

Appendix A Compliance with Construction Regulations Designer Duties





A	Project Title and No: 22407 - Galway BusConnects: Dublin Road	Contract Title (if applicable): N/A	Reference / Date: BCGDR-BTL-ZZ-ZZ-DO-HS-00003 Nov. 2024
В	Designer Company: Barry Transportation (Egis)	Design Manager: John Nolan	Design Leads: Alignment – James Grant Earthworks – Deirdre O'Hara Structures – Willie Lalor Utilities – Sean O'Leary Drainage – John Halpin Signs/Lines – Tristan Dunne
С	Design discipline(s) addressed by this document:		
	Preliminary design of geometry/road layout, drainage, signage, road markings, landscaping.		

Item	Design safety co-operation between and co-ordination with other designers [Reg 15 (2)(b) Const Regs 2013]				
	Note design discipline(s) with which safety co- operation and co-ordination has been undertaken:Note how co-ordination was undertaken (workshops, meetings, e-mail, other – please specify):Note dates of design safety co-ordination workshops, meetings or other means of co-ordination:				
1.1	Earthworks, Structures, Utilities, Drainage, Signs/Lines	Meetings throughout design development	-		



PART 1 – PROVISION OF INFORMATION TO THE PSDP

[Record of information provided in writing to PSDP Reg 15 (1)(b) and 15 (3)(a, b and d) Const Regs 2013]

ltem	Information to be provided to the PSDP		
2.1	All information known to the designer on the nature and scope of the design prepared for the project:		
	The BusConnects Galway: Dublin Road project is a planned continuous corridor of high-quality public transport, pedestrian and cycling facilities running along the length of the R338 Dublin Road. This 3.9km route, running from east of the Moneenageisha Junction to the Doughiska Junction to, will be adjacent to the Atlantic Technological University, Merlin Park Hospital, Bon Secours Hospital as well as schools and other amenities. The overall scope of the project is summarised as: The construction of dedicated public transport and active travel lanes along the entire length; The construction and upgrade of all junctions and accesses prioritising sustainable transport and improve active travel safety; Site Clearance; Boundary Treatments and Accommodation Works; Drainage; Structures; Earthworks; Pavements, Kerbs, Footways and Paved Areas; Trafic Signs and Road Markings; Public Lighting ; Intelligent Transport Systems; Landscaping and Environmental Mitigation; and Utilities and Diversions.		



Item	Information to be provided to the PSDP		
2.2	Design assumptions made by the designer:		
	 Earthworks It is assumed, non-exhaustively, that: The Contactor is a competent construction specialist, capable of carrying out the excavation, deposition, and compaction works while maintaining a safe system of work and a safe working environment. The Contractor is sufficiently competent, or engages a competent specialist, to monitor the rock mass of rock cuts during excavation. The results of the ground investigation and the survey information, including the topographical mapping, existing utilities mapping, and other ancillary information provided is accurate within reason for its use informing design 		
	 Structures It is assumed, non-exhaustively, that: The Contactor is a competent construction specialist, capable of carrying out the construction of standard structures. That Contractor will engage to all relevant service providers before construction and will agree all required procedures before starting construction works on site. 		
	Utilities Assumed that the gas main will be decommissioned prior to the commencement of construction.		
	Drainage Existing services such as gas and electricity will have been relocated or decommissioned before drainage works commence. The area in the region of the attenuation tanks is free of Karst.		
	 Signage / Line Markings It is assumed, non-exhaustively, that: The Contractor is sufficiently competent, or engages a competent specialist, to install signage and road markings to the supplier's specifications and requirements for safe system functionality. The survey information, the topographical mapping, existing utilities mapping, and other ancillary information provided is accurate within reason for its use informing design. 		



