000 13770.000 13790.000 13810.000 13830.000 13850.000 13870.000 13890.000

KEY PLAN
 Existing Road Network
 Proposed Cycle Track
 SAC
 Townland Boundary
 Existing Ground Level
 Proposed Ground Level



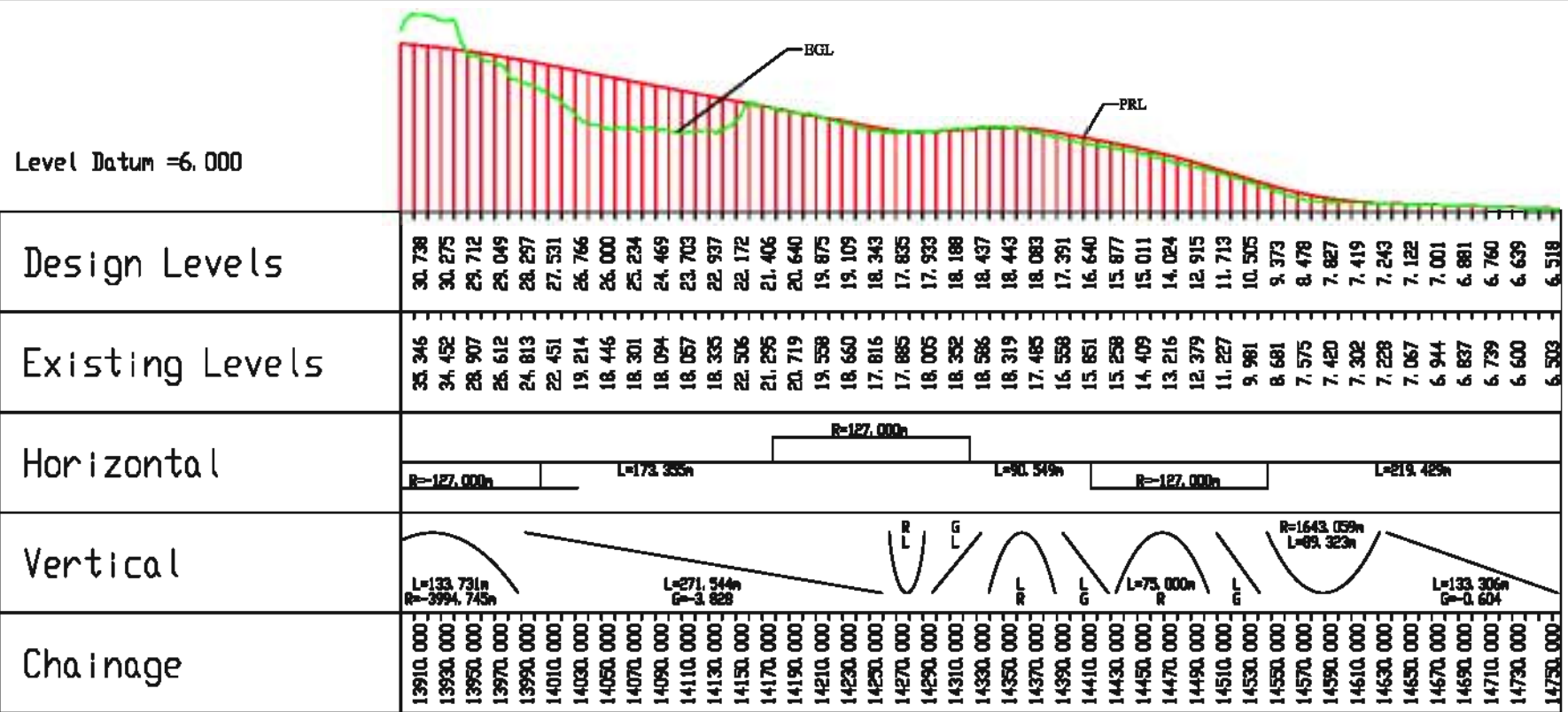
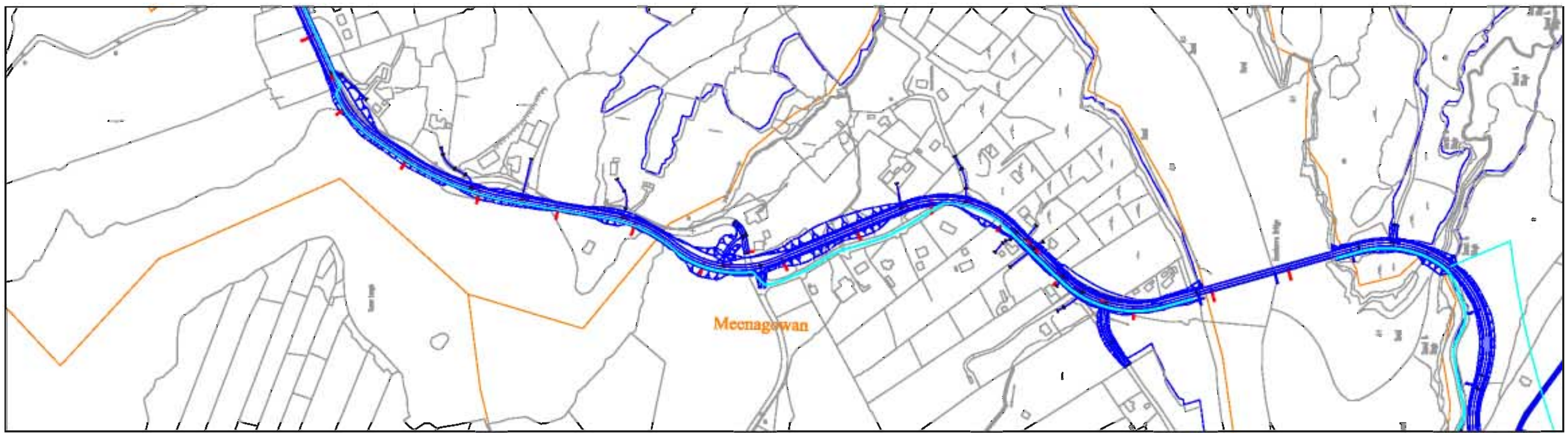
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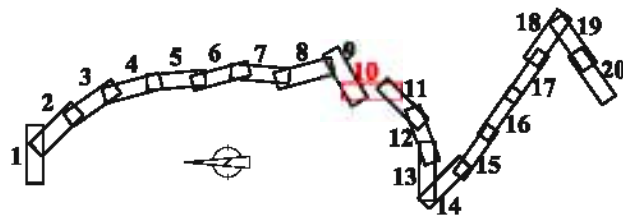
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Component: Preliminary Design Report - Volume 2			
Title: Plan & Profile - Sheet 8 of 20			
Drawn: JC	File Name: P:\DGD\104\PLAN\PROFILE	Drawn by:	
Checked: FT	Scale: 1:5000		
Approved: BOD	Date: November 2011		
			DGD1-PD-PL09



KEY PLAN

Existing Road Network
Proposed Cycle Track
SAC
Townland Boundary
Existing Ground Level
Proposed Ground Level



