Appendix A
Designer's Risk Assessment

DESIGN HAZARD ELIMINATION AND RISK REDUCTION REGISTER (ROI)

Latest Review Date	

Phase	
C	Construction
M	Maintain / Clean
U	Use as Workplace
D	Demolish

Project Name:	Upgrade Programme – Package B
Project Number:	32110901
Design Package:	Bray Scheme: Preliminary Design
Client:	National Transport Authority

Probability	Worst Potential Severity (WPS) of Impact	Risk Rating
1: Highly Unlikely 2: Unlikely 3: Possible 4: Likely 5: Highly Likely	1: Nil or slight injury / illness, property damage or environmental issue. 2: Minor injury / illness, property damage or environmental issue. 3: Moderate injury or illness, property damage or environmental issue. 4: Major injury or illness, property damage or environmental issue. 5: Fatal or long term disabling injury or illness. Significant property damage or environmental issue. 10. Multiple fatalities and catastrophic event	NOTE: The purpose of Risk Rating is to determine which risks are significant. It is a subjective assessment and not an absolute or precise determination

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Risk ID.	Formal Review Description	Phase	Particular or Non-Particular Risk (if applicable)	Activity	Potential Hazard	Person(s) Most at Risk	Prob	WPS	Initial Risk Rating	Discipline	Design Measures to Eliminate Hazards	Design Measures to Reduce Risk	Residual Prob	Residual WPS	Residual Risk Rating	Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date	Revised Target Date	Date Action Complete	Tracker Status	Comments	Column1
H1	5: Design Stage Review	U	13. Interaction with traffic	Cyclist interaction with traffic at junctions (Schemewide)	Collisions between vehilces and cyclist	Public	4	4	16	Civil / Structural	None	Juncton designs to include cycle tracks. Cycle width increased.	3	3	9	Risk is human behaviour, and dependent on whether cyclist / drivers obey trraffic rules, such as traffic signals	BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	PDF / RS / GM	18-Nov-20		18-Nov-20	CLOSED		
H2	5: Design Stage Review	U	13. Interaction with traffic	Online Cycle Lanes (Schemewide)	Collisions between vehilces and cyclist	Public	4	4	16	Civil / Structural	Convert cycle lanes to offline cycle tracks where feasible	None	4	4	16	Residual risk of limited areas with online cycle lanes. Risk is human behaviour, and dependent on whether cyclist / drivers obey traffic rules,	BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	PDF / RS / GM	18-Nov-20		18-Nov-20	CLOSED		
H3	5: Design Stage Review	U	13. Interaction with traffic	Bus Stops inline (without laybys) (Schemewide) -	Collisions between buses at bus stops	Public	3	4	12	Civil / Structural	None	Inline Bus Stop locations assessed on suitability and minimised in the Design. Particulatly located in City centre where traffic is slow	3	4	12	Risk is human behaviour, and dependent on whether drivers slow down suffieciently when they approach bus stops.								
H4	5: Design Stage Review	C	13. Interaction with traffic	Construction activities (road lanes, cycle track) adjacent to live traffic (Schemewide)	Being struck by a passing vehicle/ cyclists	Staff	3	4	12	Civil / Structural	Divert traffic during construction where possible.	The Construction strategy and traffic management approach is not to close road/ divert traffic keep the road live..Designate sufficient temporary site boundaries ,Provide an adequately sized buffer around the working area to limit how close vehicles can ge to construction staff. Maximise use of off site fabrication to minimise time spend on road	3	3	9								Contractor expected to prepare Method Statement to address risk	
H5	5: Design Stage Review	U	13. Interaction with traffic	Pedestrian alighting buses (Schemewide)	Pedestrians been hit by cyclist	Public	4	3	12	Civil / Structural	None	Narrow cycle tracks approaching bus stops and providing a landing zones for passengers alighting buses	2	2	4	Risk is human behaviour, and dependent on whether cyclist / drivers obey trraffic rules, such as traffic signals	BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	PDF / RS / GM	18-Nov-20		18-Nov-20	CLOSED		
H6	5: Design Stage Review	U	13. Interaction with traffic	Cycle lanes share online with Bus lanes (Schemewide)	Collision between cyclist / buses	Public	4	4	16	Civil / Structural	Designed separate lanes for buses and cylcists		4	4	16		BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	PDF / RS / GM	18-Nov-20		18-Nov-20	CLOSED		
