Fencing Retrofit Programme Seminar

Retrofit of Tensioned Wire Mesh Fence on the Motorway Network

James O Dwyer – Atkins
Joe Ryan – Colas Roadbridge

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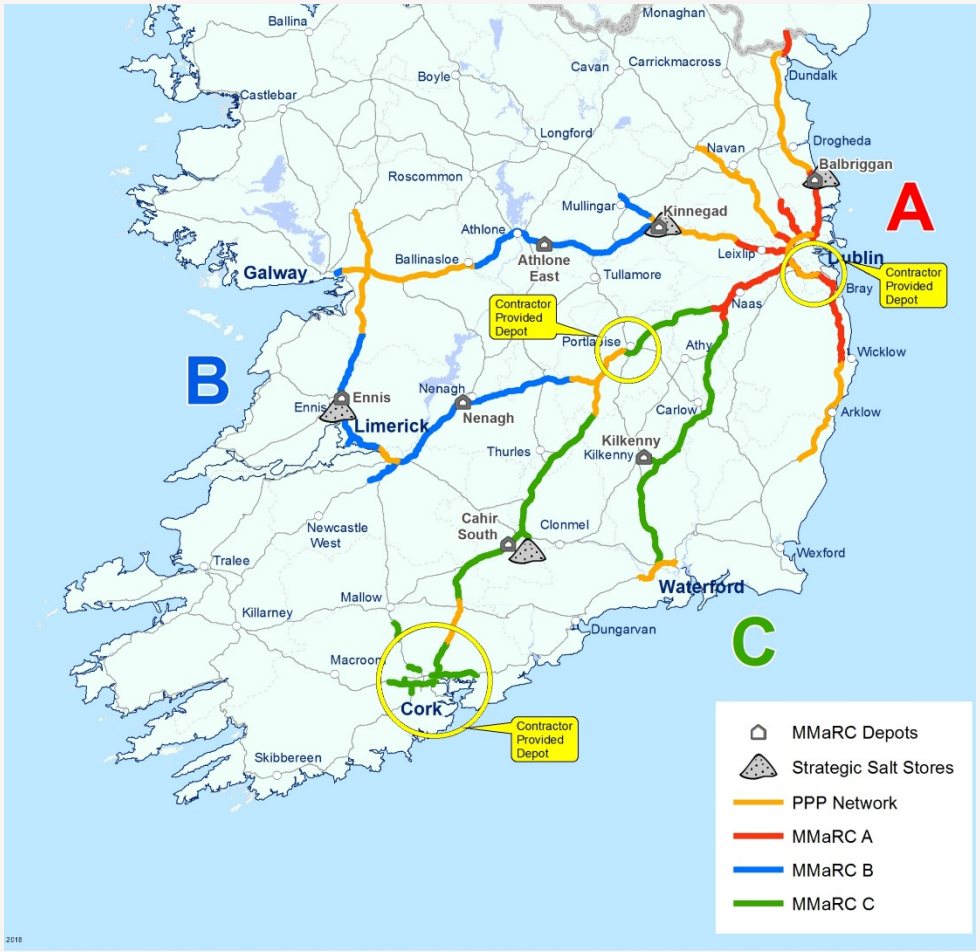
MMaRC Network



- Transport Infrastructure Ireland (TII) established the Motorway Maintenance and Renewals Contract (MMaRC) in 2013.
- Retro fit Scheme - upgrade Timber Post and Rail to new standard - Tensioned Wire Mesh fence.
- Work carried out by the MMaRC.

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Timber Post and Rail Fencing

Timber Post and Rail Fencing In accordance with RCD/300/1

Timber Post and Tensioned Mesh Fence In accordance with SCD/300/21

Retrofit Scheme – Background

- Retrofit works on the Motorway Network was used to inform revised standard.
- Retrofit Scheme being carried out on 120/100km/hr high speed sections within clear-zone.
- The works commenced in Network B in Summer 2017 and has now extended to Networks A & C and to 10 No. PPP schemes
- Works commenced on access tracks adjacent to motorway.
- followed by boundary fence for individual landowners once agreement reached.
- Approximately 36,000m Timber Post and Rail fencing replaced with Tensioned Wire Mesh.
- The cost of the New Tension Wire Mesh Fence is similar to Timber Post and Rail Fencing