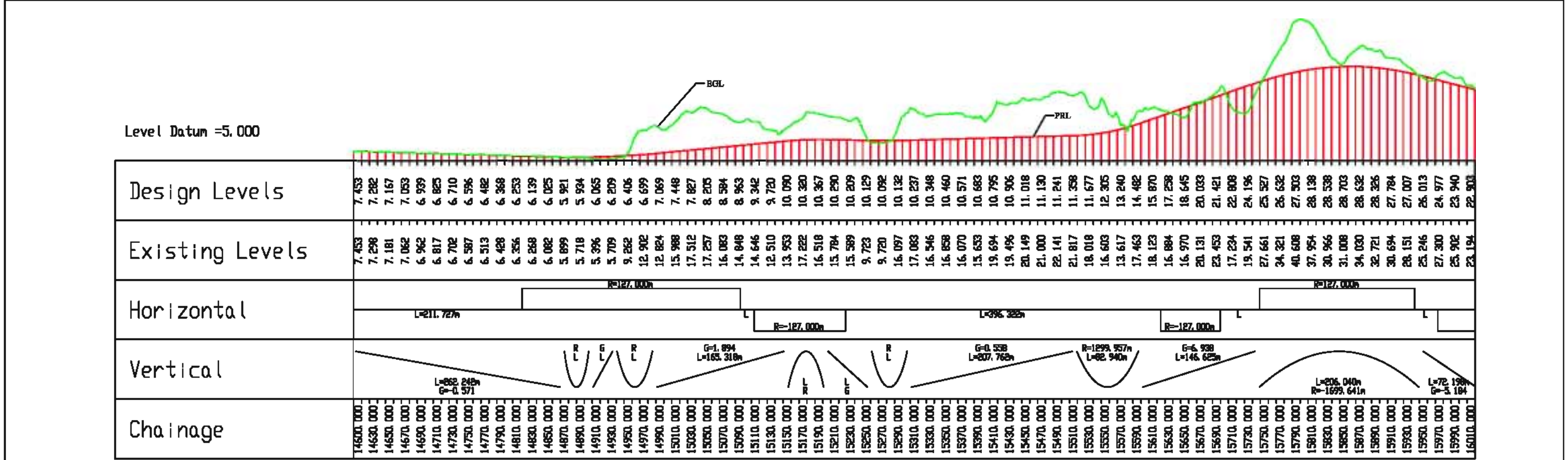
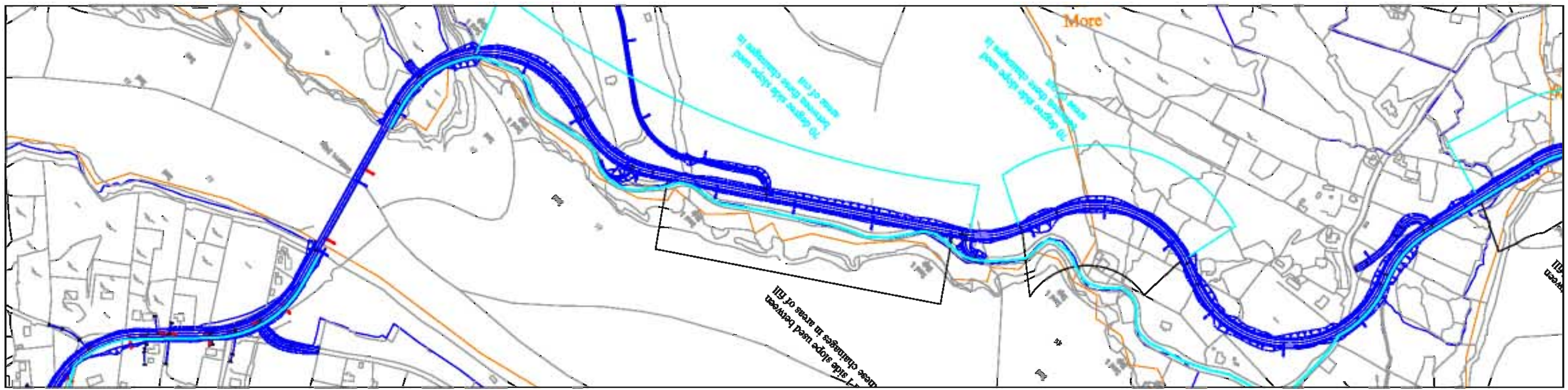
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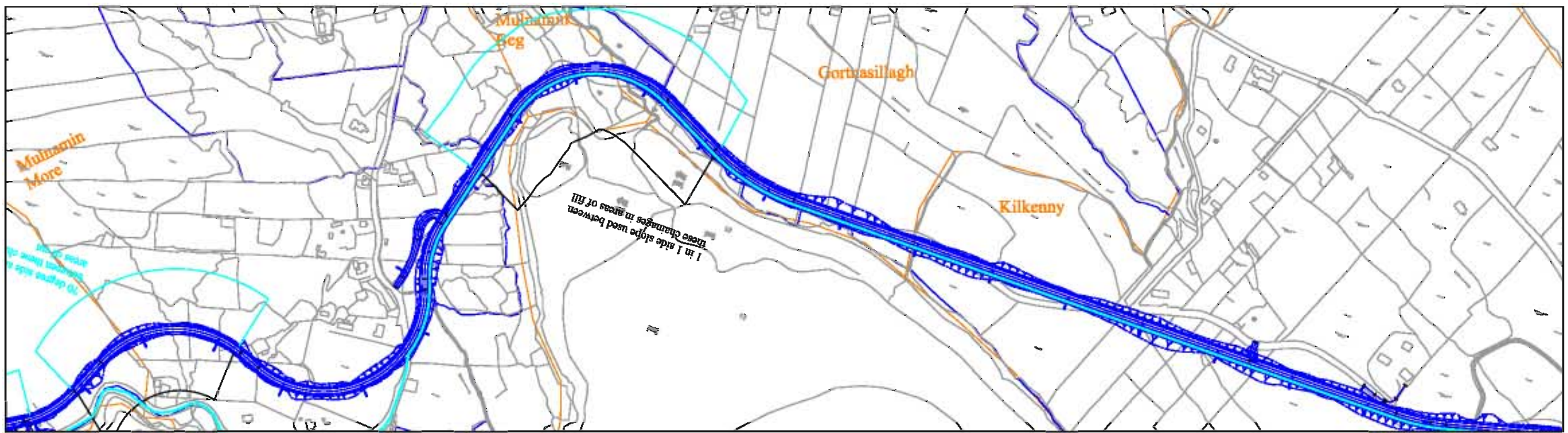
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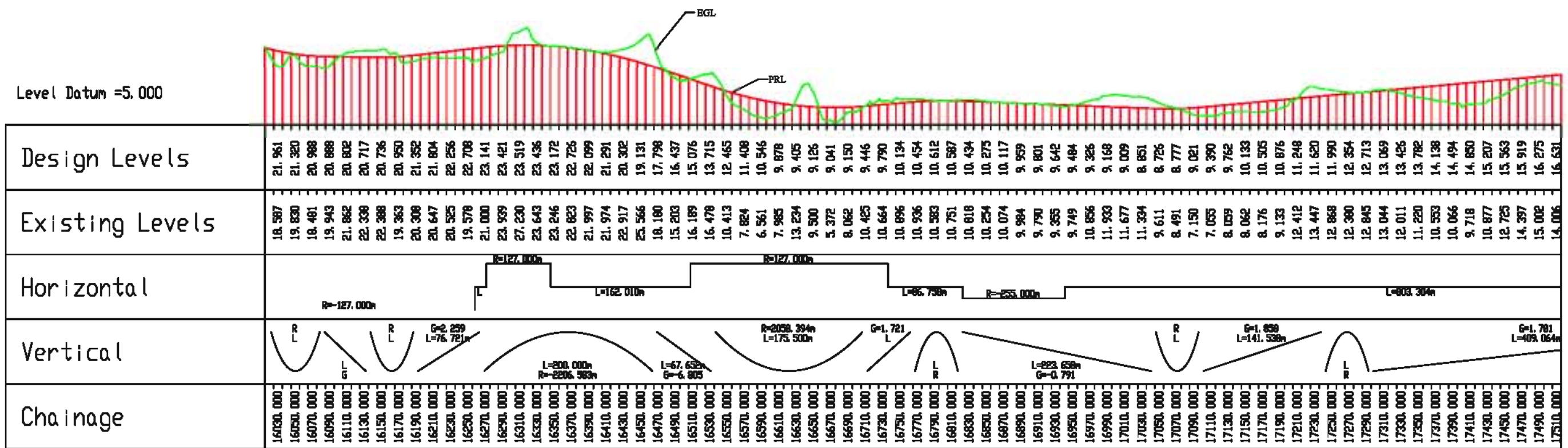
Rev	By	Date	Description

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Component	Preliminary Design Report - Volume 2		
Title	Plan & Profile - Sheet 10 of 20		
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Checked	FT	Scale	1:5000
Approved	BGD	Date	November 2011
			DGD1-PD-PL10