H7	5: Design Stage Review		13. Interaction with traffic	Maintanance of grass central reserve (Schemewide)	Crossing live lanes near the maintainance works.	Maintenance	3	4	12	Civil / Structural	Maintenance Contractor's Method Statement expected to address issue.		3	4	12								Maintenance Contractor expected to prepare Method Statement to address risk	
H11	5: Design Stage Review	C	6. Work near high-voltage power lines	St Laurence's Subway (around chainage A 6700)	Utilities strike in median due to widening works	Staff	3	5	15	Civil / Structural	Structure widened to negate median works.		1	1	1	Residual risk of stricking utilities during construction and diversion	BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001 BCIDB-JAC-STR_GA-0013_XX_00-DR-SS-9001	PDF / RS / GM	18-Nov-20		18-Nov-20	CLOSED	Construction Contractor expected to prepare Method Statement to address risk	
H13	5: Design Stage Review	C	6. Work near high-voltage power lines	Overhead Power Line (Schemewide) -	Utilities strike during construction activities -	Staff	3	5	15	Civil / Structural	Contractor's Method Statements expected to address risk.		3	5	15	None							Contractor expected to prepare Method Statement to address risk	
H14	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall at Stonebridge road (around chainage A 14800), where there is a major difference in level between road and school ground	Buried under earthfalls / unsupported earthwork slopes	Staff	3	4	12	Civil / Structural	Contractor's Method Statements expected to address risk.	Earthworks to be dug back at a 1:1 slope during wall construction and then to be filled in once complete to prevent toppling earth.	3	4	12	None							Contractor expected to prepare Method Statement to address risk	
H15	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining walls (approx. 100m long in total) along the mainline, opposite Upper Dargle	Buried under earthfalls / unsupported earthwork slopes	Staff	3	4	12	Civil / Structural	Contractor's Method Statements expected to address risk.	Earthworks to be dug back at a 1:1 slope during wall construction and then to be filled in once complete to prevent toppling earth.	3	4	12	None							Contractor expected to prepare Method Statement to address risk	
H16	5: Design Stage Review	C	18. Significant demolition	Demolising boundary walls where road widening is proposed (Schemewide)	Crushed / buried under construction debris	Staff	3	4	12	Civil / Structural	Contractor's Method Statements expected to address risk.	Designate sufficient temporary site boundaries ,Provide an adequately sized buffer around the working area to limit how close vehicles/ cyclists/ pedestrians can ge to construction staff.	3	4	12	None							Contractor expected to prepare Method Statement to address risk	
H17	5: Design Stage Review	C	4. Chemical or biological substances	Demolition of existing Heritage cottage at North end of Bray (around A 17500)	Asbestos	Staff	3	5	15	Civil / Structural	Contractor's Method Statements expected to address risk.	None	3	5	15								Contractor expected to prepare Method Statement to address risk	
H18	5: Design Stage Review	C	4. Chemical or biological substances	Construction of road through the exisitng Petrol Station forecourt at north Bray (around Chainage A17850)	Constructions works on top of existing petrol tanks	Staff	3	5	15	Civil / Structural	Contractor's Method Statements expected to address risk.	None	3	5	15	None							Contractor expected to prepare Method Statement to address risk	

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H19	5: Design Stage Review	C	20. Interaction with the public	Work is to be undertaken in areas of high pedestrian flow.	An interaction with an aggressive member of the public may lead to violence towards site staff.	Construction	2	3	6	Civil / Structural		Create a secure working area to prevent interface with the public.NTA to provide public with information on the scheme so the public do not raise their concerns with site staff.	1	3	3									
H20	5: Design Stage Review	U	13. Interaction with traffic	Vehicles entering the mainline.	Visibility splay clashes with boundary wall, existing buildings.	Public	4	2	8	Civil / Structural	Take additional land to widen visibility envelope.	Provide appropriate warning signage for any such areas	1	2	2	In some areas with retained alignment, existing boundary walls and buildings are not to be removed and visibility splays considered acceptable.	Any relations on visibility has been Recorded in Departures, Deviations and Relaxations Tracker.							
