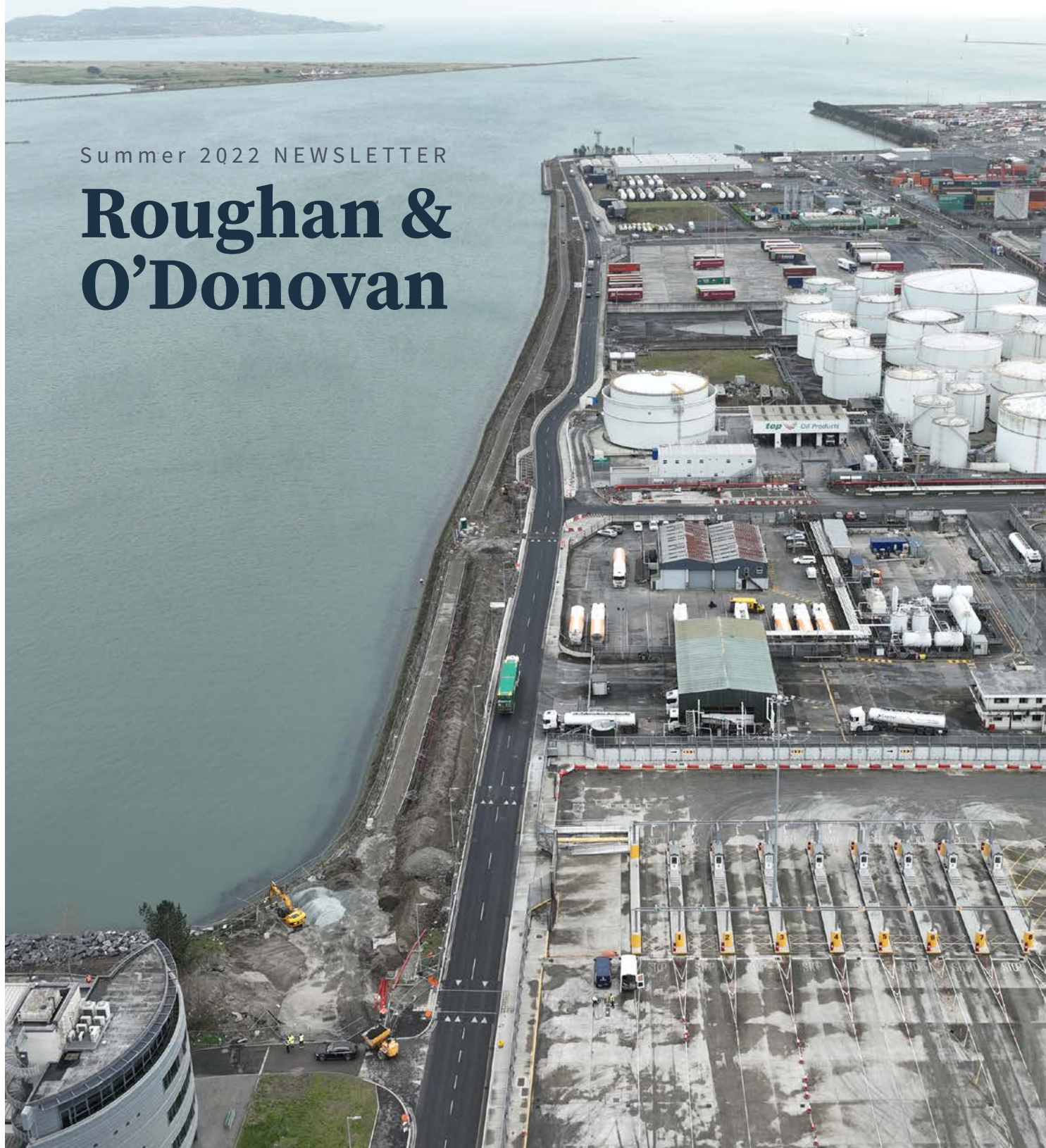




Summer 2022 NEWSLETTER

# Roughan & O'Donovan



# Contents

ROD SUMMER 2022

## News

5	Three Years on: ROD’s UK Office today
16	The welcome return of Social Events at ROD
17	ROD-Aecom Alliance Cycle 2022
18	John James Fleming: From Student Intern at ROD to Project Engineer in Canada
19	Meet ROD’s newest Technical Director: Anthony Mulligan
27	Developing the skills to identify sustainable solutions to environmental challenges
31	What’s the perfect job for you? Ask your five year-old self
32	New Recruits 2022
35	Five minutes with Emily Alfred

## Transportation

6	Major Road Network Improvement Project nears completion
08	Construction of Clontarf to City Centre Project begins
09	Maynooth Eastern Ring Road advances through detailed design
10	M50 Variable Speed Limits
12	N26 Realignment at Cloongullane Bridge
13	N52 Ardee Bypass Part 8 Application Approved
14	West Clare Railway Greenway moves forward
15	Examining the Redevelopment Potential of Dublin Bus Depots

## Buildings

20	ROD: Supporting the HSE on it's Decarbonisation Journey
21	Refurbishment works at St. Fintan’s Hospital, Portlaoise Complete
22	Heather House CNU in Cork City nears completion
23	Meakstown Community Centre progresses to Detailed Design
24	Construction of Newtowncunningham Primary Care Centre completed
25	Women’s Refuge Centre at Maudlinstown goes to Tender

## Environmental

26	Major GI undertaken for DART+ West
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## Bridges

28	ROD and H&H present at Bridges 2022 conference
29	Humber Bridge Project recognised at prestigious Awards Events

## ROD-IS News Update

30	ROD-IS News Update
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## Foreword

by Harry Meighan,  
Chairman

The longer serving employees of ROD, such as myself, were saddened to learn of the death of Hank Fogarty in France in early May. Hank was in college (in UCD) with ROD founder Joe O'Donovan and was a teammate in Kilmacud Crokes with the first ROD employee, Des Kernan. We had many interactions with Hank during his time as MD of SIAC Construction, including on landmark projects like the Boyne Bridge (now the Mary McAleese Boyne Valley Bridge) and the M4 KEK PPP. Following his retirement from SIAC, Hank became involved in dispute resolution, lectured on the post-graduate diploma course in Construction Law at TCD and was a member of Engineers Ireland's Dispute Resolution Board. He was highly respected as a Conciliator for the integrity and professionalism with which he conducted dispute proceedings. May he rest in peace.

Thinking of the Boyne Bridge reminds me that the 20th anniversary of its opening occurs in 2023. The original design for the bridge deck was a space frame, with unique precision engineered node connectors. Hank (SIAC-Cleveland Bridge) proposed an alternative steel girder design for the bridge deck as a value-engineering proposal, which was accepted and bundled into a supplemental contract agreement that reallocated risk from the public body client, Meath County Council, to the contractor, including materials price fluctuations risk. The final account price for the bridge contract came to just under €36 million, which to me represents exceptional value for an infrastructure project that is a landmark on the road from Dublin to Belfast, reduced travel time between the two cities, removed through traffic from Drogheda, and is designed to provide those benefits for future generations over the next 100 years of its design life.

There were a number of unique features with the incremental launch cable-stayed bridge project, including the completion of a number of enabling works contracts to mitigate risk to the main works. As well as a high voltage electricity line diversion contract and an advance fencing contract, the bridge foundations were constructed as an advance works contract by BAM to manage the risk presented by the prevailing karst limestone ground conditions.

In the Summer '21 edition of this newsletter, I noted that the N5 Ballaghaderreen to Scramoge project had just been awarded to Roadbridge Ltd. Regrettably, in March'22 Roadbridge Ltd went into receivership, and the N5 project will now need to be re-tendered. As noted last year, the scheme is aligned with / supports several of the National Strategic Outcomes in the National Planning Framework including Compact Growth, Enhanced Regional Accessibility, Strengthened Rural Economies and Communities, Sustainable Mobility, Enhanced Amenities and Heritage, and Access to Quality

Childcare, Education and Health Services. The realisation of these strategic outcomes and benefits to the local communities, the region and the State will now be delayed by about 2 years.

The loss of Roadbridge also reduces capacity in the Irish market, and we have been noticing reduced appetite from contractors on civil engineering construction tender competitions. We are also aware that many contractors have scaled up risk management / governance procedures in relation to bid / no bid decision making. In addition, Brexit, Covid-19 and the invasion and continuing war in Ukraine have together caused significant challenges for contractors contracted to construct NDP projects over the past 18 months. There have been hyper-level increases in the prices of construction materials and fuel. The price of reinforcing steel as measured by the CSO wholesale price indices has increased by 96% between Jan'21 and May'22, while structural steel as used in the Boyne Bridge increased by 48% in the same period.

Public body developers will need to be attuned to these challenges when advancing NDP and other public projects and realise that there is a need to make their projects more attractive to contractors, particularly when there is competing demand from other sectors. Factors that could be considered include: -

- Is there optimal allocation of risk to the contractor in line with one of the core principles of the Capital Works Management Framework?
- Can advance enabling works contracts be undertaken to mitigate risk to the main construction contractor?
- Can a Competitive Procedure with Negotiation be considered for the procurement method, which could facilitate early contractor involvement to enable consultation on value engineering opportunities, risk mitigation, reducing reliance on imported materials, refinement of the design and works requirements, sustainability, and decarbonisation.
- Allowing adequate time in the overall project programme and payment of some tendering costs for such early contractor engagement.
- Moving away from pure lowest price, introducing technical merit award criteria and/or average pricing mechanisms.

Welcome to the ROD Summer 2022 Newsletter. We hope you will find something of interest in the articles.



## Three Years on: ROD's UK Office today

Article by Michael Chung



In 2019, ROD opened the doors of its first UK office in Otley, Leeds. Our then Company Secretary and now Managing Director, Jim Thorpe, was charged with leading our expansion in the UK and enhancing our responsiveness to clients and partners throughout Great Britain. Drawing upon his previous experience of working in the UK, and his knowledge of UK engineering people and practices, Jim has assembled a dedicated team to support him in growing the business. Our Otley office now employs sixteen staff across six disciplines, (bridges, environmental, water, transportation, geotechnics and business support), with additional roles currently advertised in our bridges and highways teams. In fact, Jim's recruitment efforts have been so successful that we are already looking to expand our office space to enable us to accommodate up to nine additional staff.