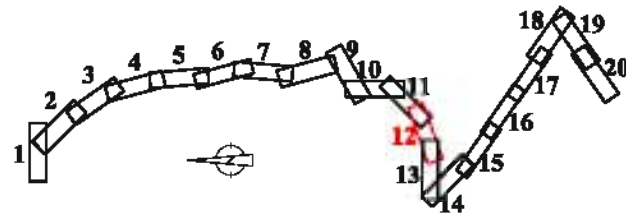


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KEY PLAN

- Existing Road Network
- Proposed Cycle Track
- SAC
- Townland Boundary
- Existing Ground Level
- Proposed Ground Level



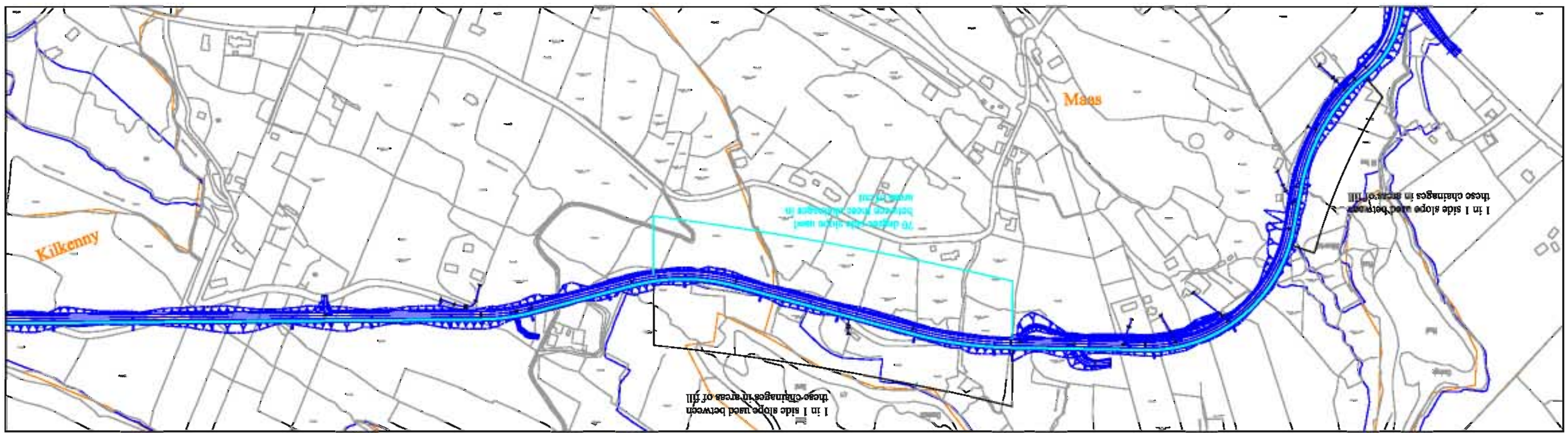
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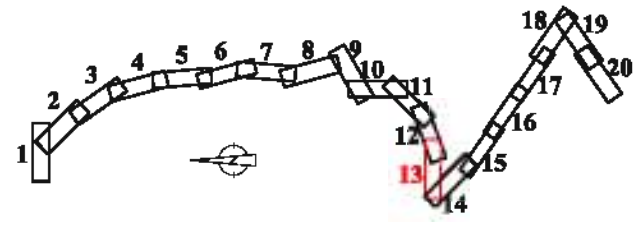
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Approved: BGD	Date: November 2011		
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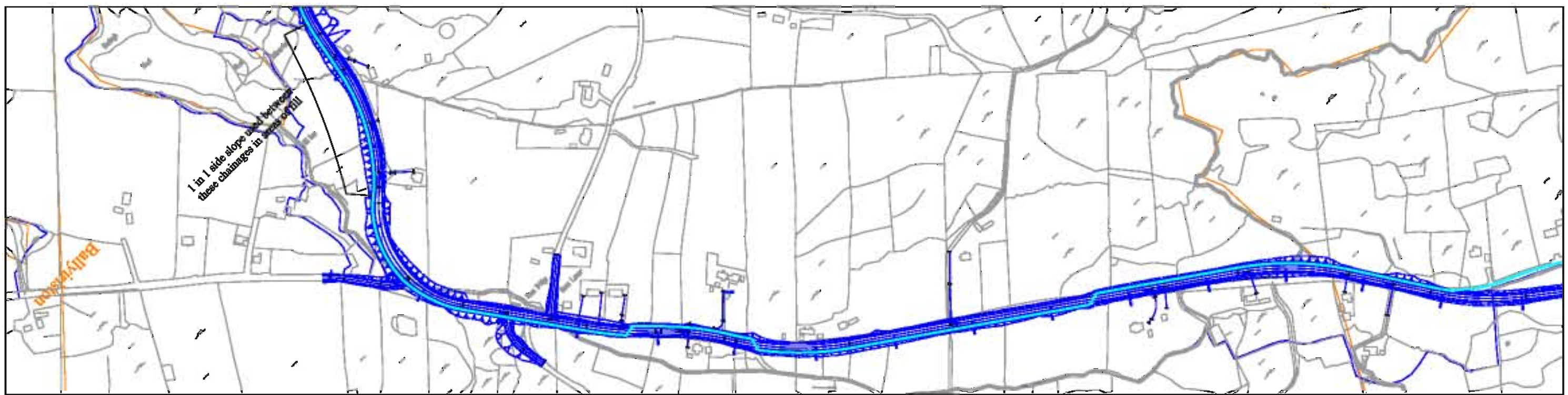
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67.185 67.541 67.897 68.253 68.609 68.965 69.321 69.677 70.033 70.389 70.745 71.101 71.457 71.813 72.169 72.525 72.881 73.237 73.593 73.949 74.305 74.661 75.017 75.373 75.729 76.085 76.441 76.797 77.153 77.509 77.865 78.221 78.577 78.933 79.289 79.645 80.001 80.357 80.713 81.069 81.425 81.781 82.137 82.493 82.849 83.205 83.561 83.917 84.273 84.629 84.985 85.341 85.697 86.053 86.409 86.765 87.121 87.477 87.833 88.189 88.545 88.901 89.257 89.613 89.969 90.325 90.681 91.037 91.393 91.749 92.105 92.461 92.817 93.173 93.529 93.885 94.241 94.597 94.953 95.309 95.665 96.021 96.377 96.733 97.089 97.445 97.801 98.157 98.513 98.869 99.225 99.581 99.937 100.293 100.649 101.005 101.361 101.717 102.073 102.429 102.785 103.141 103.497 103.853 104.209 104.565 104.921 105.277 105.633 105.989 106.345 106.701 107.057 107.413 107.769 108.125 108.481 108.837 109.193 109.549 109.905 110.261 110.617 110.973 111.329 111.685 112.041 112.397 112.753 113.109 113.465 113.821 114.177 114.533 114.889 115.245 115.601 115.957 116.313 116.669 117.025 117.381 117.737 118.093 118.449 118.805 119.161 119.517 119.873 120.229 120.585 120.941 121.297 121.653 122.009 122.365 122.721 123.077 123.433 123.789 124.145 124.501 124.857 125.213 125.569 125.925 126.281 126.637 126.993 127.349 127.705 128.061 128.417 128.773 129.129 129.485 129.841 130.197 130.553 130.909 131.265 131.621 131.977 132.333 132.689 133.045 133.401 133.757 134.113 134.469 134.825 135.181 135.537 135.893 136.249 136.605 136.961 137.317 137.673 138.029 138.385 138.741 139.097 139.453 139.809 140.165 140.521 140.877 141.233 141.589 141.945 142.301 142.657 143.013 143.369 143.725 144.081 144.437 144.793 145.149 145.505 145.861 146.217 146.573 146.929 147.285 147.641 147.997 148.353 148.709 149.065 149.421 149.777 150.133 150.489 150.845 151.201 151.557 151.913 152.269 152.625 152.981 153.337 153.693 154.049 154.405 154.761 155.117 155.473 155.829 156.185 156.541 156.897 157.253 157.609 157.965 158.321 158.677 159.033 159.389 159.745 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Existing Levels	12.387 12.712 14.688 16.245 16.780 18.217 17.088 15.509 16.033 16.897 21.133 20.202 20.084 19.960 19.500 19.866 19.326 18.847 18.963 16.768 17.290 16.647 17.300 18.082 18.699 27.294 28.042 27.108 24.785 23.142 22.687 22.981 24.331 25.335 27.732 30.879 31.551 32.621 31.400 29.133 27.808 27.955 27.289 27.368 28.426 29.402 30.417 30.872 29.854 30.326 31.461 31.546 31.092 30.089 29.397 29.179 28.881 28.331 27.238 25.937 24.451 23.324 22.763 22.493 21.140 19.468 18.013 16.999 13.709 13.139 14.430 15.386 14.568 11.820 11.061
Horizontal	
Vertical	
Chainage	17530.000 17550.000 17570.000 17590.000 17610.000 17630.000 17650.000 17670.000 17690.000 17710.000 17730.000 17750.000 17770.000 17790.000 17810.000 17830.000 17850.000 17870.000 17890.000 17910.000 17930.000 17950.000 17970.000 17990.000 18010.000 18030.000 18050.000 18070.000 18090.000 18110.000 18130.000 18150.000 18170.000 18190.000 18210.000 18230.000 18250.000 18270.000 18290.000 18310.000 18330.000 18350.000 18370.000 18390.000 18410.000 18430.000 18450.000 18470.000 18490.000 18510.000 18530.000 18550.000 18570.000 18590.000 18610.000 18630.000 18650.000 18670.000 18690.000 18710.000 18730.000 18750.000 18770.000 18790.000 18810.000 18830.000 18850.000 18870.000 18890.000 18910.000 18930.000 18950.000 18970.000 18990.000 19010.000