Retrofit Scheme – Approach

- Initial Drive Through Survey to identify existing sections of Timber post and rail fencing within the Clear-zone.
- TD/19 – Motorway clear-zone 10m from Yellow Line
- Detailed survey and preparation of mapping for Landowner Identification.
- TII issued letters to landowners advising of change to fencing standard and extent of retrofit works to be carried out as part of maintenance contract.
- Programme – Access Tracks - Proximity of fence to Carriageway – Boundary Fence
- Liaison with Landowners – Sections completed on access tracks made fence type more visible and provide samples for farmers to inspect.
- No resistance from the farmers and Landowners to replacing the existing Post and Rail fencing with New Tensioned Wire Mesh Fence

Retrofit Scheme – Letter Issued by TII - Key points

- TII has taken direct responsibly for much of the maintenance of the Motorway/dual carriageway network.
- TII responsible for development and review of standards
- Ongoing assessment of the performance of new tensioned wire mesh fence
- Outline programme of works - location and length of fence to be replaced
- Continue to use Timber Post and Rail at locations sufficiently remote from traffic lanes or where protected
- TII responsible for maintenance of fence irrespective of fence type.

Availability of Materials

- Wire Mesh – Alu/Zinc Mesh sourced in New-Zealand through McNamara Fencing supplies and Irish Wire Products (IWP)
- 170mm Diameter Timber Post – Strainer Post – Lithuania through Erin Trading Ltd.
- Plastic Rail – USA through McNamara Fencing Supplies
- Intermediate posts similar dimension to Timber post and rail (150 x 75)
- Clips and Grips – Mac Namara Fencing Supplies and IWP

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Availability of Materials

Cross Members initially available in Ireland

End Strainer initially available in Ireland

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Installation of Fence

- CRJV Liaison with landowners
- Install Traffic Management (Chapter 8)
- Remove old post and rail fencing, cutting the mammal proof chain-link 500mm above EGL
- Install Strainers and Intermediate Posts as / RCD300-21
- Install Cross-members and Bed Log
- Roll out High Tensile Mesh for the section and join to strainers with T-Gripples
- Join rolls of high tensile using Gripple straight joiners or similar
- Using the Straining Clamps and Mesh Pullers strain the chain-link in the middle of the run, and join with straight gripples, then release clamp

Installation of Fence

- The High Tensile Mesh is stapled to the field side of the Intermediate posts.
- Existing mammal proof chain-link can now be fixed to the new High Tensile Mesh using Hog Ring grips
- Flexible Plastic Rail is rolled out and fixed to the straining posts using an End Buckle and Coach Bolt.
- Tension is placed on the Plastic rail using an Inline Tensioner.
- Plastic Rail is fixed to the intermediate posts using the Inline Post Bracket.
- **Gripple Twisters** are placed over excess wire to protect against stock getting eye injuries.

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Small Materials and their Functions

Hog Rings shown in the photo above joining two chain-links together

Gripple straight Joiner in action above connecting two horizontal wire

T-Gripple in action as is raps around the strainer posts it returns to grip the horizontal wire

Cross-member bracket photographed from side and top. This metal angle bracket is fixed to the cross-member with galvanized nails and then fixed to the strainer with same

Photo on the right shows the post driver attachment used to drive Strainers and Intermediate posts

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Collisions with New Tensioned Wire Mesh Fence

- Two Collisions recorded to date with New Tensioned Wire Mesh.
- Fence has performed well in both
- Repairs were simple to carryout

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Collision 2

Following Collision

Following Repairs

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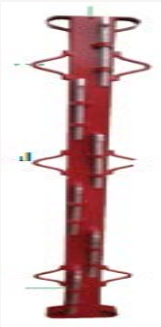
Repairs to New Tension Wire Mesh Following Collision

- Damaged and Broken Timber Posts are replaced

- Damaged section of mesh is cut out and replaced with a new section.
- The mesh is re-joined with gripple joiners
- The mesh is re-tensioned with Straining Clamp and Mesh Pullers
- Damaged section of Plastic Rail is cut out and joined again using Joining Buckle Splicer
- Plastic Rail is re-tensioned again using existing Inline Tensioner
- Mesh is stapled to Intermediate posts and missing Hog Rings replaced

Repairs to Mesh fence following collision 2



Straining Clamp

Mesh Pullers

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Conclusion

- The Tension Wire Mesh Fence is straight forward to install.
- The materials are available and other suppliers are entering the market.
- There has been two incidents with the new Tensioned Wire Mesh fence on the high speed network with positive outcomes on both occasions.
- Repairs to the New fence following a collision can be carryout quickly
- Positive feedback from landowners on the quality of the fence

Thank you

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