H21	5: Design Stage Review	U	20. Interaction with the public	New junction layouts along scheme. (Wilford Roundabout conversion to junction)	Driver confusion may cause collisions	Public	3	3	9	Transport/Traffic		Information on the new junctions to be published ahead of completion, and temporary signage identifying new junction layouts.	1	3	3									
T1	5: Design Stage Review	C	1. Falling from height	Installaton of new traffic signal equipment, including gantry signals	Falling from height	Construction	3	4	12	Transport/Traffic	Limit overhead gantries only to locations where lower signal equipment cannot be accomodated	Provide NAL sockets or similar to support easier installation	2	3	6								Contractor and maintenance operative training for singal installation	
T2	5: Design Stage Review	C	8. Wells, underground earthworks & tunnels.	Working with trenches for signal ducting	Open trenches trap or otherwise impede operatives	Construction	2	3	6	Transport/Traffic	Align signal ducting to share trenches with other utilities		2	2	4								Contractor and maintenance operative training	
T3	5: Design Stage Review	M	13. Interaction with traffic	Maintaining signal equipment close to live traffc	Operative struck by live traffic	Maintenance	3	3	9	Transport/Traffic	Traffic islands to be big enough to provide a safe distance from running traffic.	Suitable clearance of all signal equipment from live carriageway. Ensure parking for maintenance vehicles in vicinity of each signal site	2	2	4	Some traffic islands could be smaller can post risk. Carry maintenance works during less busy traffic period								
ST1	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 45m long in total) along the mainline adjacent to Oatlands College northbound bus stop (chainage A 6+195) where there is a major difference in level between existing road and adjacent ground	Buried under earthfalls / unsupported earthwork slopes	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST2	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 15m long in total) along the mainline adjacent to Shrewsbury Lawn southbound bus stop (chainage A 11+820) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST3	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 50m long in total) along the mainline adjacent to Rathmichael National School (chainage A 14+700) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST4	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 35m long in total) along Stonebridge Road adjacent to Rathmichael National School (chainage E 0+10) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST5	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 40m long in total) along the mainline opposite Rathmichael National School (chainage A 14+750) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST6	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 180m long in total) along the mainline south of Stonebridge Road (chainage A 14+800) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST7	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 130m long in total) along the mainline between Olcovar & Crinken Lane (chainage A 15+880) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)

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ST8	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 55m long in total) along the mainline north of Woodbrook Downs (chainage A 16+785) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST9	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 40m long in total) along the mainline by the Woodbrook Golf Club entrance (chainage A 17+040) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST10	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 100m long in total) along the mainline opposite Woodbrook College (chainage A 17+190) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST11	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 45m long in total) along the mainline north of Upper Dargle Road (chainage A 18+085) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST12	5: Design Stage Review	C	2. Burial under earthfalls	Construction of retaining wall (approx. 40m long in total) along the mainline south of Upper Dargle Road (chainage A 18+190) where there is a major difference in level between existing road and adjacent ground	Collapse of walls or collapse of temporary slopes.	Construction	3	5	15	Civil / Structural	Avoid the need for modification or construction of retaining structures via highway alignment . Not possible to design out the wall	Allow sufficient space with site extents to accommodate 1:1.5 temporary slopes for construction of retaining walls	2	5	10	None. Obvious risk to a competent contractor	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