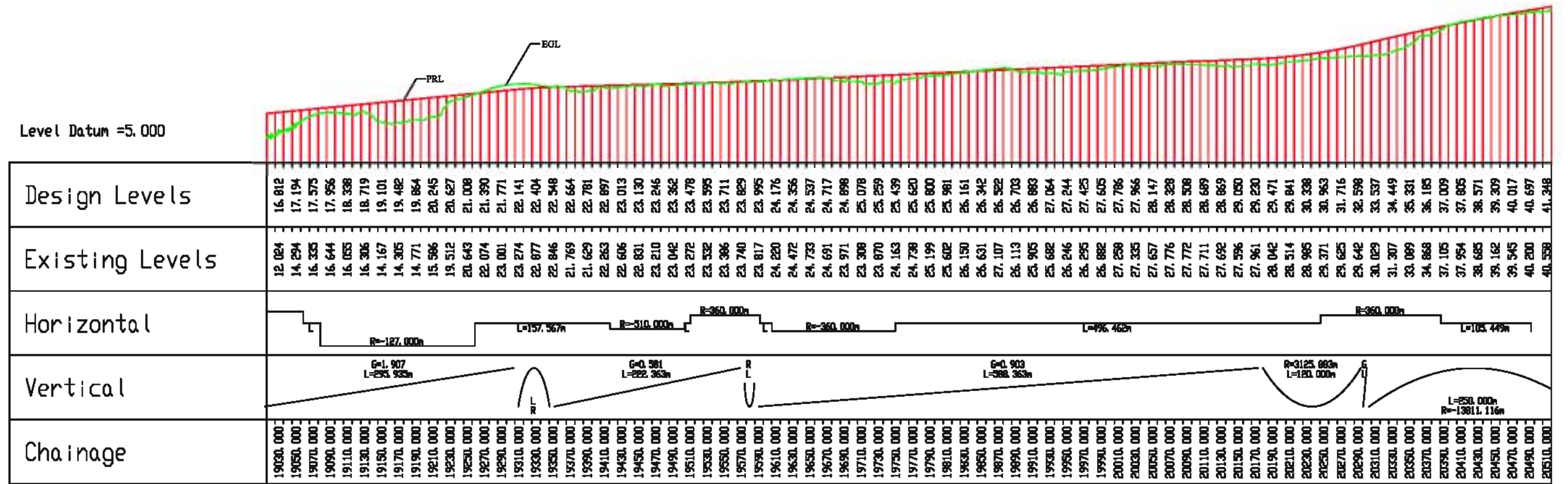
KEY PLAN
 Existing Road Network
 Proposed Cycle Track
 SAC
 Townland Boundary
 Existing Ground Level
 Proposed Ground Level



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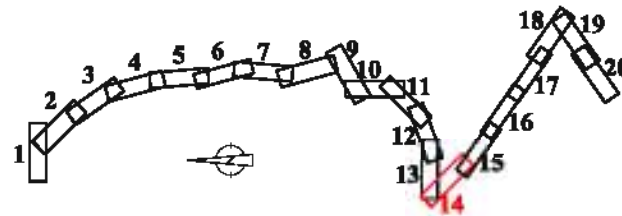


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KEY PLAN

- Existing Road Network
- Proposed Cycle Track
- SAC
- Townland Boundary
- Existing Ground Level
- Proposed Ground Level



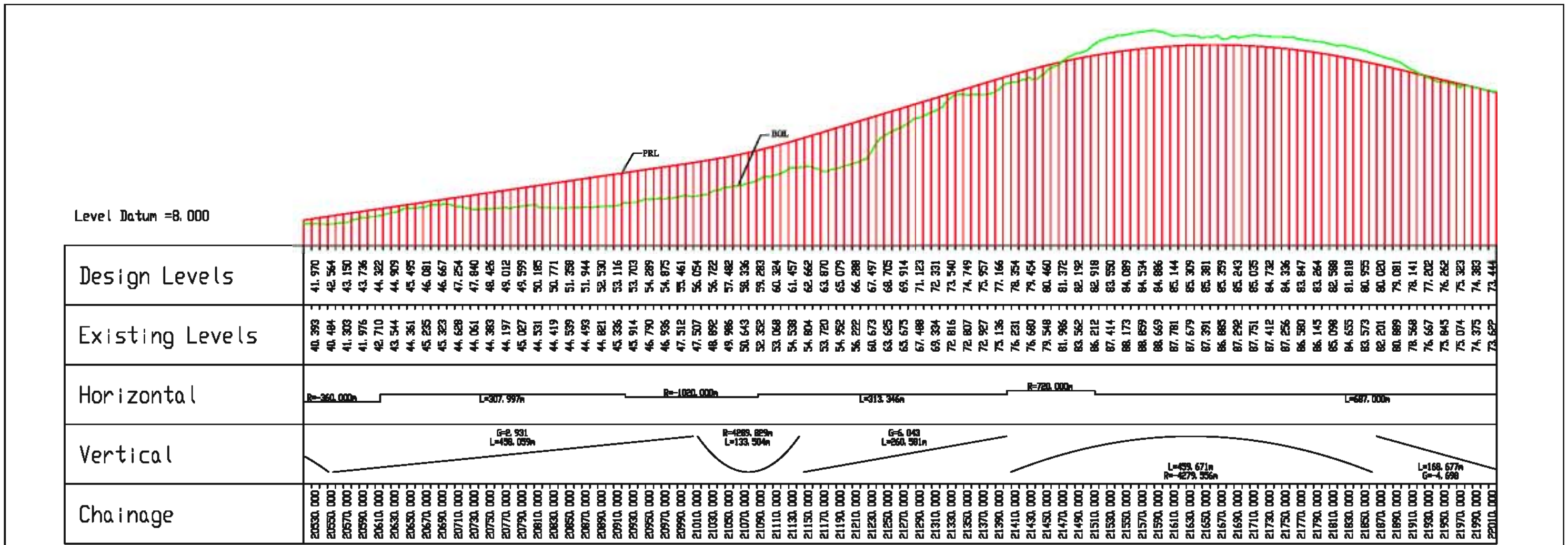
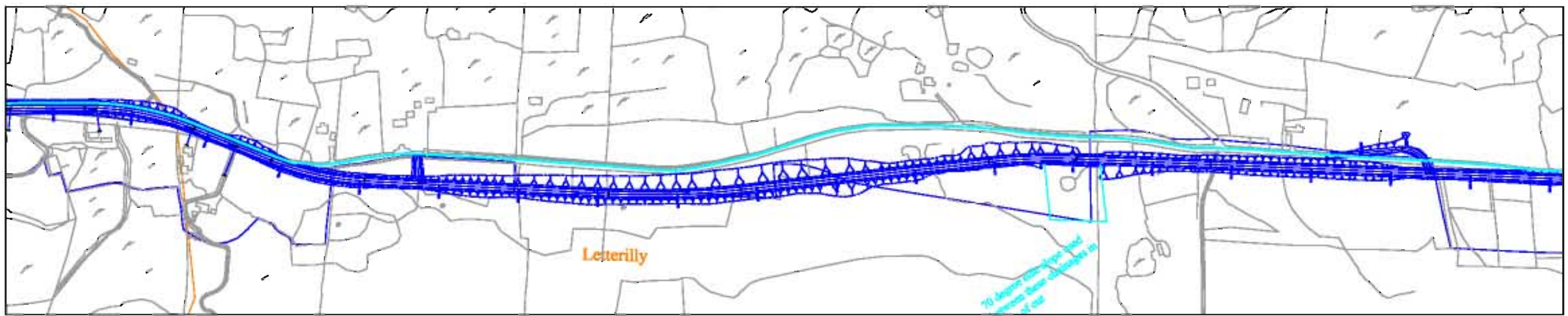
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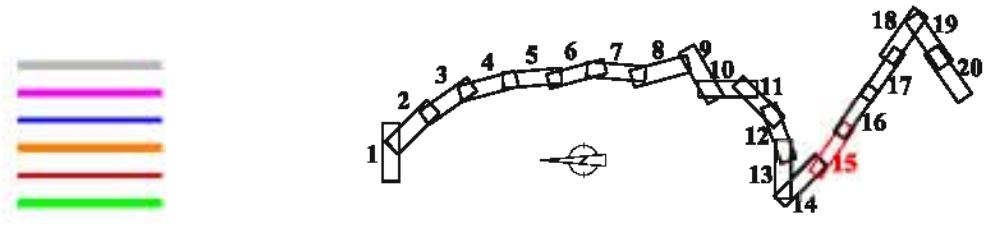
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Project:	N56 Lettermacaward to Glenties(Kilrairie) Road Scheme		
Component:	Preliminary Design Report - Volume 2		
Title:	Plan & Profile - Sheet 14 of 20		
Drawn:	JC	File Name:	P:\DSD\N56\PLAN\PROFILE
Checked:	FT	Scale:	1:5000
Approved:	BGD	Date:	November 2011
			DGD1-PD-PL14