Among our more recent recruits is Bid Manager, Jonathan Llywelyn-Jones, who will assist us in growing our order book, which currently features several high-profile projects, including:

- Working with the contractors for the Great Yarmouth Third River Crossing in Norfolk, which is currently in the construction phase;
- Undertaking the independent checking of the Cross Tay Scheme, one of the largest infrastructure projects ever undertaken by Perth & Kinross Council;

- Undertaking the design review and updates for the Narrow Water Bridge and approaches;
- Working with H&H to deliver the superstructure of the Clyde Bridge in Renfrewshire, Scotland; and
- Overseeing the A6 Dungiven to Drumahoe Dualling scheme with our site based team in Northern Ireland.

One member of our team recently completed a full-time, four-month secondment with the environmental and water engineering consultancy Jeremy Benn Associates (JBA). ROD is providing structural and bridge engineering support for several JBA-led projects, including the assessment of existing infrastructure for the Environment Agency (EA) and Cumbria County Council. ROD's role in these projects involves scoping intrusive investigations, site attendance during the third-party works, engineering assessment and associated carbon and economic considerations. JBA meanwhile is providing flood and environmental assessment support for various ROD-led transportation schemes.

In March 2022, we were delighted to receive a certificate of commendation at the ICE Yorkshire and Humber Awards for our recent work on the Humber Bridge Rocker Bearing Replacement project, details of which were published in the 2021 Winter Newsletter.





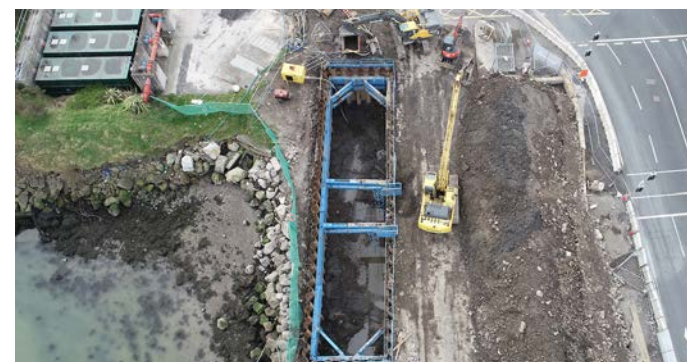
## Major Road Network Improvement Project nears completion

Article by Deirdre Neff

After more than four years of intensive work, ROD's transportation team is pleased to report that the multimillion euro upgrade of Dublin Port's road network is nearing completion on site. The team faced several challenges over the course of the project, with the disruption caused by Brexit, which hit midway through the construction contract, key among them. Close collaboration between Dublin Port Company as client, ROD as Engineer, and Kilwex as Contractor has been critical to keeping the project on track. The works were procured and managed using the NEC3 form of contract, and ROD acted as both the Project Manager and the Supervisor under the contract.

In addition to 1.5km of new roads, the works include a new 300m seven lane truck queuing area for the roll-on / roll-off check in booths. This area provides additional resilience for the port in the event of adverse weather or any other form of delays, and reduces the risk of queues propagating back from the port and causing disruption in the Dublin Tunnel and onto the M50. Several junctions within the port have also been upgraded, with roundabouts enlarged to two lanes of traffic. In addition, existing roads have been resurfaced within the Port and lighting and services upgraded.

Ancillary works included the installation of petrol interceptors 7m below ground. Extensive and complex temporary works were



required to manage the poor ground conditions and high water table next to the sea. All the works were constructed in a sensitive manner, reflecting the importance of the surrounding bay for wildlife, and Dublin Bay's designations as a Special Area of Conservation (SAC), a Special Protection Area (SPA) for birds, and a UNESCO Biosphere.

Running alongside part of the new road network is the Tolka Estuary Greenway, currently under construction by Dublin Port Company. Phase 1, running 1.9km eastwards from East Point Business Park, is due for completion in 2024. It will ultimately form part of a 3.2km greenway stretching 3.2km along the Tolka Estuary. While the Phase 1 civil engineering work is largely complete, the landscaping has to mature before the route can be opened to the public. The provision of appropriate screening formed an important environmental commitment in the planning documentation, as it is essential to ensuring that impacts on birds are avoided.

ROD's involvement in the project dates back to project inception in 2014. We secured planning permission for the scheme in 2016, and we have been managing the construction process since 2017, starting with an Enabling Works contract constructed by SIAC in 2017-2018. We are looking forward to the completion of the road network elements later in 2022 and the opening of the greenway in 2024.

### Dublin Port Road Network - Key Facts:

- 1.5km of new roads
- 1.5km of road reconstruction / resurfacing
- 4 major junction upgrades including 3 roundabouts
- 3.7km of new truck queuing capacity
- 1.9km Greenway Phase 1
- 4 major surface water interceptors
- 4 years' construction (including Brexit delays)
- NEC3B Form of Contract

### Project Team

**Client:** Dublin Port Company

**Project Manager / Supervisor / Engineer:** ROD

**Main Contractor:** Kilwex

**Enabling Works Contractor:** SIAC

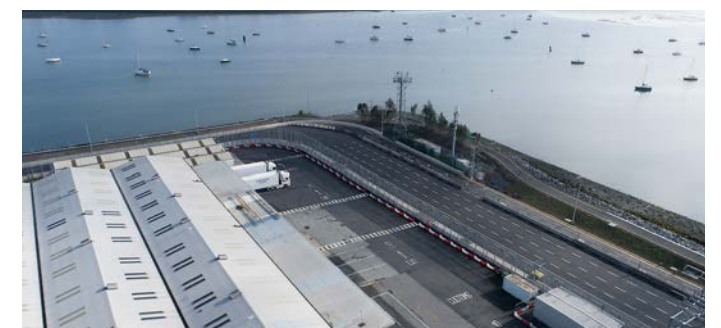
**M&E:** Hugh Munro, James Wark

**Landscape Architects:** Redscape, Austen Associates

**Public Lighting:** Thermallmage, KCA, John Dungan

**Architectural /Public Realm Team (Greenway):**

Darmody Architecture, TTT Landscape Architecture, Storyline, Cloake Brand Management, Cleary Connolly Artistic Consultants, Cundall (lighting)







## Construction of Clontarf to City Centre Project Begins

By Colm Gogan



Clontarf Road / Alfie Byrne Road Junction (June 2022)

Construction of the Clontarf to City Centre Project began last March, with Clonmel Enterprises Ltd. as contractor. The €62 million scheme will provide high quality walking and cycling facilities and bus priority infrastructure along a 2.7km route that extends from Clontarf Road to Amiens Street in Dublin City Centre. It is expected to be completed in 2024.

The project is being funded by the National Transport Authority, with the replacement of 6km of watermain pipes being funded by Irish Water.

In addition to providing segregated cycling facilities and bus priority infrastructure, the scheme will significantly improve the urban realm, landscape and built environment along the route; improve bus journey times and reliability; simplify the interchange between bus services and other transport modes; and encourage a modal shift to active travel and public transport use. Associated works include new public lighting along the route, new street furniture, tree planting and other greening measures.

ROD's involvement in the project dates back to 2012 when we prepared the initial feasibility study for the project on Dublin City Council's (DCC) behalf. In 2017, we were engaged by the council to complete the preliminary design, assessment, detailed design and tender documents for construction. Having managed the tender process through 2021, we are now administering and supervising the construction contract in partnership with the council.

Works are currently progressing on sections on Amiens St, Fairview Park and Alfie Byrne Rd and a comprehensive traffic management plan has been put in place with minimal delays and congestion noted thus far.

ROD is providing site supervision staff on the scheme as well as working as DCC's Employer's Representatives. The site team is supported by the design team in the offices, and we all look forward to delivering this transformative piece of infrastructure with Clonmel Enterprises and DCC.



## Maynooth Eastern Ring Road advances through detailed design

By Juliana Vasconcelos



Image courtesy of Kildare County Council - Maynooth Ring Road Planning Report

Since securing planning permission for the Maynooth Eastern Ring Road (MERR) scheme in 2019, ROD and Kildare County Council have been working steadily to advance the project to construction. The project team has recently secured acceptance of the design from the Commission for Railway Regulation under the EU Interoperability Regulations and, with the end of the detailed design phase now in sight, our next step will be towards construction contractor procurement.

The project will link the R148 Dublin Road to the R405 Celbridge Road just east of Maynooth, requiring a new bridge crossing over the Royal Canal and adjacent Dublin to Sligo railway line. It includes approximately 1.5km of new single carriageway road, two new junctions at tie-ins to existing roads, and accesses for planned development. Footpaths, cycle tracks, various utilities, drainage systems, and accommodation works are also included in the design. Funding of €14.5 million has been made available for the project from the Local Infrastructure Housing Activation Fund (LIHAF), which provides for targeted investment in enabling infrastructure to activate large housing development, which in turn will build more

homes, accelerate social housing and improve the rental sector.

The new bridge crossing is approximately 40m long and comprises fully integral precast concrete construction. In keeping with the sensitive receiving environment, the concrete structure will be faced in masonry. Construction of noise mitigation measures along approximately 600m of embankment on the approaches to the bridge is also required.

The scheme will provide for sustainable urban residential development by facilitating the development of an estimated 1,000 additional housing units in Maynooth. The new road will also improve the quality of life of people living in or visiting Maynooth by alleviating traffic congestion in the town centre through the creation of an alternative access to the M4 south of Maynooth.