ST13	5: Design Stage Review	C	6. Work near high-voltage power lines	Realignment of carriageway median (St Laurence Subway)	Electrocution / loss of service	Construction	4	5	20	Civil / Structural	Avoid directly impacting asset. Confirm location via site investigations prior to commencement of works	Asset to be isolated and protected prior to construction. Co-ordinate with the asset owner	2	5	10	Contractor to be explicitly made aware of risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST14	5: Design Stage Review	C	4. Chemical or biological substances	Impregnation of concrete (Scheme wide)	Hydrophobic Pore liner is often toxic substance	Construction	4	3	12	Civil / Structural	None.	None. Transport Infrastructure Ireland requirement for surface impregnation of all exposed concrete	4	3	12	Application of impregnation material to be carried out in accordance with CC-SPW-02000 section 3.	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST15	5: Design Stage Review	M	1. Falling from height	Inspection and maintenance of retaining walls (scheme wide)	Falling over edge of wall.	Maintenance	3	4	12	Civil / Structural	None. Maintenance on walls is a requirement of the asset owner.	Introduction of safety barriers along top of wall sized to suit function. Provide adequate access around structure to facilitate maintenance activities	1	4	4	None. Obvious risk to a competent contractor . Covered by Contractors Method Statement to address risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST16	5: Design Stage Review	C	2. Burial under earthfalls	Construction of new wing walls (St Laurence Subway)	Instability of existing carriageway during works	Construction	2	4	8	Civil / Structural	Retain existing wall during construction to provide support during works and partially demolish when new retaining structure in place.	Ensure excavation in front of wall does not extend below existing foundations. Monitor movement during works	1	4	4	None. Obvious risk to a competent contractor . Covered by Contractors Method Statement to address risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST17	5: Design Stage Review	C	Not Applicable	Manual Handling (Scheme wide)	Risk of musculoskeletal injuries from heavy lifting or repetitive tasks at low level.	Construction	4	3	12	Civil / Structural	Maximise use of off site fabrication to limit work required on site and take advantage of plant assisted works.	None. Some manual handling is required on site	2	3	6	None. Obvious risk to a competent contractor . Covered by Contractors Method Statement to address risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST18	5: Design Stage Review	C	12. Assembly or dismantling of heavy prefabricated components	Lifting operations for precast retaining wall elements (Scheme wide)	Clash with overhead utilities. Suspended load striking operatives	Construction	3	4	12	Civil / Structural	Avoid precast elements where overhead utilities pose significant risk.	None. Construction of precast elements will require lifting operations.	2	4	8	None. Obvious risk to a competent contractor . Covered by Contractors Method Statement to address risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST19	5: Design Stage Review	C	Not Applicable	Excavation and replacement of fill (Loughlinstown Roundabout)	Catastrophic collapse of existing wall in residential area.	Public	3	5	15	Civil / Structural	Construction works to avoid need for heavy plant.	Minimise the required earthworks. Highlight residual risk to contractor on design information,	2	5	10	None. Obvious risk to a competent contractor . Covered by Contractors Method Statement to address risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST20	5: Design Stage Review	C	13. Interaction with traffic	Installation of VRS and Regrading of slope (St Columcille)	Construction plant impacting footbridge	Public	3	5	15	Civil / Structural	None. Proposed work needs to be undertaken	Highlight risk to contractor. Minimise required work under bridge	1	5	5	None. Obvious risk to a competent contractor . Covered by Contractors Method Statement to address risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST21	5: Design Stage Review	C	20. Interaction with the public	Construction of Retaining wall (Rathmichael nation school)	Proximity of works to school with potential interaction with children	Students/Pupils	3	4	12	Civil / Structural	None. Proposed work needs to be undertaken	Minimise use of heavy plant and favour solutions with quicker construction programme to limit interaction with public/ childeren	1	4	4	None. Obvious risk to a competent contractor . Covered by Contractors Method Statement to address risk	N/A						The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	2013 Const Regs (PSDP)
ST22	5: Design Stage Review	U	13. Interaction with traffic	Movement of traffic lanes closer to parapet (UCD Flyover)	Vehicular Collison with existing substandard parapet	Public	3	5	15	Civil / Structural	Deisgn has progressed such that the proposed arrangement is not more onerous than the existing. Deisgn has eliminated this hazard	Risk removed via design changes.	1	5	5	Risk eliminated.	N/A						Closed	2013 Const Regs (PSDP)
UR1	5: Design Stage Review	U	13. Interaction with traffic	Trees in central medians (Schemewide)	Trees potentially growing too big for space and roots breaking up paving/road kerbs. Possible deadwood coming free and creating hazardous debris in highway	Public	3	3	9	Architect	None	Select species suitable for width of median, or propose only shrubs rather than trees.	2	3	6	Some deadwood fall may still be present - maintence is essential								
UR2	5: Design Stage Review	C	13. Interaction with traffic	Planting adjacent to highway (Schemewide)	Collision between vehicles and operatives	Operations	3	4	12	Architect	Contractors Method Statements to address the risk	Rolling lane closures to reduce risk of collision between opertatives and vehicles during planting works. Correct PPE	2	4	8	Risk of vehicle collision							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