KEY PLAN

Existing Road Network
 Proposed Cycle Track
 SAC
 Townland Boundary
 Existing Ground Level
 Proposed Ground Level



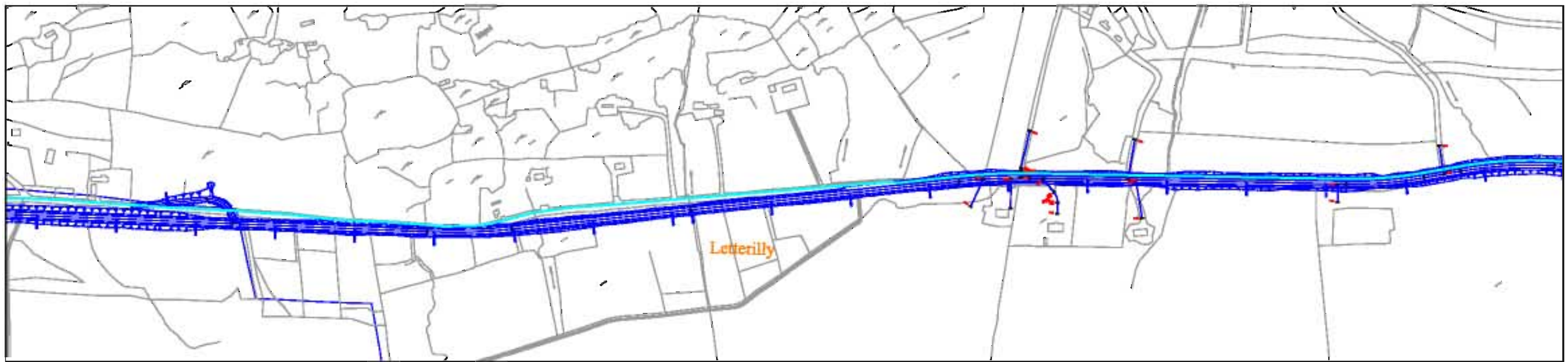
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Rev	By	Date	Description

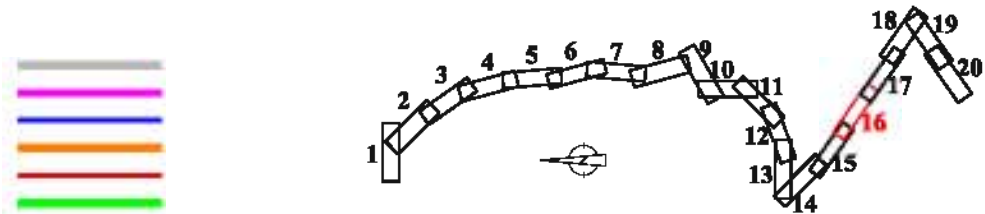
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Approved:	BGD	Date:	November 2011
		Drawing No.:	DGD1-PD-PL15