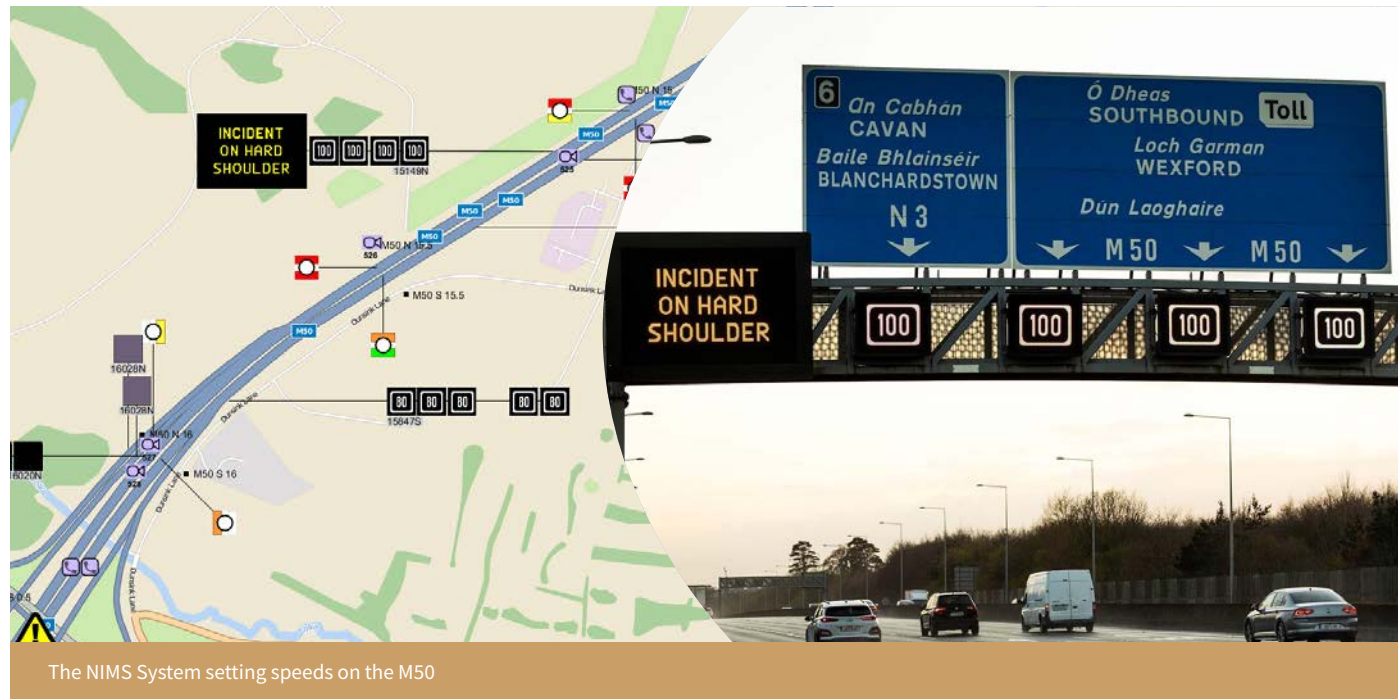
The scheme design incorporates several sustainable design elements, including SuDS drainage design and biodiversity compensation. The lighting design is low level, and incorporates sustainable LED components that allow for the effective management of light pollution and provide for low energy use.





# M50 Variable Speed Limits

By Cliona Rogan, Jamie Downing and Luca Giarrusso



On 10 May 2022, an important milestone in Transport Infrastructure Ireland's (TII) enhancing Motorway Operation Services (eMOS) programme was reached with the installation of variable speed limit signage from Junction 4 (Ballymun) to Junction 9 (Red Cow). This marked the completion of the second phase in the programme roll-out, with the first phase - between Junction 4 (Ballymun) and Junction 6 (Blanchardstown) - switched on in October 2021. The system is expected to be deployed across the full length of the M50 during 2023. It is being rolled out on a phased basis to give road users time to familiarise themselves with the new signs before the introduction of mandatory speed limits.

Through the implementation of ITS technology, eMOS will enable motorway operators to slow traffic in response to collisions, roadworks, adverse weather conditions, and congestion; enhance safeguards for emergency responders dealing with incidents on the M50; and keep road users better informed about incidents ahead and how they may affect journey times. It will optimise road safety, enhance the efficiency of the road, and improve journey time reliability by reducing the number of 'stop and starts' that take place along the M50 and the need for drivers to brake suddenly in response to standstill traffic.

The speed limits are set using the Network Intelligence and Management System (NIMS) - an overarching, adaptive computer

system designed to receive and assimilate information from multiple roadside traffic monitoring devices, including automatic incident detectors and CCTV cameras. The data collected and aggregated by NIMS provides motorway operators with a comprehensive view of real-time conditions on the motorway and enables them to implement the appropriate operational response to incidents as they occur. In the seven months that followed the introduction of VSL on the M50, control centre operators implemented over 600 variable speed management plans in response to incidents on the motorway. Approximately 60% of the incidents were congestion-related, with collisions, breakdowns, and debris making up the remainder.

The ROD-AECOM operations team, in collaboration with TII and Egis Road and Tunnel Operation Ireland (ERTO), have developed procedures to ensure that variable speed limits are applied safely and in a consistent manner across the range of incident types routinely encountered on the M50. As part of our efforts to monitor and improve the application of VSL on the M50, we undertake detailed weekly reviews of how incidents on the motorway are managed. This review process has helped support the development of training material for a range of operational scenarios while operator feedback continues to inform further system development and improvement.

The M50 Motorway Traffic Flow Optimisation Intelligent Transport Systems (ITS) Deployment Contract comprises installation of 387 lane control signals (LCS), 61 variable message signs with graphics capability (VMS), 54 slip road signals and other roadside ITS equipment along the M50. The signs will display variable speed limits and other important information to road users. They will be installed at frequent intervals along the motorway to improve road safety and enhance road user experience. The project is due for completion in 2023.

The project is divided into six regions, marked as sections A to F in the diagram below. In sections A, B, and E, i.e. between Junction 3 and Junction 9, a total of 212 lane control signals, 26 VMS and 22 slip road signs have been installed to date.

## Section E

In Q4 2020, 13 lane control signals and two VMS were installed on the northbound carriageway between Junctions 3 and 4 as part of TII's Brexit traffic management measures. In Q4 2021, the remaining gantry signs in Section E were lifted, cabled, configured and tested in preparation for the display of information to road users, particularly those using Dublin Port post-Brexit. In total, 18 lane control signals were installed in Section E.

## Section A

Sign installation began in Section A at the end of Q1 2021. A total of 106 lane control signals, two VMS and eight slip road signs were installed between Junctions 4 and 6. These signs have been in regular use since they went live in October 2021.

## Section B

Installation works began in Section B in Q2 2022. A total of 92 lane control signals, 10 VMS and 20 slip road signs were installed between Junctions 7 and 9. This section went live in May 2022.

## Section C

Works on Section C are due to commence in Q3 2022.



As part of the M50 Traffic Flow Optimisation project, ROD-AECOM is providing civil and structural design, contract administration and project supervisor for the design process (PSDP) for the construction of gantries and ITS ducting from M50 Junction 14 to the M11 along both the northbound and southbound carriageways. The works involve the construction and installation of two full-span and eleven half-span gantries, the installation of vehicle maintenance laybys, and the installation of ducting for power and communications. The temporary diversion of 7.5km of Dublin City Council fibre optic cable along the southbound carriageway of the M50 between Junctions 14 and 17 is also required to allow for the installation of the new ducting and gantries. Works commenced on site in July 2021.

The gantries are being fabricated off-site in Spain. They are due to arrive in Ireland in July 2022, with onsite installation is expected to commence in August. The junction 14 to M11 works contract is expected to be completed in September 2022.





## N26 Realignment at Cloongullane Bridge

By Conor Lehane



Cloongullane beam lift

Construction works on the realignment of the N26 at Cloongullane Bridge in Co. Mayo are continuing apace, with both the river bridge construction and roadworks now well advanced. The road development scheme comprises 1.8km of Type 2 single carriageway road; an 83m clear span bridge over the River Moy Special Area of Conservation (SAC); two new culverts over tributaries of the River Moy; local road alignments; and facilities for cyclists and pedestrians.

Developing a bridge solution that minimised impacts on the qualifying interests of the River Moy SAC was a big challenge for the design team. The solution comprises a single span over the River Moy and therefore no in-stream works were required. The bridge is a steel composite beam structure, and its reinforced concrete abutments are set back approximately 10 metres from the river banks. Each beam weighed approximately 250 tonnes.

The main construction contract was awarded to BAM Civil Ltd. in October 2020. On 14<sup>th</sup> and 19<sup>th</sup> October 2021, four 85m long, 3.3m high steel beams for the new bridge were successfully lifted into

place. The lifts were undertaken with the beams in braced pairs using a Liebherr LR 1600/2 Crawler Crane. The braced pairs of steel beams were lifted onto reinforced concrete abutments. The two-day lift marked the achievement of a significant project milestone and was streamed live on Mayo County Council's website. The concrete deck was poured in February 2022.

The existing stone arch bridge, known locally as the 'Old Bridge', is being retained for local access and use by cyclists and pedestrians. This will connect to a new 1km shared surface adjacent to the realigned N26.

The project is being managed by Mayo County Council's National Roads Office (NRO) and funded by Transport Infrastructure Ireland (TII). Having previously acted as consultant engineers for the planning, detailed design and procurement stages of the project, ROD-AECOM is now providing contract administration services for the period of the construction and handover. The project is expected to reach substantial completion in mid 2022.



## N52 Ardee Bypass Part 8 Application Approved

Article by Richard Spencer



Part 8 Planning was granted on 7<sup>th</sup> April 2022 for the N52 Ardee Bypass, which comprises the realignment of approximately 4.5km of the existing N52 to the west of Ardee. The proposed road development includes the provision of 4 new junctions providing access to local roads and will terminate at a multi-lane roundabout on the N2 north of Ardee. A new roundabout will also be provided on the existing N52 at the junction with the realigned Silverhill Road. Two new clear-span bridges will be constructed where the proposed road traverses the Rivers Dee and Garra. The proposed road includes the provision of pedestrian and cycle facilities in the eastern verge between the Silverhill and Mullanstown Roads, including connections and crossing points at each of the roads crossed to optimise provision for these and vulnerable road users.

The project will relieve significant congestion along the existing N52 and N2 through Ardee town, and will improve the operational capacity of the N2. This will facilitate more consistent operating speeds, reduced journey times and improved journey time reliability on the N2, in addition to the benefits to N52 users.

ROD was appointed in early 2020 to undertake a comprehensive review of the N52 Ardee Bypass design, which had been approved by Louth County Council (LCC) in June 2005 under Part 8 of the Planning and Development Regulations. In conjunction with Transport Infrastructure Ireland (TII), LCC decided to conduct a detailed review of the scheme, which considered alternative junction strategies and undertook an appraisal of the options to deliver the optimal solution. ROD have since repeated the option selection, design, and environmental evaluation and planning stages of the project.

Together with a team of specialists that included AECOM, AONA Environmental Consulting, AWN Consulting and Cunnane Stratton Reynolds, ROD undertook site surveys and assessments, which

fed into the preparation of Environmental Impact Assessment (EIA) Screening and Appropriate Assessment (AA) Screening Reports. A determination on the EIA and AA Screening Reports was subsequently sought from An Bord Pleanála. In October 2021, the Board determined that neither an Environmental Impact Assessment Report (EIAR) nor a Natura Impact Statement (NIS) was required. The project was subsequently progressed through Part 8 Planning for a second time.