 The Contactor is a competent construction specialist, capable of carrying out the works while maintaining a safe system of work and a safe working environment.
 The development boundary fencing is all acceptable. The development Site Clearance has removed hazards from the clear zone
All information necessary to ensure the safe construction of the design prepared by the designer:
Construction Compound
As part of preparatory works, a Construction Compound will be set up which will include installation of the necessary facilities including the site office, welfare facilities, etc. Controlled access to the Construction Compound will be implemented, fencing will be erected, and lighting will be installed. The Construction Compound will be secured with Closed-Circuit Television (CCTV), where necessary, to ensure safe storage of all material, plant, and equipment.
Earthworks The proposed attenuation tank is expected to be founded on weathered and karstified limestone bedrock. A karst features protocol, shall be applied at this structure.
Structures
 Retaining Wall -Certain site-specific constraints have been considered in the design as follows: Construction near existing utilities. The appointed contractor will have to engage the operator prior to construction and agree all relevant construction procedures such as construction methodology, RAM's etc. Temporary works if required to construct the retaining wall will need to be designed by the contractor. A safety barrier with a appropriate containment level in accordance with DN-REQ-03034 shall be provided in the eastbound verge of the mainline along the retaining wall to protect against the hazard presented by live traffic.



ltem	Information to be provided to the PSDP
	Traffic
	To carry out staged works safely, traffic management will be implemented, by means of narrowing the existing lanes carrying public transport and general traffic to 3.0m. A lateral safety zone will be implemented between the carriageway and the works area, with an appropriate safe distance as per Table 8.2.2.2 of the Traffic Signs Manual.
	Where footpaths or cycle facilities are affected by construction, a safe route will be provided past the works area, and where practicable, provisions for matching existing facilities for pedestrians and cyclists will be made. Where this is not practicable, pedestrians will be directed to use the footpath the opposite side of the road, crossing at controlled crossing points.
	Some existing bus stop locations will need to be temporarily relocated to accommodate the works. In such cases, temporary bus stops will be safely accessible to all users and all temporary impacts on bus services will be determined in consultation with the NTA and the service providers.
	<u>Utilities</u> The position of chambers will be designed to be away from carriageways, cycle tracks, and tactile paving. It is important when positioning chambers that they can be accessed in a safe manner, without the need for extensive traffic, bicycle and pedestrian management.
	Apparatus will be designed and located to allow for easy access and the safe maintenance of the proposed development into the future. This will include:
	 Use of retention sockets, where applicable, for the erection of Traffic Signals, Above Ground Detection, and other equipment mounting poles to allow for the ease of installation, maintenance and replacement;
	 The use of lightweight equipment poles, where appropriate, such as cantilever signal poles. Consideration will be given to the selection of products that allow for maintenance activities to be undertaken from ground level, such as tilt down poles or poles with wind-down mechanisms; Placement of poles and retention sockets within 7m of chambers to provide ease of installation and replacement of cables;
	 Locating chambers away from pedestrian desire lines, and areas of tactile paving. This is to provide for a reduced impact of Traffic Management:
	 On longitudinal duct runs, chambers to be placed at appropriate centres to allow for the ease of installation and replacement of cables; Safe areas to be provided for the access and parking of maintenance vehicles; and
	• Locating controller, and other, cabinets in positions that allow for safe access and clear visibility of the operation of the junction.



ltem	Information to be provided to the PSDP		
2.4	All information about the project known to the designer regarding particular risks to the safety, health and welfare of persons at work:		
	Particular risk.	Identify where on the project and how the particular risk arises.	Record any information about the project known to the designer regarding particular risks to the safety, health and welfare of persons at work.
2.4.1	Work where the risk is particularly aggravated by the nature of the work or processes used or by the environment at the place of work or construction site which puts persons at work at risk of		
2.4.1(a)	- falling from a height	Earthworks Falling from a height is a risk in areas of the development where earthworks will result in a change of existing ground level (both fill and cut, and areas where soft/ loose ground will be excavated). Utilities Trench excavations for various utility diversions. Drainage Falling from height is a risk where deep stormwater drainage is required and at Attenuation Tanks	The drainage has been designed to have as shallow depth as possible. Particularly relevant to construction of the attenuation tanks.