UR3	5: Design Stage Review	M	13. Interaction with traffic	Maintaining planting adjacent to highways (Schemewide)	Collision between vehicles and maintence operatives	Maintenance	3	4	12	Architect	Contractors Method Statements to address the risk	Rolling lane closures to reduce risk of collision between opertatives and vehicles during maintence works. Correct PPE	2	4	8	Risk of vehicle collision							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	

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UR4	5: Design Stage Review	C	7. Exposure to drowning	Works adjacent to open water (Canal at Lesson St Lower and Bray Bridge area)	Slips trips and falls - potential drowning	Operations	2	3	6	Architect	Contractors Method Statements to address the risk	Appropriate PPE and H&S briefings - contractors method statement	2	2	4								The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
UR5	5: Design Stage Review	C	8. Wells, underground earthworks & tunnels.	Excavations for tree pits (Schemewide)	Open trenches trap or otherwise impede operatives	Operations	2	3	6	Architect	Contractors Method Statements to address the risk	None	2	2	4								The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
UR6	5: Design Stage Review	C	6. Work near high-voltage power lines	Excavations for tree pits (Schemewide)	Utilities strike during construction activities	Operations	3	5	15	Architect	Contractors Method Statements to address the risk	Review location of utilites when designing planting schemes. Choosing appropriate species/planting types to minimise impact on utilities.	2	5	10								The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
UR7	5: Design Stage Review	C	6. Work near high-voltage power lines	Overhead Power Line (Schemewide) _	Utilities strike during construction activities	Operations	3	5	15	Architect	Contractors Method Statements to address the risk	None	2	5	10								The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
UR8	5: Design Stage Review	U	20. Interaction with the public	Existing mature tree roots lifting and breaking paving/kerbs (Schemewide)	Slips Trips and Falls	Public	4	2	8	Architect	Suitable tree pit design to bridge existing tree roots and eliminate existing problem. Arboricultural works to manage tree and improve tree health	None	1	2	2	Low possibilty of some limited root lifting of paving								
D1	5: Design Stage Review	U	7. Exposure to drowning	Creation of new ponds and Swales giving rise to deep water when in operation	Risk of drowning	Public	3	5	15	Civil / Structural	Use of tree pits, filter drains and source measures to reduce pond/swale size	Shallow slopes applied to ponds/Swales to reduce likelihood of fall. Pond depths typically designed for 0.3m water to reduce risk of drowning	1	5	5	Risk of drowning cannot be fully eliminated as ponds/swales remain							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
D2	5: Design Stage Review	C	2. Burial under earthfalls	Deep excavation of road to install and connect new gullies.	Risk of excavation collapse, burial	Construction	3	5	15	Civil / Structural	Design standard has been adjusted to remove requirement for gulley replacement where existing kerb lines are retained	Combined side/surface entry gulley proposed to reduce frequency and number of connections/excavations	2	5	10	Risk remains as new gulley still need to be installed							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
D3	5: Design Stage Review	C	2. Burial under earthfalls	Creation of new ponds and Swales giving rise to deep water when in operation	Risk of excavation collapse, burial	Construction	3	5	15	Civil / Structural	Use of tree pits, filter drains and source measures to reduce pond/swale size/need	Shallow slopes applied to ponds/Swales to reduce excavation depth.	1	5	5	Risk of excavation collapse cannot be fully eliminated as ponds/swales remain							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
D4	5: Design Stage Review	C	7. Exposure to drowning	Failure of drainage due to intense storms before it is operational	Risk of flooding	Construction	4	4	16	Civil / Structural	Design standard has sought to minimise extent of new drainage works although hazard cannot be eliminated due to requirement for work	Design standard has sought to minimise extent of new drainage works although risk cannot be reduced due to requirement for work	4	4	16	Risk remains as drainage works are inherent works requirement							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
D5	5: Design Stage Review	C	Not Applicable	Servaice strike during excvataion/installation of new drainage infrstruture	Service strike	Construction	5	5	25	Civil / Structural	Design standard has minimised extent of new drainage works e.g. none required where kerb lines retained and no change in impermeable area	Full assessment of other services carried out with clash detction during design process	5	3	15	Risk remains, full GPR survey required to further reduce risk							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
D6	5: Design Stage Review	C	Not Applicable	Failure of brick or other sewers during connection by new works	Sewer collapse and failure, burial	Construction	3	5	15	Civil / Structural	Cannot be eliminated at this stage, cooenctions to existing sewer network required for functional drainage system	Cannot be reduced at this stage, connections to existing drainage system required	3	5	15	Risk remains, condition survey of existing sewers should be completed to ascertain existing condition. Contractor's Method Statement to cover the Risk							The contractor needs to consider and mitigate against this risk by the development and implementation of Method Statement and RAMS.	