A detailed Part 8 Planning Report, including a comprehensive assessment of all the environmental factors, was prepared by ROD. Extensive wintering bird and breeding bird surveys were undertaken due to the location of the project in proximity to a number of Natura 2000 and nationally designated sites including Stabannan-Braganstown SPA, Dundalk Bay SPA, Dundalk Bay pNHA and Ardee Bog pNHA. The Part 8 application was accompanied by a site specific Flood Risk Assessment (FRA) that examined the impact the project would have on existing flooding within the vicinity of the project. On 14<sup>th</sup> December 2021, the Part 8 Report was formally published. Submissions from the public were reviewed and the LCC Chief Executive's report was presented to the councillors of the Municipal District of Ardee on the 7<sup>th</sup> April 2022, after which the Part 8 planning application was approved.

While Part 8 planning permission has been granted, a leave application for judicial review was submitted to the High Court by Friends of Ardee Bog, who sought leave on a number of grounds against An Bord Pleanála and the Attorney General following the determination by An Bord Pleanála that an EIAR and NIS were not required for the proposed road development. It remains to be seen if the Applicant will be successful in obtaining leave by the High Court and, if so, what delays may arise in the ultimate delivery of the project.





## West Clare Railway Greenway moves forward

Article by Deirdre Neff



Signing of the Contract for Section 2 of the West Clare Railway Greenway (Ennis to Ennistymon)  
L-R Deirdre Neff (Project Manager, ROD), Carmel Kirby (Director of Services, Transportation, and Executive Manager, Ennis Municipal District, Clare County Council), Eoin Ó Catháin (Project Director, ROD), Senator Róisín Garvey, Cllr. Tony O'Brien (Cathaoirleach of Clare County Council), Shane O'Grady (Executive Engineer, CCC), Pat Dowling (Chief Executive, CCC), Cllr Joe Killeen (West Clare Municipal District), Cllr Clare Collieran-Molloy (Mayor of Ennis), Seán Lenihan (Senior Engineer, CCC), Gráinne Reddan (Senior Executive Engineer, CCC), Flan Garvey (retired councillor, CCC), Gemma Rothwell (Environmental Coordinator, ROD)

In early 2021, ROD was appointed to Section 1 of the West Clare Railway Greenway, between Kilrush and Kilkee. The first public consultation took place in October 2021. A second public consultation was due to take place in early 2022, but it was postponed until early autumn due to the introduction of two important new frameworks for the developments of greenways. The first is a new set of Project Appraisal Guidelines (PAGs) for the assessment of active travel schemes from Transport Infrastructure Ireland (TII). The second is a new Code of Practice (CoP) for engagement with landowners whose land is to be acquired for greenways published by the Government.

The new PAGs provide a robust framework for establishing the costs and benefits of greenways. Informed by the experience of the established greenways in Waterford and Mayo, as well as international case studies, they capture the wide range of community and external benefits derived from such developments. The CoP sets out an agreed framework for engaging with affected landowners and aims to ensure sufficient supports are available to them throughout the route selection, design and assessment phases of the project. To mitigate the disruption and stress associated with compulsory land acquisition, the CoP allows for early payments to be made to landowners who engage with the process.

In related news, we are delighted to report that ROD's tender for Section 2 of the route, between Ennis and Ennistymon, was successful. Our experience on Section 1 will inform our approach to Section 2 and, with the new external guidelines in place, we are hoping the path to planning will be smoother. We are looking forward to working with Clare County Council over the coming months to progress the design and assessment of both Section 1 and 2. It is envisaged that both schemes will be submitted to An Bord Pleanála for approval in 2023.



## Examining the Redevelopment Potential of Dublin Bus Depots

Article by Deirdre Neff

ROD is leading a multidisciplinary design team tasked with assessing the redevelopment potential of Dublin Bus (Bus Átha Cliath) depots around Dublin City. In addition to assessing the operational needs of the existing and proposed bus route network, the study will consider developments that could potentially be accommodated on our client's sites. Accommodating any development around and/or above operational depots represents a key project challenge. The study team includes C.F. Moller as architects, EY as economic advisors, Brady Shipman Marin (BSM) as planning consultants and T&T as cost consultants.

Dublin Bus is Ireland's largest public transport provider. The logistics involved in keeping the city moving are complex, not least because of the significant number of workers involved and the varying demand over the course of the day. Close liaison with the client team has been critical to ensuring the study team has a solid grasp of the operational requirements of the existing depots and that the critical cost components are wholly understood and accurately modelled.

The study involves two parallel work streams: the first involves assessing the development potential of the depots and conducting feasibility studies for two of the nine sites, and the second involves assessing the overall economic performance of the depot and bus route network.

The study will conclude in summer 2022, with the development of a design for next generation depots that reflect our client's changed requirements in terms of storage, operations and fuel types for its future fleet. The critical output of the study will be a determination on whether a change to the existing arrangements is economically justifiable.







## The welcome return of Social Events at ROD

Article by Gemma Rothwell



After two years of Covid restrictions and limits on travel and events, our Social committee sprang back into action in 2022. Social events are important at ROD. They are a great way for us to welcome new staff into the company, to promote ties across teams and departments and, for the remote workers among us, to connect with people and keep abreast of the latest news.

Our first event of the year was a guided tour of the Guinness Storehouse, one of the biggest tourist attractions in Dublin. We learned about the inventor of Guinness beer, Arthur Guinness, who founded the Guinness brewery at St. James' Gate in 1759. We enjoyed great tasting experiences as we made our way through the seven floors of the storehouse, but the highlight was the complimentary pint of the black stuff waiting for us in the Gravity Bar. The rooftop bar offers a 360-degree view that extends from the Dublin mountains to Howth Head and, as night fell, we watched the lights of Dublin's iconic buildings twinkling through a sea of cranes!



In April, the committee organised the return of our ever-popular surf weekend in Lahinch in County Clare. A group of almost 30 staff travelled west, where we were blessed with blue skies, warm sunshine and, of course, Lahinch beach at its best! A surf lesson on the Saturday provided a gentle introduction to surfing for the novices in the group while the remainder of the weekend was spent in the many cafes, restaurants and bars Lahinch has to offer. Everyone agreed that it was the perfect way to escape the hustle and bustle of Dublin, to see the sights of the west coast, and to catch up with colleagues. Some staff even made a detour to the Cliffs of Moher on the way back to the capital!

With the arrival of summer, with its long days and bright evenings, the committee is busy making further plans. The next event on the calendar is the annual ROD Race Night at Leopardstown Racecourse in June.



## ROD-Aecom Alliance Cycle 2022

By Seamus Mac Gearailt



The second annual ROD-AECOM Alliance Cycle took place in late May. For the group of 10 cyclists who assembled in Bantry, the two-day event offered the ideal opportunity to shed memories of lockdown and explore the majestic beauty of the peninsulas of southwest Cork. Day 1 took us on an 80km spin around the Mizen Peninsula from Ballydehob and involved 1,000m of climbing. The toughest part was over the back of Mount Gabriel overlooking Schull. Thankfully, help was on hand from Nick Perrin, Technical Director at AECOM, who drew on his experience of summers spent in the area to guide us along nice, quiet backroads. Despite a strong headwind and the group's varying levels of fitness, we reached Mizen together, ready for a well-earned lunch in the lovely village of Crookhaven. Once we had sampled the delicious local food, resisting the many tempting pit stops along the return leg proved impossible, but we eventually made our way back to Bantry for a pleasant evening in good company.

The next morning we woke to blue skies and a bright day, the perfect conditions for Day 2 of the event. While the more sensible cyclists drove to Durrus, a charming village at the head of the Sheep's Head peninsula, and made it to the starting point for Day 2, two ponies (enthusiasts), who will remain nameless, insisted on starting from Bantry. Day 2 was shorter than Day 1, but it felt more than its 65km because the roads were less well graded, with frequent short, sharp hill climbs. The stunning views and sheer tranquillity of the unspoilt peninsula more than compensated for this however. While half the party took the long road home to Dublin and Belfast on Saturday evening, some of us stayed on to enjoy/endure the Munster v Leinster match in the Anchor Tavern in Bantry.

The event made for a wonderful weekend of cycling, particularly for those whose eyes were opened to the wonders of west Cork. Next year's event will probably move a little further up the west coast as part of our long-term plan to complete the slow exploration from Mizen to Malin over numerous stages. We are looking forward to it already!







# John James Fleming: From Student Intern at ROD to Project Engineer in Canada

As a student, I was lucky enough to spend my summer internships at ROD in 2016 and 2017. The internships formed part of my undergraduate and postgraduate civil engineering studies at University College Dublin (UCD). I learned so much working with Eoin Ó Catháin, Deirdre Neff, Colm Gogan, Liam Kilcullen and Séamus MacGearailt in ROD's urban transportation department. During my first internship, I worked as part of the Resident Engineering team on the construction of New Street, North Lotts, which connects North Wall Quay and Sheriff Street Upper in Dublin's docklands. During my second spell at ROD, I worked in the office on projects involving the feasibility, design, and tendering aspects of engineering.

After completing my master's degree, I decided to emigrate to Vancouver, British Columbia, Canada. Initially, I worked as a barista at a coffee shop/bakery and a construction labourer, but I subsequently found a civil engineering job at David Nairne + Associates Ltd.

David Nairne + Associates Ltd. is an architectural, planning, structural engineering, civil engineering, and project management consulting firm, with approximately 50 staff (three of whom are Irish!). Our clients are predominantly First Nations, a term used to describe indigenous peoples in Canada who are not Metis or Inuit. I have acted as the project engineer on numerous road, wastewater, water, stormwater, and building site servicing jobs ranging from funding request proposal preparation to feasibility and through to construction. My favourite part of the job is carrying out field investigations, inspections, and survey fieldwork. We use a drone to conduct aerial imagery and topographical survey work. In fact, I will shortly be sitting my advanced drone pilot certification through Transport Canada.

I recently earned my Professional Engineer (P.Eng.) license designation with the Association of Professional Engineers and Geoscientists of British Columbia. The designation recognises academic and work experience achievement. As a professional registrant in British Columbia, one is authorised to sign and seal documentation that one believes to uphold the paramount safety of society and the well-being of the environment. The designation is reciprocal and transferable to Ireland through the Mutual Recognition of Registered Licensed Engineers by the Jurisdictions

of Ireland and Canada to Facilitate Mobility Agreement (2009) between Engineers Canada and Engineers Ireland. Project management is a big focus of the engineering industry in Canada. I obtained my Project Management Professional (PMP) accreditation earlier this year.

I live in North Vancouver at the foot of the North Shore Mountains, which are comparable in elevation to Carrauntoohil in Co Kerry. My weekends are spent cycling, hiking, playing rugby, camping, and snowboarding. I plan to return to Dublin this Christmas for my first visit in three years, and I am looking forward to catching up with my friends at ROD.