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56.846 56.755 56.664 56.573 56.482 56.391 56.300 56.209 56.118 56.027 55.936 55.845 55.754 55.663 55.572 55.481 55.390 55.300 55.209 55.118 55.027 54.936 54.845 54.754 54.663 54.572 54.481 54.390 54.300 54.209 54.118 54.027 53.936 53.845 53.754 53.663 53.572 53.481 53.390 53.300 53.209 53.118 53.027 52.936 52.845 52.754 52.663 52.572 52.481 52.390 52.300 52.209 52.118 52.027 51.936 51.845 51.754 51.663 51.572 51.481 51.390 51.300 51.209 51.118 51.027 50.936 50.845 50.754 50.663 50.572 50.481 50.390 50.300 50.209 50.118 50.027 49.936 49.845 49.754 49.663 49.572 49.481 49.390 49.300 49.209 49.118 49.027 48.936 48.845 48.754 48.663 48.572 48.481 48.390 48.300 48.209 48.118 48.027 47.936 47.845 47.754 47.663 47.572 47.481 47.390 47.300 47.209 47.118 47.027 46.936 46.845 46.754 46.663 46.572 46.481 46.390 46.300 46.209 46.118 46.027 45.936 45.845 45.754 45.663 45.572 45.481 45.390 45.300 45.209 45.118 45.027 44.936 44.845 44.754 44.663 44.572 44.481 44.390 44.300 44.209 44.118 44.027 43.936 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30.845 30.754 30.663 30.572 30.481 30.390 30.300 30.209 30.118 30.027 29.936 29.845 29.754 29.663 29.572 29.481 29.390 29.300 29.209 29.118 29.027 28.936 28.845 28.754 28.663 28.572 28.481 28.390 28.300 28.209 28.118 28.027 27.936 27.845 27.754 27.663 27.572 27.481 27.390 27.300 27.209 27.118 27.027 26.936 26.845 26.754 26.663 26.572 26.481 26.390 26.300 26.209 26.118 26.027 25.936 25.845 25.754 25.663 25.572 25.481 25.390 25.300 25.209 25.118 25.027 24.936 24.845 24.754 24.663 24.572 24.481 24.390 24.300 24.209 24.118 24.027 23.936 23.845 23.754 23.663 23.572 23.481 23.390 23.300 23.209 23.118 23.027 22.936 22.845 22.754 22.663 22.572 22.481 22.390 22.300 22.209 22.118 22.027 21.936 21.845 21.754 21.663 21.572 21.481 21.390 21.300 21.209 21.118 21.027 20.936 20.845 20.754 20.663 20.572 20.481 20.390 20.300 20.209 20.118 20.027 19.936 19.845 19.754 19.663 19.572 19.481 19.390 19.300 19.209 19.118 19.027 18.936 18.845 18.754 18.663 18.572 18.481 18.390 18.300 18.209 18.118 18.027 17.936 17.845 17.754 17.663 17.572 17.481 17.390 17.300 17.209 17.118 17.027 16.936 16.845 16.754 16.663 16.572 16.481 16.390 16.300 16.209 16.118 16.027 15.936 15.845 15.754 15.663 15.572 15.481 15.390 15.300 15.209 15.118 15.027 14.936 14.845 14.754 14.663 14.572 14.481 14.390 14.300 14.209 14.118 14.027 13.936 13.845 13.754 13.663 13.572 13.481 13.390 13.300 13.209 13.118 13.027 12.936 12.845 12.754 12.663 12.572 12.481 12.390 12.300 12.209 12.118 12.027 11.936 11.845 11.754 11.663 11.572 11.481 11.390 11.300 11.209 11.118 11.027 10.936 10.845 10.754 10.663 10.572 10.481 10.390 10.300 10.209 10.118 10.027 9.936 9.845 9.754 9.663 9.572 9.481 9.390 9.300 9.209 9.118 9.027 8.936 8.845 8.754 8.663 8.572 8.481 8.390 8.300 8.209 8.118 8.027 7.936 7.845 7.754 7.663 7.572 7.481 7.390 7.300 7.209 7.118 7.027 6.936 6.845 6.754 6.663 6.572 6.481 6.390 6.300 6.209 6.118 6.027 5.936 5.845 5.754 5.663 5.572 5.481 5.390 5.300 5.209 5.118 5.027 4.936 4.845 4.754 4.663 4.572 4.481 4.390 4.300 4.209 4.118 4.027 3.936 3.845 3.754 3.663 3.572 3.481 3.390 3.300 3.209 3.118 3.027 2.936 2.845 2.754 2.663 2.572 2.481 2.390 2.300 2.209 2.118 2.027 1.936 1.845 1.754 1.663 1.572 1.481 1.390 1.300 1.209 1.118 1.027 0.936 0.845 0.754 0.663 0.572 0.481 0.390 0.300 0.209 0.118 0.027 0.936 0.845 0.754 0.663 0.572 0.481 0.390 0.300 0.209 0.118 0.027
Existing Levels	73.622 72.721 72.195 71.685 71.425 70.844 69.718 69.096 68.718 68.781 69.052 69.134 69.113 68.112 67.931 67.370 66.621 66.652 66.634 66.678 67.132 66.917 67.098 67.200 67.710 67.180 66.974 67.412 67.275 67.295 66.600 66.612 66.275 66.053 65.852 65.764 65.806 66.163 66.349 66.473 66.752 67.325 68.473 69.054 69.634 69.739 69.220 69.406 69.619 69.652 70.437 70.443 70.627 71.634 72.750 73.702 74.922 76.317 76.609 76.820 76.992 76.873 76.901 76.733 76.738 76.687 77.108 75.831 74.561 72.894 70.894 70.107 68.965 67.928 66.692 65.528
Horizontal	
Vertical	
Chainage	22010.000 22030.000 22050.000 22070.000 22090.000 22110.000 22130.000 22150.000 22170.000 22190.000 22210.000 22230.000 22250.000 22270.000 22290.000 22310.000 22330.000 22350.000 22370.000 22390.000 22410.000 22430.000 22450.000 22470.000 22490.000 22510.000 22530.000 22550.000 22570.000 22590.000 22610.000 22630.000 22650.000 22670.000 22690.000 22710.000 22730.000 22750.000 22770.000 22790.000 22810.000 22830.000 22850.000 22870.000 22890.000 22910.000 22930.000 22950.000 22970.000 22990.000 23010.000 23030.000 23050.000 23070.000 23090.000 23110.000 23130.000 23150.000 23170.000 23190.000 23210.000 23230.000 23250.000 23270.000 23290.000 23310.000 23330.000 23350.000 23370.000 23390.000 23410.000 23430.000 23450.000 23470.000 23490.000

KEY PLAN
 Existing Road Network
 Proposed Cycle Track
 SAC
 Townland Boundary
 Existing Ground Level
 Proposed Ground Level

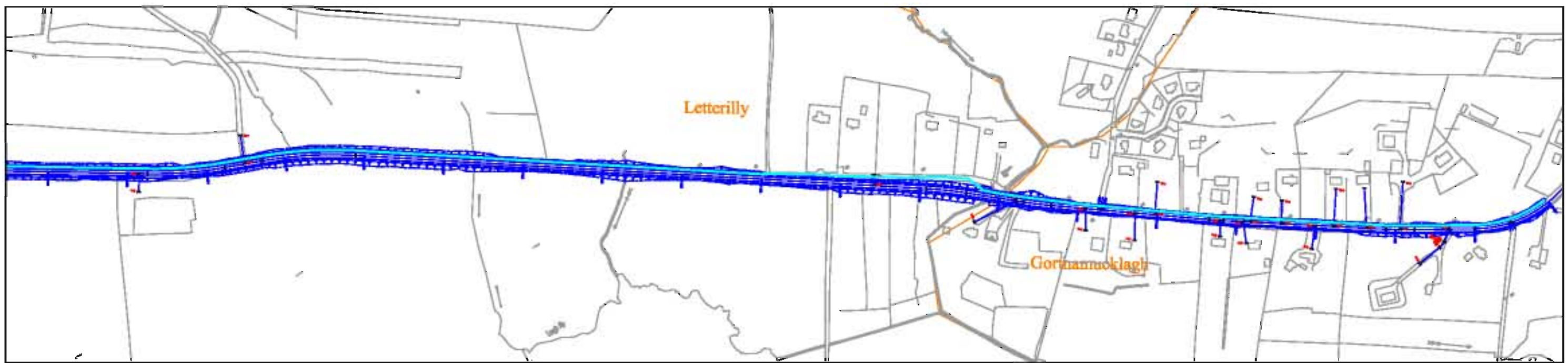


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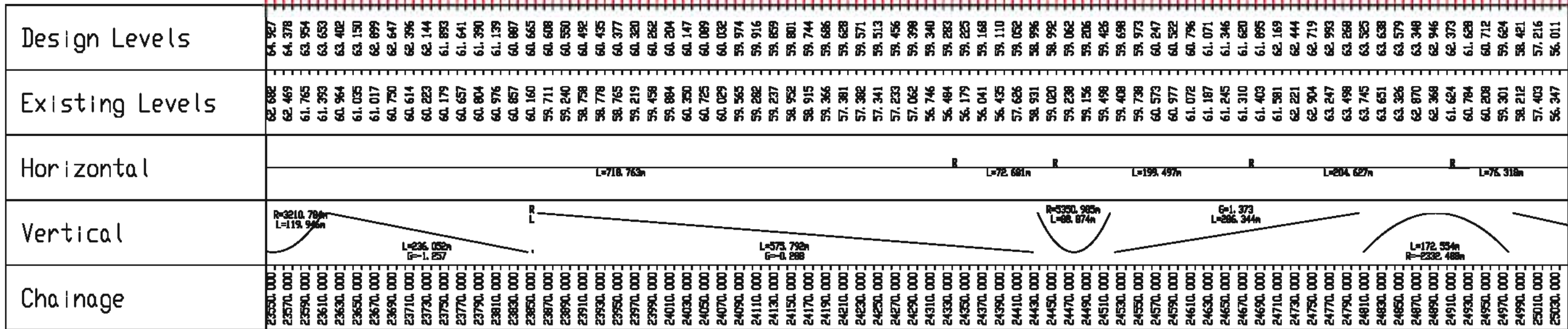