D6	5: Design Stage Review	U	Not Applicable	Operation of road drainage network and treatment	Polution incident due to failure of drainage interceptors	Public	3	4	12	Civil / Structural	Cannot be eliminated, use of vehicles on highway and outfalls to surface water network/streams required	SuDS measures include passive treatment inc sediment filtration which have a very probability of failure	3	3	9	Requirement for interceptors which could fail remains as insufficient space allowed for full SuDS measures								
G1	5: Design Stage Review	C	Not Applicable	Construction of retaining walls	Foundation insufficient bearing capacity for structure.	Construction	3	5	15	Civil / Structural	None.	Design ground investigation to confirm ground conditions at each structure prior to detailed design and construction.	1	5	5	None. Obvious risk to a competent designer and contractor	N/A							
G2	5: Design Stage Review	C	Not Applicable	Construction of St Laurence Subway structure.	Foundation insufficient bearing capacity for structure.	Construction	3	4	12	Civil / Structural	None.	Design and carry out ground investigation to east of subway to confirm ground conditions are consistent with west of subway prior to detailed design and construction.	1	5	5	None. Obvious risk to a competent Earthworks designer and contractor	N/A							
G3	5: Design Stage Review	U	Not Applicable	UCD Flyover Bridge - Confirmation of load changes	Foundation insufficient bearing capacity for change in eccentric loading.	Public	3	5	15	Civil / Structural	None.	Design and carry out foundation investigation to confirm geotechnical properties of founding strata and assess bearing capacity based on changes in eccentric loading.	1	5	5	None. Obvious risk to a competent Earthworks designer and contractor								
G4	5: Design Stage Review	C	Not Applicable	Loughlinstown Roundabout carriageway widening	Retaining wall unable to withstand increase in lateral loads.	Construction	3	5	15	Civil / Structural	Design self-supporting fill to avoid imposign increased lateral loads on retaining wall.	Carry out investigation to confirm details of structure and foundation to clarify design parameters.	1	5	5	None. Obvious risk to a competent Earthworks designer and contractor								
G5	5: Design Stage Review		Not Applicable	Ground investigation design prior to design fix	GI design no longer applicable due to changes in alignment and structure locations.	Construction	4	4	16	Civil / Structural	Complete GI design only once route alignment and structure locations are confirmed.	Design GI for all possible structutral options if investigations to be completed prior to design fix.	1	4	4	None. Obvious risk to a competent Earthworks designer and contractor								
G6	5: Design Stage Review		Not Applicable	Design and construction of structural foundations	Unanticipated thicknesses of made ground at structure foundations	Construction	3	4	12	Civil / Structural	Design ground investigation to determine the charachteristics of founding strata at each structure location and determine the extents of any made ground.	Design remediation of areas of unanticipated made ground.	1	4	4	None. Obvious risk to a competent Earthworks designer and contractor								
G7	5: Design Stage Review		Not Applicable	Design and construction of structural foundations	Excess settlement of structures due to low strength founding strata.	Operations	3	5	15	Civil / Structural	None.	Design ground investigation to confirm ground conditions at each structure prior to detailed design and construction.	1	4	4	None. Obvious risk to a competent Earthworks designer and contractor								

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G8	5: Design Stage Review		2. Burial under earthfalls	Construction of replacement retaining walls	Failure in retention of material behind existing retaining wall on demolition for replacement wall construction.	Construction	2	5	10	Civil / Structural	None.	Design ground investigation to determine the properties of the retained material to enable a suitable temporary works design for the replacement of the wall.	1	4	4	None. Obvious risk to a competent Earthworks designer and contractor								
G9	5: Design Stage Review		Not Applicable	Construction of structural foundations	Inundation of excavations for structural foundations due to high groundwater table	Construction	3	5	15	Civil / Structural	None.	Design ground investigation and groundwater monitoring to determine groundwater regime at location of structures.	1	4	4	None. Obvious risk to a competent Earthworks designer and contractor								
G10	5: Design Stage Review		Not Applicable	Construction of structural foundations	Striking utilities assets	Construction	2	5	10	Civil / Structural	None.	Design to determine location of any utilities in the vicinity of the structures foundations and provide information	1	5	5	None. Obvious risk to a competent Earthworks designer and contractor								
UT1	5: Design Stage Review	C	1. Falling from height	Excavation of trenches, pits, chambers and manholes for utility installations.	Potential to fall from ground level into open excavation. Potential to fall from structure during construction of structure.	Construction	4	5	20	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	5	15	Falling from height							Typical risk on construction site that needs to be mitigated and managed by the contractor.	2013 Const Regs (PSDP)