John James Fleming, P.Eng.



## Meet ROD's newest Technical Director: Anthony Mulligan

BE CEng MIEI Dip Mgt

### Tell us about your experience within the buildings industry

I have been involved in a wide cross section of building projects across Ireland. My experience extends from healthcare facilities to large residential housing and apartment complexes through to commercial and industrial projects of various shapes and sizes.

I recently led a large commercial development project run entirely using Building Information Modelling (BIM). The development comprised a Reinforced concrete (RC) office block, a structural steel multi-storey car park, several steel industrial units, glulam frame construction and precast concrete elements throughout. I also acted as the project lead for the complex civil engineering infrastructure for the same development, requiring the intermingling of an 800mm diameter watermain, a 300mm diameter gas trunk main and a 110kv underground ESB line as well as other more minor services.

### Describe one of your career highlights to date?

I won the Association of Consulting Engineers of Ireland (ACEI) Emerging Professional Engineer of the Year Award in 2015. I was subsequently invited to join the Structures Committee of the ACEI, where I sat at the same table as respected directors of top consultancy firms across Ireland. We discussed industry news, challenges, and trends, and they shared their views and insights. It was a great opportunity for me!

### What is your view of the current buildings market?

At the start of 2020, there was a lot of uncertainty about the impact the COVID-19 pandemic would have on the construction and property market. Initially, clients were hesitant. When the Irish economy proved resilient, even expanding in 2021, there was a discernible bounce as clients rushed to progress projects that had stalled in 2020. The move resulted in an unexpected but notable increase in costs. However, buoyed up by the strength and upward projection of the Irish property market, clients have continued advancing their projects into 2022. For consultancy firms, the knock-on effect of the unexpected surge

in construction activity has been a shortage of resources throughout the industry. This has forced consultancy firms to switch their focus from competing for work to competing for staff.

Looking ahead to the remainder of 2022, I believe that headwinds in the international market are beginning to challenge the swift resurgence of the industry. What direction things will take is, at this stage uncertain, but thankfully, we have enough work in hand at ROD to keep us occupied well into 2023.

### How do you plan to lead the buildings team?

In the short term, my plan is to focus on our relationships with existing clients and design team members; concentrate on delivering projects to a high standard; and expand our network of contacts to ensure we are in a strong position when the current market uncertainty passes. In the medium term, I intend to target one specific sector at a time rather than all of them at once.

### First impressions of ROD?

I am impressed by the technical strength and breadth of experience within the buildings team. My new colleagues' experience extends from healthcare, residential, commercial, and industrial through to Dublin City Centre basement and high-rise. I am also encouraged by ROD's approach to staff retention. In this highly competitive marketplace, ROD is prepared to go to great lengths to support and develop its staff.

### What are your interests outside work?

I am an avid hiker. I have successfully completed many iconic hikes, including Salcantay to Machu Picchu in Peru, the W Circuit in Chile, Mount Fitz Roy in Argentina, the Kepler trek in New Zealand and Eagle's Path in Zakopane in Poland. I recently hiked to the summit of Kilimanjaro in Kenya, achieving a personal record of 6000m altitude. Closer to home, I spend my weekends hiking in the Wicklow mountains, and walk up to two hours every day to keep my fitness levels up and to clear my head after a busy day.





# ROD: Supporting the HSE on its Decarbonisation Journey

Article by Andrew Thomson

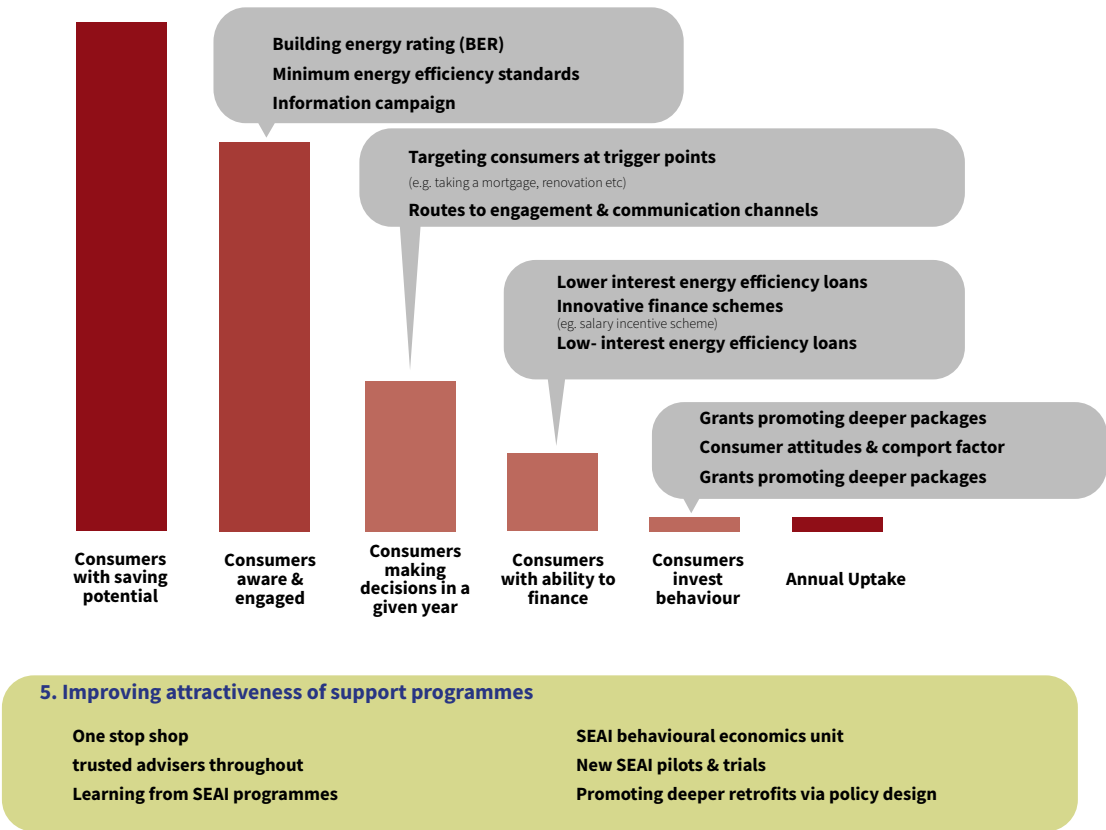


Image courtesy of SEAI Ireland

ROD has been appointed as civil, structural and environmental engineer for three of the Health Service Executive's (HSE) regional decarbonisation pathfinder projects across Ireland, namely HSE South, HSE Dublin North-East and HSE North-West.

In July 2021, the Low Carbon Development (Amendment) Act 2021 was signed into law, committing Ireland to a legally binding target of net-zero greenhouse gas emissions by 2050. In November 2021, the Irish Government launched the Climate Action Plan, which aims to protect Ireland from the consequences of climate change by cutting emissions and creating a cleaner, greener economy and society. The climate plan sets out several decarbonisation targets for the public sector that must be achieved by 2030, including a 50% improvement in energy efficiency, a 50% reduction in energy-related greenhouse gas (GHG) emissions and a requirement that all public buildings must have improved their Building Energy Rating (BER).

The Pathfinder Programme is a key component of the HSE's approach to reaching its decarbonisation targets. The programme is being progressed in partnership with the Sustainable Energy Authority of Ireland (SEAI) at 10 separate sites across Ireland. The sites include acute units, residential, mental health and disability facilities, as well as offices and day services. In addition to identifying design solutions and financial implications, the programme will evaluate appropriate technology options that can support the achievement of its decarbonisation and energy efficiency goals.

The detailed information and learnings from the project will be used to develop a strategy to progress and deliver a larger scale renovation programme across the wider health sector, and in particular the top 150 locations that account for nearly 80% of the health service sector's emissions.



# Refurbishment works at St. Fintan's Hospital, Portlaoise Complete

Article by Kieran O'Riordan



St Fintan's Hospital Portlaoise

The extensive refurbishment and extension project at St. Fintan's Hospital in Portlaoise reached substantial completion in January 2022. The existing building, which first opened as a psychiatric hospital in 1832, is now equipped to deliver 21st century healthcare, while the construction of a two-storey reinforced concrete extension within the existing courtyard has modernised the office and clinical accommodation of the HSE and Child and Family Agency Tusla.

The construction phase of the project began in September 2019, with Kelbuild as the main contractor. One of the key challenges during the construction phase lay in minimising disruption to adjacent hospital activities. This was overcome through close collaboration between the contractor and the design team, led by RKD Architects and including ROD (civil and structural), RPS (M&E), ORS (PSDP and fire), McGahon Surveyors (QS) and Carrig Conservation.

Works included the provision of a new steel frame feature entrance to the hospital, which involved the reconfiguration of supports for masonry vaulted ceilings; provision of a raised pedestrian boulevard, which together with the new entrance, significantly improves the accessibility of the building; a new 52-space car park to relieve parking pressures on the campus; and permeable paving to help discharge storm water in a sustainable manner.

ROD's involvement with St. Fintan's campus is set to continue following our appointment to an RKD-led design team for the refurbishment of the Child and Adolescent Mental Health Services centre on the campus. Stage one of this latter development is currently underway.





# Heather House CNU in Cork City nears Completion

Article Seán Kennedy



Image courtesy of MMD construction

In the Winter 2020 edition of our newsletter, we reported that the HSE had appointed ROD to act as civil and structural designer for a rapid-build residential healthcare facility at Heather House on St Mary's Campus in Cork City. The other members of the project team included MCA Architects; Semple & McKillop Ltd. (M&E); FCC Fire Cert Ltd; and RPS (PSDP), with MMD Construction as contractor. The 60-bed Community Nursing Unit (CNU) was expedited as part of the HSE's COVID-19 emergency works and, despite the challenges associated with the pandemic, was delivered in a little over 18 months from start to finish.

Garbhan O'Brien, Project Manager for HSE South, acknowledged the project team's efforts to ensure the demanding schedule was met, saying: "It's not every project where the design team, contractor and client pull together so effectively and to the extent they have on this

project. What makes this even more special is that this is a project that will undoubtedly go a long way to improving the health service in the North Cork City area."

The building is similar in structure and layout to the HSE's CNU specimen model: part two-storey and part three-storey rectangular building, with a central courtyard and 'doubly-loaded' circulatory corridor servicing rooms either side of the corridor. It will provide both long and short stay residential accommodation for older persons.