ltem	Information to be provided to the PSDP			
2.4.1(b)	- burial under earth-falls	Earthworks Earthfalls (including rock falls) are an inherent risk associated with cut and fill (earthworks).	Also relevant to construction of the attenuation tanks.	
2.4.1(c)	- engulfment in swampland	<u>N/A</u>	N/A	
2.4.2	Work which puts persons at work at risk from chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a statutory requirement for health monitoring.	N/A	N/A	
2.4.3	Work with ionising radiation requiring the designation of controlled or supervised areas as defined in Directive 96/29/Euratom4.	<u>N/A</u>	<u>N/A</u>	
2.4.4	Work near high voltage power lines.	<u>Utilities</u> There are multiple sections of ESB networks that require diversions along the route with relocation of poles and mini pillars required. Table 10-2 of the Preliminary Design Report outlines several potential diversions for ESB services, and these are illustrated on drawing series BCGDR-BTL-UTL_UE- ZZ-DR-CU-00001 to 00011.	The locations and details of the existing utilities located along the site have been described in detail.	
2.4.5	Work exposing persons at work to the risk of drowning.	Earthworks Earthworks relating to both areas of cut and excavation of soft spots are expected to interact with the groundwater table in locations along the development. If		



ltem	Information to be provided to the PSDP			
		workers were to fall into excavations where water infiltration had occurred and not been drained or pumped away, there could be a potential risk of drowning.		
2.4.6	Work on wells, underground earthworks and tunnels.	N/A	<u>N/A</u>	
2.4.7	Work carried out by divers at work having a system of air supply.	<u>N/A</u>	<u>N/A</u>	
2.4.8	Work carried out in a caisson with a compressed-air atmosphere.	<u>N/A</u>	<u>N/A</u>	
2.4.9	Work involving the use of explosives.	<u>N/A</u>	<u>N/A</u>	
2.4.10	Work involving the assembly or dismantling of heavy prefabricated components.	Structures Retaining wall may be constructed using prefabricated components.		
		Drainage Construction and installation of attenuation tanks / pumping stations involve the assembly of heavy prefabricated components.		
2.4.11	Work involving interaction with traffic.	Traffic Management Construction traffic is an inherent risk during the construction phase due to the increased road traffic and the general size of vehicles and their low speeds and limited turning radius. The construction stage affects the overall mobility along the proposed site.	The design has been developed while being fully aware of the existing vehicular traffic along the site as well as the surrounding transport infrastructure. Sufficient investigation has been made on the surrounding environment and construction management has been considered to increase general awareness of construction activities by	



ltem	Information to be provided to the PSDP		
			means of adequate signage and lining. Additionally, accommodation measures will be put in place to accommodate both vehicular traffic and active travel movements throughout the construction stage with the construction activities to be designed to be as unintrusive as possible.
		Earthworks Construction shall involve realignment of existing roads, and associated earthworks.	
		<u>Structures</u> Working beside life traffic.	
		<u>Utilities</u> Connections to existing utility network will occur near live traffic.	
2.4.12	Work adjacent to railway tracks.	<u>N/A</u>	<u>N/A</u>
2.4.13	Work in the vicinity of gas mains or installations	Gas main in the vicinity of ATU.	Further GPR survey and slit trenching to be undertaken.
2.4.14	Work on or adjacent to pressure mains.	<u>Utilities</u> There are five sections of watermains requiring diversions along the route. Table 10-3 of the Preliminary Design Report the diversions for watermain services, and these are illustrated on drawing series BCGDR-BTL-	



ltem	Information to be provided to the PSDP		
		UTL_UW-ZZ-DR-CU-00001 to 00011.	
2.4.15	Works in confined spaces.	Structures Construction of pumping stations.	
2.4.16	Works involving significant demolition.	Structures Demolition of two buildings at the Woodland Campus site.	Refer to section 5.5.2.9 of the EIAR.
2.4.17	Works involving significant risk of fire.	N/A	<u>N/A</u>
2.4.18	Works involving interaction with the public.	Earthworks Construction shall involve work on existing roads, including pavements, which is unavoidable and may result in interaction with the public. Utilities Utility works shall involve work on existing roads, including pavements, which is unavoidable and may result in interaction with the public.	
2.4.19	Other.	<u>N/A</u>	<u>N/A</u>