UT2	5: Design Stage Review	C	2. Burial under earthfalls	Excavation of trenches, pits, chambers and manholes for utility installations.	Excavation, installation and backfilling of deep pipes. Even shallow excavations can result in trench collapse so it is important to never be complacent. Installation / Maintenance of pipes and manholes in the areas of high water table .	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	Burial under earth fall. Engulfment due to trench or slope collapse.							Typical risk on construction site that needs to be mitigated and managed by the contractor. Including the development of suitable temporary works.	2013 Const Regs (PSDP)
UT3	5: Design Stage Review	C	4. Chemical or biological substances	Working to complete the cut-in and connections to the existing sewer main. Working on existing sewer manhole lids and chambers.	The biological hazard associated with working on sewer infrastructure incl. the toxic gases that can be found in sewers.	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of and work with the existing sewerage network has been reduced as far as possible.	Existing sewers will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	4. Chemical or biological substances							Typical risk on construction site that needs to be mitigated and managed by the contractor.	2013 Const Regs (PSDP)
UT4	5: Design Stage Review	C	6. Work near high-voltage power lines	Excavation in proximity to High voltage underground lines. Working under existing overhead high voltage lines.	Electrocution by coming in contact with high voltage conductors by service strike or contact with overhead lines.	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	Electrocution by coming in contact with high voltage conductors by service strike or contact with overhead lines.							The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
UT5	5: Design Stage Review	C	12. Assembly or dismantling of heavy prefabricated components	Working adjacent to existing structures, including retaining structures. Possible use of precast chambers if proposed by the contractor. Heavy watermain pipe e.g. 450mm DI.	Being crushed or entrapped by heavy object. Manual handling injury.	Construction	4	5	20	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	5	15	Being crushed or entrapped by heavy object. Manual handling injury.							The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
UT6	5: Design Stage Review	C	13. Interaction with traffic	Working in the vicinity of live traffic at all interfaces of the works. There is also the interaction with construction traffic throughout the site.	Operative being struck by vehicle. Pedestrian being struck by plant of vehicle.	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	Operative being struck by vehicle. Pedestrian being struck by plant of vehicle.							The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
UT7	5: Design Stage Review	C	15. Vicinity of gas mains or installations	Excavation of trenches, pits, chambers and manholes for utility installations.	Service strike on live gas main	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	Service strike on live gas main							The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
UT8	5: Design Stage Review	C	16. On or adjacent to pressure mains	Excavation in the vicinity of public utilities, watermains, gas main, sewer rising main.	Service strike on live gas main, water main, rising sewer main.	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	Service strike on live gas main, water main, rising sewer main.							The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
UT9	5: Design Stage Review	C	17. Confined spaces	Manhole and chamber entry as required. Deep Trench excavation.	Engulfment by hazardous gases.	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	Engulfment by hazardous gases.							The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
UT10	5: Design Stage Review	C	20. Interaction with the public	All Service Installations along live areas and at interface points will involve exposure of the public to work areas and vehicles.	Member of the public coming in contact with a work vehicle or entering the worksite.	Construction	4	10	40	Civil / Structural	It has not been possible to completely eliminate the identified hazard. Diversion of existing utilities and work with the existing sewerage network has been avoided where possible. All utility provider & survey information will be supplied to the contractor.	Existing utilities will be retained in situ and protection details will be installed where this is technically acceptable by the service provider. This therefore reduces the quantity of work of this nature.	3	10	30	Member of the public coming in contact with a work vehicle or entering the worksite.							The contractor needs to consider and mitigate against this risk by the development and implementation of a RAMS.	2013 Const Regs (PSDP)