Ancillary site works included an extension to the existing vehicular access road and additional car parking spaces. These elements were constructed as Enabling Works, allowing undisturbed access to the existing facility during construction.



# Meakstown Community Centre Progresses to Detailed Design

Article by Kieran O'Riordan



Meakstown Community Centre

Following Part 8 planning approval from Fingal County Council for the Meakstown Community Centre in September 2021, the project team, including Henschion + Reuter Architects, ROD (civil and structural), Hayes Higgins Partnership (M&E), Walsh Associates (QS) and The Planning Partnership, began work on the detailed design. This phase of the project is expected to run until July 2022.

The community/sports centre will extend to approximately 1,000m<sup>2</sup> and will house a sports hall as well as meeting, training and multipurpose activity rooms. The new facilities will provide a meeting place for local residents' groups and will enhance the centre's community-led programmes, particularly those aimed at young people in the area.

As the site of the community centre is located within the footprint of Lanesborough Park and is overlooked on two sides by residential units, the scale and height of the building required careful consideration. A curved geometry and minimal structural depth for the 16m span roof are among the design features developed to soften the impact of the new building profile within its parkland setting. These will be achieved through the adoption of a series of

steel portal frames, with careful examination of the portal frame geometry and the rafter-roof deck interface.

Sustainable drainage systems to offset the impact of the new building have been a cornerstone of our design approach, including a green roof, permeable paving and localised basins in green areas. The presence on the site of a sunken area and a small drainage system posed an interesting challenge for the project team. While the initial proposal was to locate the building away from this area, the presence of a live power cable and an Irish Water trunk main traversing the park ruled this out. The sunken area was potentially acting as an attenuation basin for adjacent residential developments making its removal problematic.

ROD undertook a capacity estimation of a separate existing attenuation feature to the north of the site and developed a solution to divert the displaced volume of storage to it. This allowed the first attenuation feature to be modified to create sufficient space for the building footprint. ROD undertook documentary research of historic and archived planning records and carried out catchment analysis for the surrounding area in support of the proposal.





## Construction of Newtowncunningham Primary Care Centre Completed

Article by Andrew Thomson



Newtowncunningham Primary Care Centre

ROD is pleased to report the completion and handover of the Newtowncunningham Primary Care Centre (PCC) in Co. Donegal. The unit is designed to provide patients with general practice, physiotherapy, occupation therapy, rehabilitation and urgent care facilities in a single location. It was delivered as part of a network of primary care / health centres servicing the Lagan Valley Area Primary Care Team in East Donegal.

Construction began on site in September 2020, with Letterkenny-based McDermott & Trearty Construction Ltd. as the main contractor.

Working closely with our client, the HSE North West, and Peter Tracey Architects, we developed a scheme through the planning, design and tender stages that involved demolishing the existing structure, lowering the building profile to minimise the impact on the surrounding properties and providing a focal point for healthcare in the community.

The building has an overall floor area of approximately 1,000m<sup>2</sup>. Its single storey section to the front steps back to a two-storey zone to the rear of the site. It was constructed with a mixture of traditional blockwork and precast concrete, with structural steel frames incorporated into the building. The use of timber cladding gives a warm, welcoming feel to the building, which complies with Near Zero Energy Buildings (NZEB) in the Energy Performance in Buildings Directive.



## Women's Refuge Centre at Maudlintown goes to Tender

Article by Aoife O'Keeffe



Render provided by OBFA Architects

Following a recent announcement of over €5 million in funding by the Minister for Housing, Local Government and Heritage, Darragh O'Brien, the tender for the Women's Refuge Centre scheme in Maudlintown, Co. Wexford has been issued. The project is being advanced by Wexford Women's Refuge, a support service for women and children experiencing domestic violence. The state-of-the-art facility comprises 12 twin bedrooms, communal kitchen/dining and sitting rooms, and designated staff areas.

The site of the new development was secured with the assistance of Wexford County Council. It is bounded by residential units to the south, St Mary's GAA Club in Maudlintown to the west and commercial properties to the north. A Rape Crisis Centre is located to the north east on the same access road.

ROD is acting as civil and structural engineer on the development. A hybrid structural solution for the principally three-storey structure

has been developed, where precast planks are supported on load bearing masonry in locations and beams where required. All the bedrooms are located to the rear of the building overlooking the gardens. Lateral stability will be achieved using the two cores. Due to the overall length of the structure, an expansion joint is required for movement.

The proposed sustainable urban drainage system (SuDS) features include a combination of source control, site control and regional control measures, which form part of a management train whereby the surface water is managed locally in small sub-catchment rather than being conveyed to and managed in large systems further down the catchment. The SuDS measures proposed include an attenuation tank, permeable paving, raised planters, oversized pipes and green roofs.

Construction is expected to commence before the end of the year.





## Major GI undertaken for DART+ West

Article by Miguel A. Hidalgo



DART+ West is the first phase of the DART+ Programme, which aims to significantly increase capacity on all rail corridors serving the Greater Dublin Area. This part of the programme will electrify the Maynooth Line, which runs from Spencer Dock Station in Dublin city centre to M3 Parkway and Maynooth to the west. It will increase the current passenger capacity of 4,500 per hour to 13,200 per hour when it opens.

ROD is working as a sub-consultant to IDOM on the project. Working together, we have delivered the option selection, and are currently completing the design, Environmental Impact Assessment and Railway Order documentation for the project.

Paul Kissane is leading the Ground Investigation while Miguel Hidalgo is fulfilling the role of resident engineer on the project. Miguel is supervising day and night works, trackside and off-track, and acting as the main point of contact for Iarnród Éireann, GII and IDOM-ROD.

The complexity of the project was apparent from the early stages of scoping. The site investigation, which stretched from Docklands to Kilcock and from Clonsilla to M3 Parkway past Dunboyne, covered approximately 40km of mainline through high-density urban and rural areas. Following a thorough review of the historical information supplied to us by Geological Survey Ireland (GSI) and historical ground investigations provided by city and county councils and Iarnród Éireann, we were able to tailor the scope to focus on the critical areas of the project. The DART+ West GI contract was awarded to Ground Investigations Ireland (GII) in Autumn 2020.

Prior to the commencement of the works, an extensive letter drop

was undertaken to notify residents and businesses in the area of potential disruption. Measures such as noise reducing blankets and limits on the duration of the works were introduced to reduce any negative impacts. The GI works started in December 2020 at daytime trackside locations between Docklands and Glasnevin. Night works began in January 2021 and continued up to March 2022. Trackside investigations consisted of slit trenching and foundation pits to inform the design of service diversions and track lowering at and in the vicinity of bridge structures, along with window samples and dynamic probes at 200m spacing.

GII's geophysical sub-contractor, APEX Geophysics, undertook geophysical surveys along the full length of the project. Ground penetrating radar (GPR), electrical resistivity (ER), seismic refraction (SR) and multichannel analysis of surface waves (MASW) were among the techniques used.

The off-track GI is focused on the major new infrastructure being implemented as part of the project, namely the refurbishment of part of Connolly Station, with substantial works to the underground vaults; construction of a new depot nearby Kilcock; a new station at Docklands; and the construction of several level crossing structures. Securing permission from both city and county councils and Waterways Ireland to complete the GI in the public domain during a busy time of the year and gaining access to private landowner properties were important elements of the ground investigation.

The GI works are expected to be completed in mid 2022.



## Developing the skills to identify sustainable solutions to environmental challenges

Article by Yasmin Hayes



During the final year of my undergraduate degree in environmental management, I undertook some research into environmentally sustainable clothing consumption. This sparked my interest in the economic, social and environmental issues associated with sustainable development. When ROD subsequently offered me the opportunity to undertake a two-year MSc in Sustainable Development at Technological University Dublin (TU Dublin) as part of my Continuous Professional Development (CPD), I grabbed the opportunity with both hands.

TUD's School of Environment and Planning delivers the Master's course and, as such, it is focused primarily on sustainable development in the built environment. My lecturers have worked in professions related to the built environment and combine strong practical and theoretical knowledge of the subject area.

As part of my first year on the programme, I took a broad range of modules, including sustainable transport and mobility and environmental design and management, topics relevant to my role as a graduate environmental consultant at ROD. The sustainable transport and mobility module explored the complexities involved in the development and delivery of sustainable transport systems. It also examined concepts such as mobility as a service and active travel, which are becoming more important in transport planning policy in Ireland. The environmental design module helped me to appreciate how choices made during the design stage of projects can

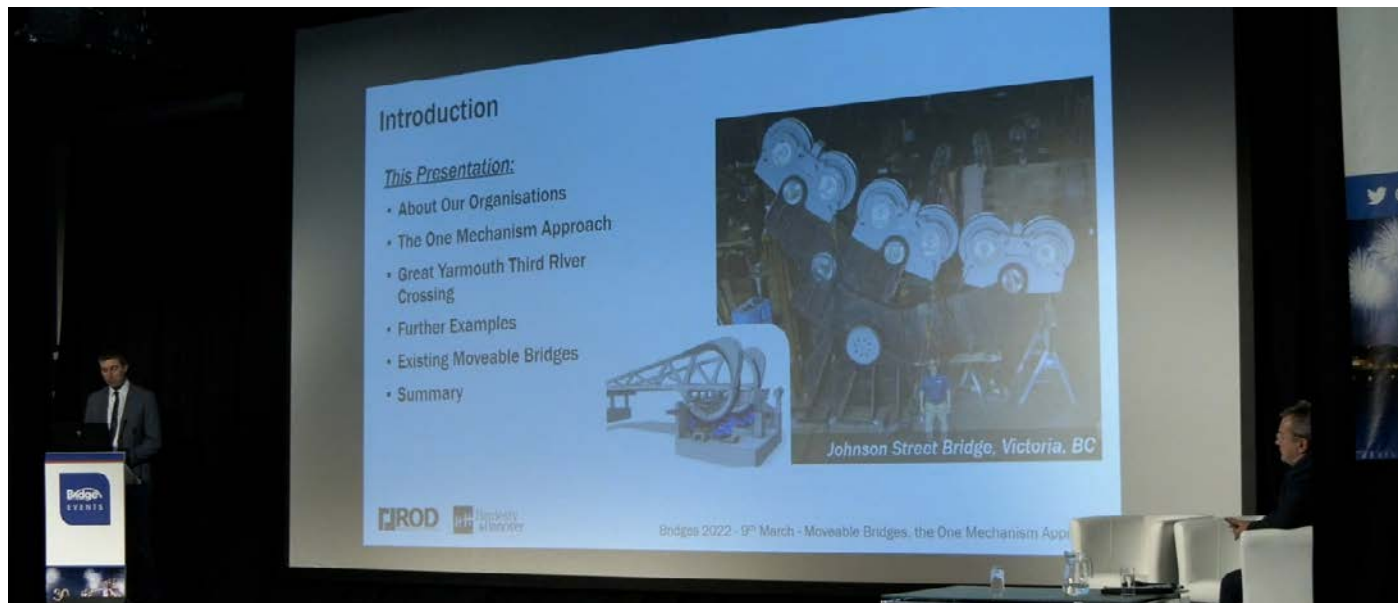
influence the sustainability of a project. It also showed me how the key principles of sustainable design can be implemented in practice.

