



Kinnegad - Kilcock Motorway News

Quarterly news on the Kinnegad - Enfield - Kilcock (M 4) Motorway Project

Progress on the Works

Motorway construction works have continued to progress during the last three months. One of the most notable events is the commencement of blacktop in all three sections which clearly maps out the horizontal alignment of the proposed motorway route through the surrounding countryside.

Bulk earthworks operations have continued right through the autumn months, followed swiftly by drainage, and pavement construction in all areas. The construction of the county road embankments which will eventually take all of the local traffic over the motorway has also progressed.

Bridge construction has continued to develop in all three sections, and in September 2004 the first over bridge opened to public traffic in Kinnegad which will temporarily facilitate the N6 traffic across this route. Beam deliveries have continued to enter the site and the progress on this front has been good.

Accommodation works and mainline ducting have continued to

progress and some traffic management arrangements have commenced in particular works to the Kinnegad East Interchange at Rossan Kinnegad.

Consultations with third parties have continued in tandem with the initiation of new works, and particular emphasis has been applied to all Environmental and Health and Safety Issues.



Earthworks completed to road level allow drainage to proceed

EIB Refinancing

On 24 November 2004 a refinancing deal was signed by the National Roads Authority, the European Investment Bank, the Bank's Syndicate and EuroLink. This refinancing constitutes a change in the structure of the loan agreements of the Project.

The EIB has increased their commitment in the project from 50% to 66% showing their confidence in it. As a result of this, the Long Term Credit Facility with the Bank's Syndicate has been reduced accordingly.

EARTHWORKS

The earthworks on the N4/N6 Kinnegad – Enfield – Kilcock motorway project are now substantially complete. By earthworks we mean all the work needed to reshape the ground to allow the new road to be constructed with a smooth flowing vertical and horizontal alignment with no sharp bends or steep gradients. This involves excavations to create cuttings, such as the new cutting to take the new road through Cappagh Hill and all the embankments to carry side roads up to the many overbridges and over the new motorway. The earthworks on the project were designed by Applied Ground Engineering Consultants Ltd, an independent geotechnical consulting firm, based in Bagenalstown, Co. Carlow.

embankments are properly compacted the National Roads Authority (NRA) has produced a specification that defines more than twenty different types of soils and crushed rocks for use in roadworks. Testing must be carried out to measure the various engineering properties of the soils and rocks found on the project to correctly classify them, and decide how they can be employed properly in the project. The management of the necessary procedures that are required to ensure the quality of the completed product is a major challenge on a large project such as this where several thousand samples have been taken and tested, and more than three million cubic metres (or approximately six million tonnes) of soil and rock have been processed.



Excavation of soil and rock at Cappagh Hill



Completed earthworks at Cappagh Hill, pavement construction is underway

Excavating soil and rock – in engineering terms ‘soil’ is all the material below ground that is not rock – from the ground and placing these materials to form highway embankments may appear a straightforward task. However the design must ensure the slopes cut in the ground are stable, generally at the steepest slope achievable, that the materials placed to form the new embankments are stable, do not settle and provide a firm foundation to construct the road pavement. To help ensure the materials used in newly constructed

An efficient and environmentally sustainable design will also try to maximize the reuse of excavated material to construct embankments and balance the excavated and placed materials so there is little need to either import soil and rock, or dispose of surplus excavated materials. Again the NRA’s Specification is designed to help manage this process by defining particular uses – such as layers of stiffer material placed just below the road pavement, or zones of stronger materials next to bridges so the sideways forces from the soils on these structures can be more easily predicted. Unfortunately not all soils can be reused, for example peat can not be used to support the new road as it is too weak and compressible. Anyone who has travelled along old bog roads in Ireland will know the ride can be like a roller-coaster and not at all suitable for a modern motorway. Peat is generally removed and must be disposed of either in landscaping or away from the site.



Filling a disused watercourse with rock from the site

and this has resulted in generally flatter slopes of 1:2.5 in this section of the new route, compared to 1:2 adopted elsewhere. The reason for this lower strength is not clear, but it is suspected it is because the soils are derived from different types of bedrock and have been dragged by ice sheets from different parts of Ireland.

One of the major earthworks features of the project has been the cutting through rock at Cappagh Hill. Cuttings in rock, being a much stronger material, often can be designed to be constructed with relatively steep slopes, often steeper

Generally the soils encountered have been found to have good properties for road construction, but a major challenge has been to prevent them from softening in wet weather. This requires very careful attention to details such as drainage to ensure water is carried away from earthworks effectively, and protecting completed works from the weather by carefully sealing surfaces by rolling and shaping so that water runs off the works and does



Capping operations underway



Grading Test

not seep into the placed soils. One interesting aspect of the earthworks has been the subtle difference in the engineering properties of the soils to east and west of Cappagh Hill. The soils to the east are slightly less strong

than 45 degrees. However at Cappagh Hill the rock comprises alternating bands of strong limestone, and weaker mudstones and shales. The natural bedding of the bands of rock is arranged at slopes of 30 degrees to 60 degrees and if the slope was any steeper than the relatively flat 1:1.5 or 33 degrees constructed it would be likely to slip onto the road – clearly something that can not be allowed!

Programmed Works for the coming Months

During the coming months the main ongoing activities of the project i.e. Earthworks, Drainage, Pavement Construction, Structures & Accommodation Works, will continue with full strength.

Particular emphasis will be given to the side roads during the coming months and it is hoped that significant progress will be made to all county roads by during 2005.

The Earthworks will be concentrated in backfilling to the structures, finishing off the side roads and interchanges and in the completion of the remaining works to the main carriageway under the structures.

The Structures have entered into the final phase of construction and it is hoped that the remaining two decks can be cast during the coming weeks and it is expected that bridge finishing works and the construction of parapets and deck approach slabs will continue during the spring of next year.

The Pavement Construction will develop progressively in all three sections up to base course layer during the coming months weather permitting, as well as the Accommodation Works, especially in the longitudinal ducting construction.

As most of the decks are now completed, we are targeting dates during 2005 for transferring the traffic over to some of the new structures. During January 2005, we hope to transfer traffic over the new bridge S08 (Kinnegad Interchange East) which will enable us to remove the plugs from the Ballinbrackey and Edenderry roads. Also, traffic management arrangements are currently being prepared for proposed diversions at the Kilcock Interchange which should come into operation in various phases during 2005.

The construction for the Toll Plaza Infrastructure and adjacent Buildings will commence in the spring of 2005 with the main Toll Plaza building located at Killickaweeneey approximately 3km west of Kilcock. Finishes and Landscaping will commence in certain areas during the coming months.

We are continuing with third party consultation as before, building and developing good relationships with all those involved and we would like to take this opportunity to thank all consultees in particular the local landowners for their co-operation and assistance during 2004. Special thanks must also be given to the Gardai and members of the local authorities for their assistance.

As part of our ongoing commitment to Health and Safety many of the local schools were visited over the past



Aerial view of a major interchange at Kinnegad

weeks and informal workshops were given to the school children in relation to the dangers that exist on construction sites. These workshops were greeted with great enthusiasm and the positive response from all was appreciated.

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