PART 2 – DESIGNER ACTIONS TAKEN TO REDUCE RISK OVER LIFETIME OF DESIGNED WORKS

[Record of taking account of the general principles of prevention, safety plan and safety file – Reg 15 (1)(a)(i) and (ii) Const Regs 2013]

General Principles of Prevention. [Safety, Health and Welfare at Work Act 2005 - Schedule 3]

- 1. The avoidance of risks.
- 2. The evaluation of unavoidable risks.
- 3. The combating of risks at source.
- 4. The adaptation of work to the individual, especially as regards the design of places of work, the choice of work equipment and the choice of systems of work, with a view, in particular, to alleviating monotonous work and work at a predetermined work rate and to reducing the effect of this work on health.
- 5. The adaptation of the place of work to technical progress.
- 6. The replacement of dangerous articles, substances or systems of work by safe or less dangerous articles, substances or systems of work.
- 7. The giving of priority to collective protective measures over individual protective measures.
- 8. The development of an adequate prevention policy in relation to safety, health and welfare at work, which takes account of technology, organisation of work, working conditions, social factors and the influence of factors related to the working environment.
- 9. The giving of appropriate training and instructions to employees.

Item	CONSTRUCTION activity or condition	Hazard which may cause injury or illness	Record how the general principles of prevention [see list above] and any relevant safety plan or safety file have been taken into account by the designer.	Provide conclusions drawn on taking account of the general principles of prevention and any relevant safety plan or safety file. Record whether designer actions have eliminated or reduced risk or if the risk remains unchanged where the designer is unable to take mitigating action.
3.1	Earthworks	Work near High- Voltage Power Lines	Works are required in hazard zones of ESB overhead services. This is unavoidable as the Works must fit within the Lands Made Available by the Client while providing a safe alignment.	Risk reduced as Contractor is provided with information regarding risk areas and can amend their procedures accordingly.



		Falling from a Height.	Works are required in areas of fill and cut. This is unavoidable. The design is such that standard construction methods and safe systems of work can be employed. Temporary works design will be required for access to excavations, with safe access and egress.	Risk reduced. These risks cannot be completely eliminated by design and are transferred to the PSCS.
		Work involving interaction with traffic.	Works involving realignment of existing roads are unavoidable. The design is such that standard construction methods and safe systems of work can be employed, including implementation of suitable temporary traffic management measures.	Risk reduced. These risks cannot be completely eliminated by design and are transferred to the PSCS.
		Works involving interaction with the public	Limited interaction with the public is expected and shall largely result from temporary traffic management measures. Standard safe systems of work can be employed.	Risk reduced. These risks cannot be completely eliminated by design and are transferred to the PSCS.
3.2	Structures			
	Lifting Operations	Collapse of crane, uncontrolled release of load, death, injury, damage to property.	Lifting of heavy equipment cannot be eliminated. The use of precast units eliminates other significant hazards but introduces the need for craneage.	Risk arising from use of lifting equipment cannot be eliminated by the designer and remains to be addressed by the PSCS/Contractor.
	Delivery, storage, handling of construction materials.	Collapse, toppling of element. Injury, death damage to property, damage to environment.	The coordination and training of onsite staff to ensure suitable personnel and site preparation is undertaken to ensure that risk is reduced.	Risk associated with handling construction equipment cannot be eliminated entirely but can be managed and reduced by the contractor's safety measures and occupational health, safety, environmental and quality controls.
	Site Movements	Working near high voltage power lines, traffic lights, live traffic and the public.	All available information on existing utilities along the site has been recorded on relevant drawings. ESB has been contacted and all relevant information is provided in the Utility	The contractor will be fully made aware of the location of any high risk locations and will prepare traffic accommodations to ensure safe