With year one complete, my next training objective is to join ROD's Environmental Management System (EMS) committee. In fact, as part of the assessment for the Environmental Design module, I was required to create an EMS for an interpretive centre, and I am looking forward to transferring the skills and knowledge I gained from that project over to ROD's EMS.



Dublin School of Environment and planning, image from UCD.ie





## ROD and H&H present at Bridges 2022 conference



Article by John Collins

ROD Associate John Collins and Hardesty & Hanover (H&H) Principal Bridge Engineer Paul van Hagen presented at the 30<sup>th</sup> Bridges conference, which took place in Coventry, on 9<sup>th</sup> March 2022. The event attracted over 400 bridge professionals from across the public and private sectors.

H&H is a US specialist moveable structures consultancy, with whom ROD has a successful working relationship that stretches back over 15 years. During that time, we established a strong reputation for undertaking designs of competitive, constructible, kinetic structures in the UK and Ireland. We are collaborating on several high-profile projects at present, including the Great Yarmouth Third River Crossing in Norfolk and the new Clyde Waterfront Renfrew Riverside double cable-stayed, swing bridge in Scotland.

ROD and H&H's presentation at the conference dovetailed with the opening of H&H's first European office in London in early 2022 and its appointment of a UK-based bridges team. The presentation outlined how our well-honed partnership is emblematic of our approach to designing kinetic structures. Our team uses an integrated design approach, with structural, mechanical, and electrical systems functioning as one, and bridge geometry and systems matched to optimise functionality and long-term durability.

### About the Great Yarmouth Third River Crossing

The Great Yarmouth Third River Crossing is a challenging movable bridge, marine and urban works project, currently under construction. The main feature of the scheme is a 50m clear span, twin bascule bridge providing a new link across the River Yare to ease traffic congestion, reduce journey times and improve journey reliability. Additional features include junctions with the A47 to the west and South Denes Road to the east, dual carriageway approach roads, two single span bridges, reinforced earth pile-supported approach embankments, flood protection works and feature landscaping.

BAM Farrans started construction in 2021 and the works are on track for completion by Spring 2023.

### About the new River Clyde Bridge

The Clyde Crossing is the centrepiece of a major infrastructure project to transform the Clyde waterfront. The 184m double cable-stayed swing bridge will connect Renfrew to Clydebank and Yoker, carrying vehicles, cyclists and pedestrians. The geometry of this elegant and structurally efficient swing bridge allows for cyclist and pedestrian-friendly gradients on the bridge while also providing a significant navigational opening.



Article by John Collins

## Humber Bridge Project recognised at Prestigious Awards Events



Members of the project team including ROD's John Collins (fourth from right) receiving the Smeaton Award certificate of commendation from the ICE president Ed McCann (furthest right) and ICE Yorkshire & Humber Regional Chair Vicky Belton (third from right).

ROD enjoyed a successful evening at the annual Institute of Civil Engineers (ICE) Yorkshire and Humber Awards, which took place in Leeds in March 2022. Together with representatives from Humber Bridge Board, AECOM and ESL, we received a certificate of commendation for our work on the Humber Bridge Rocker Bearing Replacement project. The project was one of nine shortlisted for the Smeaton Award, which recognises projects with a budget of £5 million or under. The winner was the Otley Flood Alleviation scheme.

ROD also entered the project for the Bridges Awards, which took place in March 2022 as part of the annual Bridges conference and exhibition in Coventry, UK. While the project was not among the winners, the judges' praise of the project recognised the challenging nature of the scheme and the technical expertise demonstrated by the project team:

- “A complex operation in a constrained site, and vital for the continued operation of the bridge.”
- “This is a highly complex piece of design to replace a critical component of this major structure, and is a well accomplished piece of work.”
- “This was a very technical piece of work - almost akin to keyhole surgery. Not only extremely complex but also highly

practical in its solution with a number of parties working together.”

- “Good example of practical testing and monitoring to inform the design of a solution. Good to see immediate repairs taking place. Closures kept to a minimum.”

### About the project

The Humber Bridge is a Grade I listed bridge across the River Humber Estuary. It has a main span of 1410m, with a 280m side span on the northern Yorkshire (Hessle) bank and a 530m side span to the southern Lincolnshire (Barton) bank. The structure carries the A15 dual carriageway and two footways on a steel deck box, with most of the bridge's load being transferred up its hangers and into the main suspension cables.

In February 2020, it was noted that the A-frame rocker bearings to the side span at Barton Tower had suffered damage. ROD, together with project partners AECOM and ESL, developed a sympathetic, robust solution that accommodated the bearings large movements, minimised strengthening to the existing structure, simplified installation, and stiffened the inside of the deck box. The solution was designed, manufactured and installed in 10 months.





# ROD-IS News Update

Article by Mark Tucker



Ilaria Bernardini

## INFRAINC

In March 2022, ROD began work on the INFRAINC (INFRAstructure cLimate change risk considering Interdependencies and Cascading hazards) project with Dublin City Council, Irish Rail and OpenEir as consortium partners. The one-year project aims to develop a design for a full-scale study to assess climate change risks for critical infrastructure (CI) in Ireland. It is being funded under Ireland’s Environmental Protection Agency (EPA) Research Programme 2021-2030.

The primary focus of the project is risk calculation. It will examine different types of infrastructure and their interdependencies in terms of both the likelihood and potential consequences of one infrastructure failure on another. The project will also consider



cascading hazards wherein extreme events increase significantly over time and generate unexpected, secondary events of strong impact.

The project will produce an inventory of critical infrastructure and associated climatic-related events; develop cross-sectoral, climate hazard vulnerability assessment recommendations within an Irish context; identify data currently available for use and the minimum data required to perform a climate impact assessment for critical infrastructure in Ireland; formulate a monitoring regime for Irish infrastructure owners to ensure sufficient data is available - allowing for future changes in the scientific environment and climate change; and identify data sharing issues and propose a regime to appropriately consider security concerns of cross-sectoral data usage.

## Sustainable On-water Living Feasibility Study

ROD-IS, in partnership with KPMG Future Analytics (KPMG-FA), recently completed a feasibility study for Waterways Ireland exploring options for implementing a sustainable strategy for houseboats along Grand and Royal Canals. The feasibility study involved an assessment of the current situation in Ireland and used desktop studies and surveys to gain a better understanding of the potential problems associated with a liveaboard strategy and the potential solutions to these problems. Using best international practice operational models as a guide and cost-benefit analysis techniques, a business model was proposed. The model focused on the key areas of pricing, regulation, planning, infrastructure, health and safety, and the environment. Several case study sites in Ireland were examined as potential sample developments for progression, with factors such as infrastructure, ecology, planning, transportation, services and social infrastructure given particular consideration.

## XVI World Winter Service and Road Resilience Congress

In February 2022, ROD-IS Design Engineer, Ilaria Bernardini, presented the findings of our recently completed Bridges and tunnels strikes by oversize vehicles project at the World Road Association’s (PIARC) XVI World Winter Service and Road Resilience Congress. Funded by PIARC, the study identified successful technologies, approaches, and mitigation strategies to address bridge and tunnel strikes.



What’s the perfect job for you?

Ask your five year-old self

**Maryann Nwankwo is a Senior Hydrogeologist at ROD. A Chartered Water and Environmental Manager, a Chartered Environmentalist, and a fellow of the Geological Society of London, she has more than 12 years’ industry experience. Maryann describes how her parents encouraged her childhood passions and influenced her career aspirations.**

I grew up in Benue State, an area in the North Central Region of Nigeria. As children, my siblings and I were creative - a quality we inherited from our parents. My late father earned a degree in Fine and Applied Arts from University of Ife (now Obafemi Awolowo University), and my mother graduated with a BA in Christian Religious Studies from the University of Nigeria. My parents inspired our love of nature by encouraging us to spend the majority our time outdoors, in gardens, parks and orchards. In fact, I think the seeds of my career as a hydrogeologist were sown when, as a five-year-old, I helped my brothers with their plan to dig a swimming pool in our back garden.

It all began when we noticed that a pool of water formed behind our house after every rainfall event. Deciding that this pool should be developed into something useful – a swimming pool - we brought out our digging equipment and set to work. At the time, dewatering did not even come into my mind! We made steady progress and, before long, we had dug up to 0.3 metres below ground level. At that point, we encountered some fine quality clay, which was smooth and malleable due to its elastic property. We quickly abandoned the pool project and began moulding the clay into various objects. Impressed with our initiative, my late father bought us spatulas and, before long, we began to believe we were sculptors.

Then came the idea of building a city on a large, flat, cardboard sheet. We marked out roads and rail lines with a marker, made paper cars, stacked matchboxes into skyscrapers, created a zoo with our plastic animals, built a police station and hospitals from

empty sugar boxes, and created a forest of trees from green paper stuck to the cardboard with glue. We pulled apart everything we could get our hands on and reinvented or reconstructed it for our city. Our imaginative play did not stop there. We wrote stories, acted out our favourite movies, wrote news articles, and mimicked newscasters by recording our readings and replaying them. We played the recorder, the piano, and memorised numbered musical notes. We also mimicked and acted out great wrestling matches.

At bedtime, our mother taught us many well-known poems and told us great stories from around the world, including Arabian and Shakespearean tales. As our appetite for stories grew, our late father bought us books and more books. We come from a culture where folktales are told to the younger generation in the evenings. It is known as ‘tales by moonlight’. Whenever we travelled to our home village in Ohimini LGA of Benue State, my mother’s late paternal and maternal uncles, Ella Odeh and Vincent Edache, would tell us African folktales passed down to them by our ancestors.

One of my brothers, Eddie Adoga, has taken up the challenge of writing these African (idoma) folktales in English. His stories are beautifully illustrated and are available to buy on [www.lulu.com](http://www.lulu.com). My favourites include ‘Ochinji, the spirit rag’ and ‘Elele, Oligu- the hunchback’.