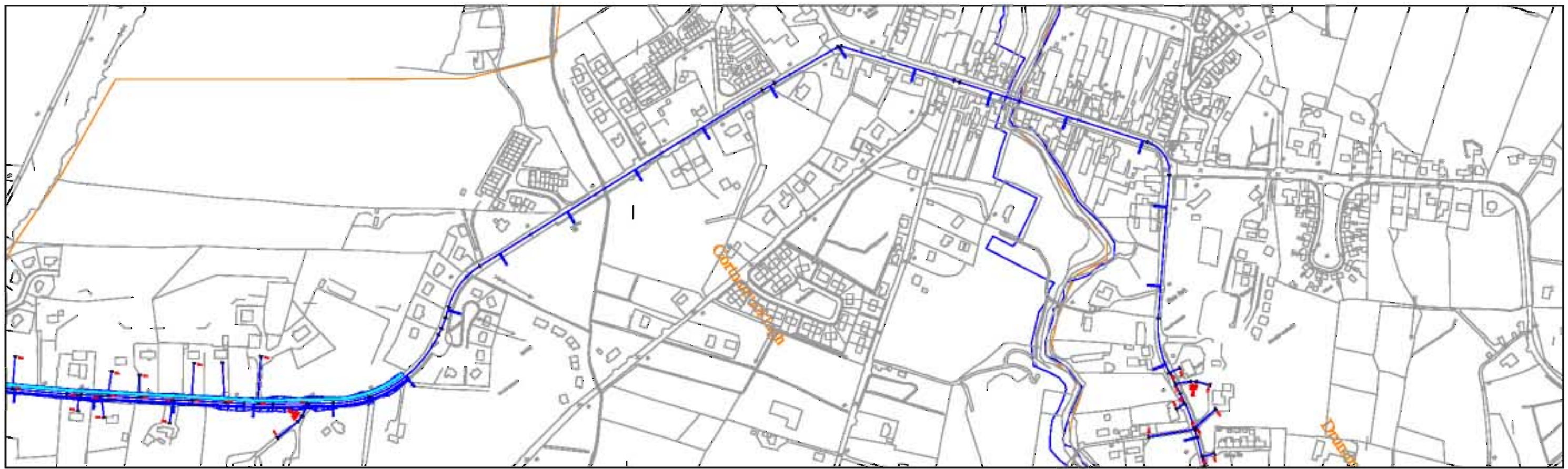
Rev	By	Date	Description

Project	N56 Lettermacaward to Glenties(Kilrairie) Road Scheme		
Component	Preliminary Design Report - Volume 2		
Title	Plan & Profile - Sheet 18 of 20		
Drawn	JC	File Name	P:\DSD\GMAPLAN\PROFILE
Checked	FT	Scale	1:8000
Approved	BGD	Date	November 2011
			DGD1-PD-PL16



Level Datum =37.000



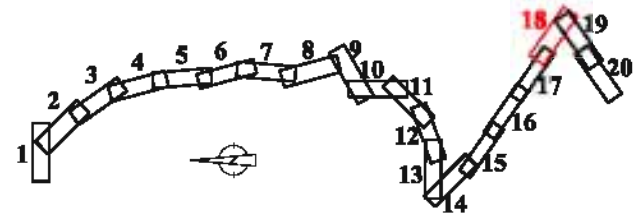


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Existing Levels	57.403 56.347 54.695 52.912 51.804 50.719 49.569 48.406 47.237 46.062 44.882 43.702 42.522 41.342 40.162 38.982 37.802 36.622 35.442 34.262 33.082 31.902 30.722 29.542 28.362 27.182 26.002 24.822 23.642 22.462 21.282 20.102 18.922 17.742 16.562 15.382 14.202 13.022 11.842 10.662 9.482 8.302 7.122 5.942 4.762 3.582 2.402 1.222 0.042 -1.138 -2.318 -3.498 -4.678 -5.858 -7.038 -8.218 -9.398 -10.578 -11.758 -12.938 -14.118 -15.298 -16.478 -17.658 -18.838 -20.018 -21.198 -22.378 -23.558 -24.738 -25.918 -27.098 -28.278 -29.458 -30.638 -31.818 -32.998 -34.178 -35.358 -36.538 -37.718 -38.898 -40.078 -41.258 -42.438 -43.618 -44.798 -45.978 -47.158 -48.338 -49.518 -50.698 -51.878 -53.058 -54.238 -55.418 -56.598 -57.778 -58.958 -60.138 -61.318 -62.498 -63.678 -64.858 -66.038 -67.218 -68.398 -69.578 -70.758 -71.938 -73.118 -74.298 -75.478 -76.658 -77.838 -79.018 -80.198 -81.378 -82.558 -83.738 -84.918 -86.098 -87.278 -88.458 -89.638 -90.818 -91.998 -93.178 -94.358 -95.538 -96.718 -97.898 -99.078 -100.258 -101.438 -102.618 -103.798 -104.978 -106.158 -107.338 -108.518 -109.698 -110.878 -112.058 -113.238 -114.418 -115.598 -116.778 -117.958 -119.138 -120.318 -121.498 -122.678 -123.858 -125.038 -126.218 -127.398 -128.578 -129.758 -130.938 -132.118 -133.298 -134.478 -135.658 -136.838 -138.018 -139.198 -140.378 -141.558 -142.738 -143.918 -145.098 -146.278 -147.458 -148.638 -149.818 -150.998 -152.178 -153.358 -154.538 -155.718 -156.898 -158.078 -159.258 -160.438 -161.618 -162.798 -163.978 -165.158 -166.338 -167.518 -168.698 -169.878 -171.058 -172.238 -173.418 -174.598 -175.778 -176.958 -178.138 -179.318 -180.498 -181.678 -182.858 -184.038 -185.218 -186.398 -187.578 -188.758 -189.938 -191.118 -192.298 -193.478 -194.658 -195.838 -197.018 -198.198 -199.378 -200.558 -201.738 -202.918 -204.098 -205.278 -206.458 -207.638 -208.818 -210.000
Horizontal	R=150.00m L=118.59m L=418.59m L=92.27m L=148.00m L=247.33m R=40.00m L=181.01m
Vertical	L=10.10m R=91.10m L=91.38m L=74.90m G=2.88 G=2.29 L=71.25m L=68.44m G=2.67
Chainage	25010.000 25030.000 25050.000 25070.000 25090.000 25110.000 25130.000 25150.000 25170.000 25190.000 25210.000 25230.000 25250.000 25270.000 25290.000 25310.000 25330.000 25350.000 25370.000 25390.000 25410.000 25430.000 25450.000 25470.000 25490.000 25510.000 25530.000 25550.000 25570.000 25590.000 25610.000 25630.000 25650.000 25670.000 25690.000 25710.000 25730.000 25750.000 25770.000 25790.000 25810.000 25830.000 25850.000 25870.000 25890.000 25910.000 25930.000 25950.000 25970.000 25990.000 26010.000 26030.000 26050.000 26070.000 26090.000 26110.000 26130.000 26150.000 26170.000 26190.000 26210.000 26230.000 26250.000 26270.000 26290.000 26310.000 26330.000 26350.000 26370.000 26390.000 26410.000 26430.000 26450.000 26470.000 26490.000

KEY PLAN

Existing Road Network
Proposed Cycle Track
SAC
Townland Boundary
Existing Ground Level
Proposed Ground Level