			Drawings. Any work to be done inside the hazard zone will need a request for height clearance from ESBN inside this hazard zone.	work zones as to reduce any impact on the public and risk associated with high risk zones.
3.3	Diversion and installation of utilities	Working near live overhead and underground electric cables.	Works are required in hazard zones of ESB overhead services. This is unavoidable as the Works must fit within the Lands Made. The ESB were consulted throughout the design period and proposals have been agreed with them. Working height restrictions will be adhered to.	Risk reduced by increasing awareness
		Working near gas mains	N/A	
		Working near gas distribution mains	Gas Networks Ireland has been consulted throughout the design period for the diversion of the distribution mains throughout the site. The gas connections will be carried out by GNI.	It is considered that these risks should be capable of safe management and control by a competent Contractor using safe systems of work and the appropriate levels of resources and equipment.
3.4	Installation of drainage	Work involving the assembly or dismantling of heavy prefabricated components.	Construction and installation of attenuation tanks, pumping stations, etc involve the assembly of heavy prefabricated components.	The risk has been minimised as far as possible. Residual risk to be managed by the PSCS. While overall excavations on the specific site are considered to be shallow.
3.5	Traffic Management	Risk due to inadequate housekeeping and site management.	It is considered that these risks should be capable of safe management and control by a competent Contractor using safe systems of work and the appropriate levels of resources and equipment. Site personnel are to be competent and trained, so as to avoid hazards on site. Access to works areas to be cordoned off and warning signs erected. Site	The Contractor shall put measures in place to ensure that members of the public i.e. public vehicles, pedestrians and cyclists do not come into contact with the works. Detailed control measures are to be developed by the Contractor to mitigate all risks to health and safety, including a planned sequence of work, and issue of suitable PPE to project personnel



	security measures to be designed accordingly.	

Item	OPERATION/USE activity or condition	Hazard which may cause injury or illness	Record how the general principles of prevention [see list above] and any relevant safety plan or safety file have been taken into account by the designer.	Provide conclusions drawn on taking account of the general principles of prevention and any relevant safety plan or safety file. Record whether designer actions have eliminated or reduced risk or if the risk remains unchanged where the designer is unable to take mitigating action.
4.1	N/A			

Item	MAINTENANCE activity or condition	Hazard which may cause injury or illness	Record how the general principles of prevention [see list above] and any relevant safety plan or safety file have been taken into account by the designer.	Provide conclusions drawn on taking account of the general principles of prevention and any relevant safety plan or safety file. Record whether designer actions have eliminated or reduced risk or if the risk remains unchanged where the designer is unable to take mitigating action.
5.1	Drainage	Risk of drowning or contracting hypothermia	Permanent palisade fencing to be provided along tank perimeters and where required, construction of timber post and rail fence, or similar along deep open ditches. A suitable access track and access gate is provided to the tank for machinery to access	Risk reduced. Maintenance personnel to be fully trained when carrying out maintenance works. Risk reduced. Residual risk to be managed by the maintenance team
			and exit the attenuation tank safely.	



COMPLIANCE WITH CONSTRUCTION REGULATIONS DESIGNER DUTIES

Item	End of design life DEMOLITION activity or condition	Hazard which may cause injury or illness	Record how the general principles of prevention [see list above] and any relevant safety plan or safety file have been taken into account by the designer.	Provide conclusions drawn on taking account of the general principles of prevention and any relevant safety plan or safety file. Record whether designer actions have eliminated or reduced risk or if the risk remains unchanged where the designer is unable to take mitigating action.
6.1	Traffic management/ working adjacent to live traffic: Interface with public on road /beside structures/retaining wall/VMS/CCTV	Vehicle collisions	The design is such that standard construction methods and safe systems of work can be employed, including implementation of suitable temporary traffic management measures to minimise risk of impact on the public.	Adequate traffic accommodation will be established by the appointed contractor and maintained throughout the construction to ensure that impact on the surrounding transport infrastructure and mobility is minimised
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PART 3 – PROVISION OF INFORMATION TO THE PSDP

[Record of information provided in writing to PSDP Reg 15 (1)(b) and 15 (3)(c) Const Regs 2013]

ltem	Information necessary for preparation of the safety file
	Note significant residual risks remaining for operation or maintenance of or alteration to designed works after completion of construction
8.1	N/A
8.2	
8.3	