Our experiences as children undoubtedly play a role in shaping the way we think and the career paths we follow. I am grateful to my parents for encouraging my hunger for knowledge, my love of nature, and my creative sensibility – qualities that inform my work at ROD.





# New Recruits 2022



**Jonathan Llywelyn-Jones**  
Bid Manager

Jon joined ROD as a Bid Manager last April. He is based in our Otley office, supporting our management team in securing new contracts in the UK. Prior to joining ROD, he worked for Eurovia, where he was successful in bidding for projects and frameworks across the UK. A keen rugby supporter and an Ospreys rugby season ticket holder, Jon regularly travels to watch the Ospreys and Wales play.



**Richard Wheatley**  
Senior Engineer

Richard joined ROD's water team as a Senior Engineer last January. He has over 15 years' experience in civil engineering design and has worked for consultants, local government and civil engineering contractors. Richard specialises in land appraisal for municipal, commercial and residential schemes. At present he is working on a surface water study for South Dublin County Council and producing technical and flood risk reports for several planning schemes. Richard recently became a Dad and, in the little spare time he has, enjoys snowboarding and the outdoors.



**Sabeel Hussain**  
Structural Engineer

Sabeel joined ROD last spring and is based in our Otley office. He is working with the transportation team on projects, including MCAAS, Narrow Water Bridge and the N2 and N55 Traffic Calming Route Assessments. Sabeel recently graduated with an MEng in Civil and Structural Engineering from the University of Leeds. He wrote his dissertation on sustainable water treatment materials. In his spare time, Sabeel enjoys sports and watching movies.



**Nataliia Shcherbyna**  
Engineer

Nataliia joined ROD last April and is based in our Northwood office in Dublin. A graduate of the National Transport University in Kyiv, Ukraine, Nataliia has over 20 years' experience in civil engineering. Her speciality is bridge design. Prior to joining ROD, Nataliia was involved in two new-lane carriageway steel overpasses in Ukraine. At present, she is working on the Dursey Cableway project. Nataliia's interests include painting and programming.



**Michael Chung**  
Principal Engineer

Michael joined ROD as a Principal Engineer last January. A chartered engineer with over 18 years' experience in highways and transportation, he is working on the Motorway Contracts, Audits and Administration Services (MCAAS) Ireland Region West project at present. Michael has been a professional qualification reviewer for the Chartered Institute of Highways and Transportation (CIHT) since 2015, interviewing over 30 applicants in CEng, IEng, Eng Tech and End Point Assessment. Michael also enjoys sports and travel.



**Bhushan Khirwadkar**  
Senior Geotechnical Engineer

Bhushan joined ROD as a senior geotechnical engineer last March. He is based in our Otley office. Prior to joining ROD, Bhushan spent eight years working on infrastructure projects, including highways and metro rail construction schemes. He specialises in reinforced soil retaining walls, deep foundations and offshore soil investigations. Bhushan undertook his primary degree in MS University in India before graduating with an MSc in Civil Engineering from Swansea University. He enjoys sea-trailing, photography, cooking, music and playing sports, such as badminton, trekking and cycling.



**Robert Hynes**  
Trainee Ecologist

Robert joined ROD as a Trainee Ecologist and GIS Analyst last November. After graduating with a degree in zoology from Trinity College Dublin (TCD) in 2020, Robert undertook an MSc in Wildlife Conservation and Management at University College Dublin (UCD) in 2021. His hobbies include reading, travelling and spending time outdoors.



**Geethu Bennyson**  
Data Analyst

Geethu joined ROD as a Data Analyst last April and is working with our enhancing Motorway Operation Services (eMOS) programme team. She recently graduated with an MSc in Data Analytics from the Technological University of the Shannon (TUS). Her hobbies include painting and dancing. Geethu also enjoys going to concerts.



**Parth Dave**  
ICT Analyst

Parth joined ROD as an ICT Analyst last February. He is working with our IT team in addition to supporting our eMOS programme team on the Network Intelligence and Management System (NIMS) project. Parth holds an MSc in Information Systems with Computing from Dublin Business School (DBS), a BEng in Electronics Engineering from KJSIEIT in Mumbai and a Dip in Electronics and Video Engineering from VES Polytechnic also in Mumbai. In his spare time, he enjoys football, cricket and travel.



**Patrick Harrington**  
Transportation Group

Patrick joined ROD's transportation team last April. He has over 20 years' experience working on highways and rail projects. In his previous roles, Patrick was responsible for writing the design standards for the UK Design Manual for Roads and Bridges Specification for Highway Works 1500 series, and worked as a design manager delivering multidisciplinary projects for Network Rail. More recently, he worked on managed motorway infrastructure projects and was involved in the fibre city builds for the gigabit city rollout. In his spare time, Patrick enjoys playing squash, cooking and playing golf, but not at the same time!



**Srijith Unni**  
Data Analyst

Srijith joined ROD as a Data Analyst last April. He is working with our eMOS programme team. Prior to joining ROD, Srijith spent five years working as an Enterprise Resource Planning (ERP) Analyst in India and Ireland. He holds a Master's in Data Analytics from Dublin City University (DCU). In his spare time, Srijith enjoys a good session of music on the guitar and watching sports, particularly football and Formula 1.







**Dominic Geoghegan**  
Structural Engineer

Structural Engineer Dominic Geoghegan joined ROD's buildings team last March. A graduate of TU Dublin Bolton Street (formerly DIT), Dominic has over 20 years' experience in Irish design consultancies. His hobbies include reading, chess, gardening, documentaries and hill walking.



**Chris Fitzsimons**  
HR Administrator

Chris joined ROD as a HR Administrator last March. He holds a Diploma in Human Resource Management (HRM) from National College of Ireland (NCI) and a Master's in Organisational Psychology from University College Cork (UCC). Prior to joining ROD, Chris worked in recruitment, HR and international teaching. In his spare time, he enjoys running, boxing, reading and travelling.



**Lisa Dunne**  
Change Management  
Consultant

Lisa joined ROD as a Change Management Coordinator last April. Her background is in finance and HR. Prior to joining ROD, Lisa was an office manager with AECOM, where she worked for 21 years. A qualified neuromuscular therapist, she has been involved with the League of Ireland for many years. Lisa loves to travel and has recently returned from a trip to Canada. In her spare time, she enjoys walking, gym and pilates.



**Rachel O'Neill**  
Student Intern

Rachel joined ROD in June as a student intern. She will be working with the buildings team this summer has just completed her first year of college, studying engineering. in UCD and she hopes to use her time here to help her choose a specialty for the 22/23 academic year. In her spare time, she enjoys reading, playing guitar, spending time with friends, and swimming in the sea.



**Clodagh Rea**  
Student Intern

Clodagh joined ROD at the end of May as a student intern. She will be working with the transportation team this summer and is looking forward to the opportunity to gain experience. Clodagh has just completed a BSc in Civil Engineering in University College Dublin (UCD) and will be starting her ME in Civil, Structural and Environmental Engineering this September. In her spare time she enjoys travelling, cooking, being outdoors with her dog and watching sports, especially rugby.



**Ian Bradshaw**  
eMOS

Ian joined ROD's enhancing Motorway Operation Services (eMOS) team last January. As a senior ITS engineer, his role involves assisting the ITS project team with the integration of TII's new and existing ITS equipment into the NIMS (Network Intelligence Management System) platform. Ian has over 12 years' experience in the IT and ITS industries, overseeing new network design and the deployment of software integrations on various sized projects in Africa, Asia, Europe and the US. In his spare time, he enjoys playing golf.



**Aoife O'Sullivan**  
Student Intern

Aoife joined ROD as a student intern in May. She is working with our transportation team for the summer. Aoife is studying at TCD and plans to specialise in civil, structural and environmental engineering in the 2022/2023 academic year. She grew up in County Monaghan and in her spare time enjoys reading, watching GAA, playing Gaelic football and coaching underage teams.



## Five minutes with Emily Alfred

### Why did you decide to become a civil engineer?

It is next to impossible for 18-year-olds to know what type of work they want to do for the rest of their lives, but civil engineering seemed a good fit for me because, as a child, I loved playing with Lego, was fond of maths and was prone to critical/analytical thinking. I also wanted to travel and gain international experience, so the flexibility a career in engineering offers - in terms of where in the world you can work, the variety of industries you can work in, and the office or site-based working options - appealed to me.

### When did you graduate?

I graduated with a degree in civil engineering from Atlantic Technological University (formerly GMT) in 2010. I subsequently went to Edinburgh Napier University, where I gained an MEng in Civil and Transportation Engineering. After completing my studies, I began my career with an SME wind turbine installer in Edinburgh before joining Transport Scotland, where I worked on several major infrastructure projects in the transportation sector from design/conception to completion.

### What is your role in ROD?

After working abroad for 10 years, I returned to Ireland in 2020 to take up the position of senior resident engineer on site on the Coonagh to Knockalisheen Distributor Road project in Limerick. The road development comprises a 2.2km new urban dual carriageway, improvements to side roads and two road over railway bridges.

### What has been your career highlight to date?

I was fortunate to secure a position on the Queensferry Crossing site, just north of Edinburgh, in 2015. It was exciting to be part of the project team involved in building the longest three-tower, cable-stayed bridge in the world. Approximately 1,200 people were employed on the project.

I have the project to thank for helping me to overcome my motion sickness and fear of heights because in addition to having to take a boat to work every day, my role required me to work on the top of the 207m high reinforced concrete towers. Some days, the view from the top was above the clouds!

### What professional accomplishment are you most proud of?

Five years after graduating with my master's degree, I became a chartered member of the Institution of Civil Engineers (ICE). My varied experience in the design, construction, and management of major infrastructure projects across different industries was pivotal to my achieving chartership.

### Are there many women working on construction sites?

Construction is undoubtedly a male-dominated sector. A report published by the Construction Industry Federation in 2018 found that only 5.5% of the workforce across all construction-related sectors are women and of those working on or as part of a construction site team, only 1% are women.

I think the industry needs to do more to, firstly encourage women to study science, technology, engineering and maths (STEM) subjects in school, secondly to promote participation in construction-related courses and finally to demonstrate that construction sites are attractive workplaces for everyone – regardless of gender.

### What are your interests outside of work?

I play the fiddle and Gaelic Football with my local club, but my real passion is hiking. During my time in Scotland, I successfully scaled 35 'munros' (Scottish mountains over 3,000 feet). My latest mission is to climb the 13 highest peaks in Ireland (those over 3000 feet). With three complete, I have just 10 to go!





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