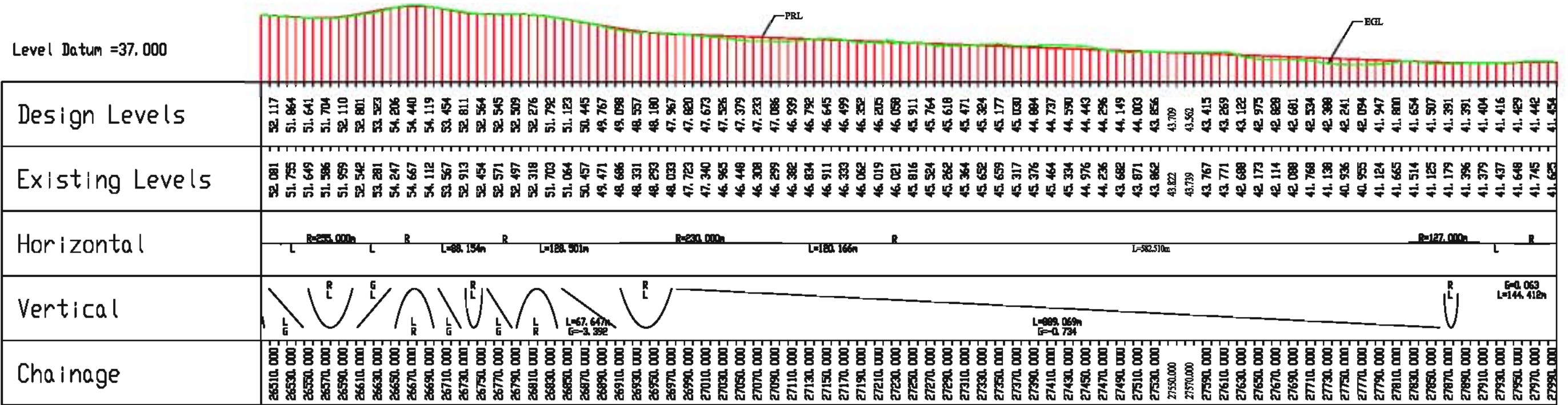
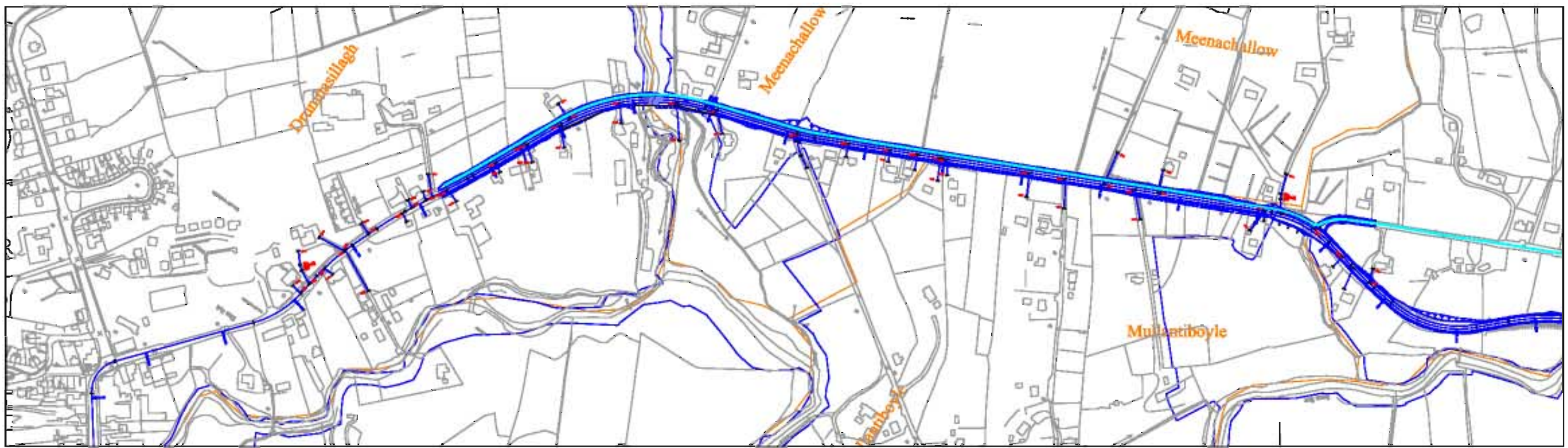
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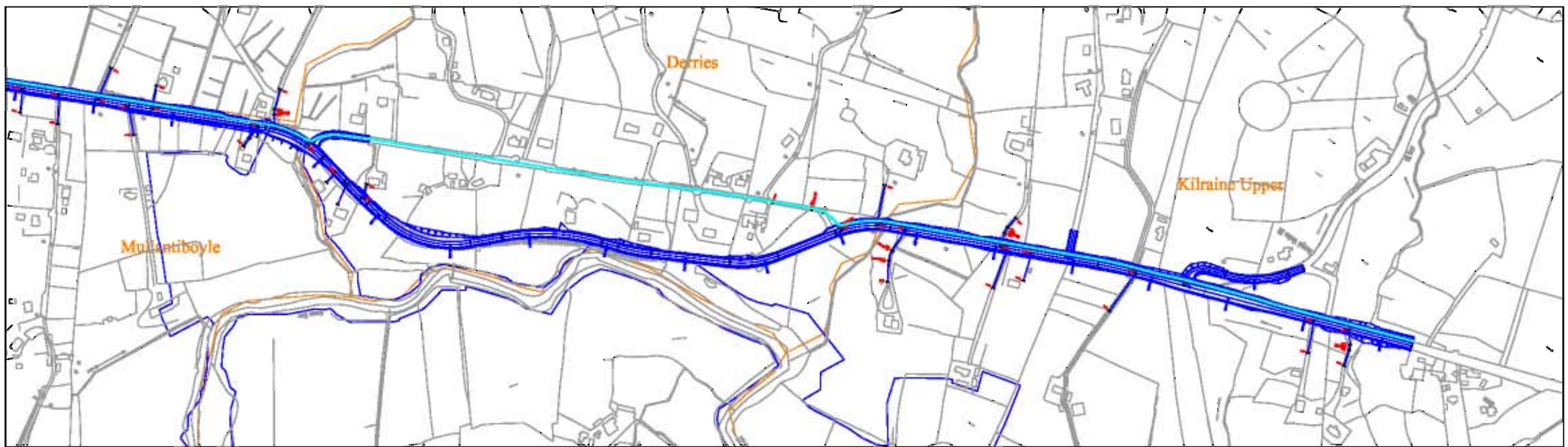
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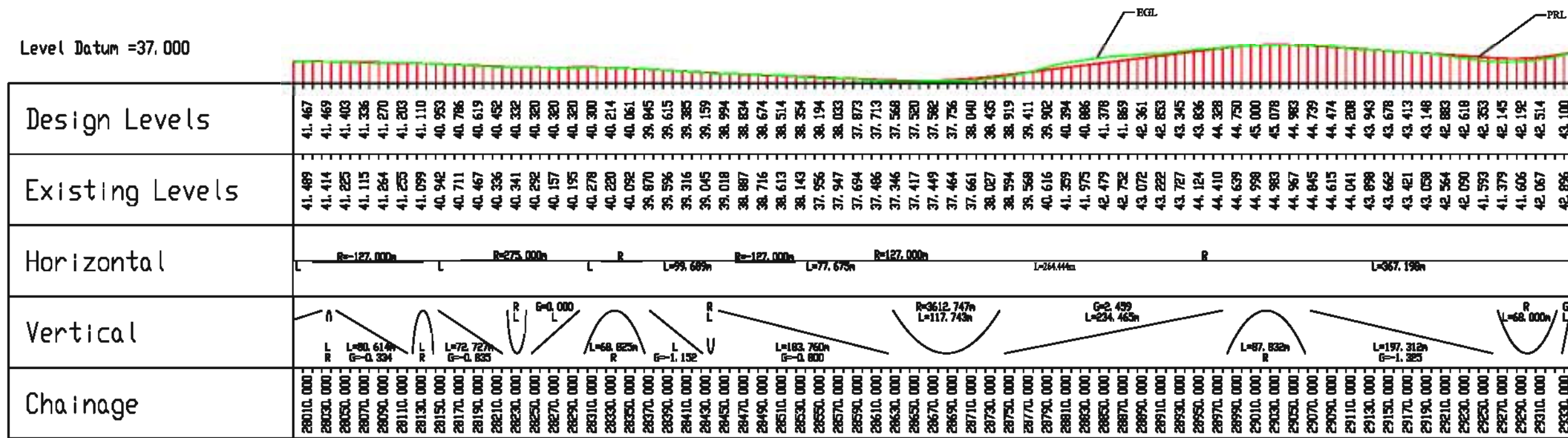
Rev	By	Date	Description

Project: N56 Lettermacaward to Glenties(Kilrairie) Road Scheme			
Component: Preliminary Design Report - Volume 2			
Title: Plan & Profile - Sheet 18 of 20			
Drawn: JC	File Name: P:\DSD\GMAP\PLAN\PROFILE	Drawn By:	
Checked: FT	Scale: 1:5000		
Approved: BGD	Date: November 2011		
			DGD1-PD-PL18



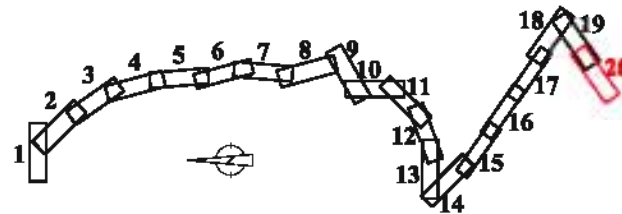


Level Datum = 37,000



KEY PLAN

- Existing Road Network
- Proposed Cycle Track
- SAC
- Townland Boundary
- Existing Ground Level
- Proposed Ground Level



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Drawn: JC	File Name: P:\DSD\N56\PLAN\PROFILE	Checked: FT	Scale: 1:5000
Approved: BGD	Date: November 2011		