P1	5: Design Stage Review	C	4. Chemical or biological substances	Deep excavation or full depth replacment of pavement	Encounter tar bound materials. Contamination to watercourse	Public	3	3	9	Civil / Structural	Detailed pavement investigation surveys will be carried out to identify environmental issues and reduce risk. Do not disturb where possible / if removal is necessary, transport to EPA approved controlled waste site	Design highway alignment to leave tar in place, avoiding full depth pavement construction where possible	1	1	1	If tar left in place. Residual hazard to future mainatenance / highway improvement requiring full depth construction.	Referred to in the Preliminary Design Report: BCIDB-JAC-PMG_PD-0013_XX_00-RP-ZZ-0001	**David Fanthorpe**	30-Oct-20		30-Oct-20	CLOSED		
P2	5: Design Stage Review	C	4. Chemical or biological substances	Unidentified environmental impact	Encounter asbestos or chemical substances	Operations	1	10	10	Civil / Structural	Detailed pavement investigation surveys will be carried out to identify environmental issues and reduce risk. Do not disturb where possible / if removal is necessary, strictly follow EPA guidance	Design highway alignment to leave in place and undisturbed. Avoid full depth pavement construction where possible	1	1	1	If left in place. Residual hazard to future mainatenance / highway improvement requiring full depth construction.	Referred to in the Preliminary Design Report: BCIDB-JAC-PMG_PD-0013_XX_00-RP-ZZ-0001						
P3	5: Design Stage Review	C	Not Applicable	Service strikes during excavation	Service strike	Operations	3	5	15	Civil / Structural	Carry out a full GPR survey at next stage	Minimise depth of construction through pavement design	2	5	10	risk remains								

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P4	5: Design Stage Review	C	Not Applicable	Visually assements of pavement and not based on structural surfaces. No core surveys taken	Unexpected breaking of pavement	Public	3	3	9	Civil / Structural	Carry out a full GPR survey at next stage		3	3	9	risk remains								
SD1	5: Design Stage Review	C	13. Interaction with traffic	Road crossings	Potential for pedestrian/traffic conflict if tactile pavings are not installed correctly.	Public	3	5	15	Civil / Structural	Design of tactile pavings is as per standards	None	1	5	5		Design tactiles as per preliminary design report BCIDB-JAC-PMG_PD-0013_XX_00-RP-ZZ-0001, currently not provided on drawings BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	Ensure tactile paving are implemented correctly on site						
SD2	5: Design Stage Review	C	13. Interaction with traffic	Toucan crossings	Potential for cyclist/pedestrian conflict when toucan crossings are designed as shared spaces. In some cases there be reasons to mix pedestrians and cyclists at toucan crossings, but this should be by exception and only where separating peds and cyclists at the crossing will cause more confusion / potential conflict	Public	3	3	9	Civil / Structural	Where space is sufficient, design toucan crossings to have separated space for pedestrians and cyclists. This has been applied on some crossings where feasible and justifiable	Separating the cyclist and pedestrian areas at these shared crossings has not been considered at all these locations. Where space is insufficient or where there it is clearer to users to mix cycles and peds (for example if already mixed on approach to the crossing), provide reasoning in the preliminary design report as to why cyclist and pedestrian crossings are not separated.	1	3	3		Drawings BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	**CA**	11-Dec-21				CLOSED		
SD3	5: Design Stage Review	C	13. Interaction with traffic	Bus stops - shared landing stops	Potentially shared landing bus stops are being used where there are high volumes of passengers, leading to higher chance of cyclist/pedestrian conflict.	Public	4	3	12	Civil / Structural	Carry out and provide assessment of cyclist and passenger numbers at locations where shared landing stops are used - particularly in the city end of the scheme	Move bus stop to enable more landing space if passenger numbers are high. This has been applied whereever possible to increase the landing space. In locations where it cant be achieved provided sufficient signage and road markings.	2	3	6	Residual risk such bus stops with high volumes of passesnges and shared landing in particualar city centre.	Project design guidance and drawings BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	**CA**	11-Dec-21				In locations where it cant be achieved provided sufficient signage and road markings in detail design stage	
SD4	5: Design Stage Review	C	13. Interaction with traffic	Bus stops - shared landing stops	Landing space of 0.75m is not enough for a wheelchair if there is a cyclist on the cycle track already.	Public	4	3	12	Civil / Structural	Where there's space, provide a wider landing zone so that wheelchair users are protected from the cycle lane	None	3	3	9	Residual risk of areas where shared landing is 0.75m	Project design guidance and drawings BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	**CA**	11-Dec-21				In locations where it cant be achieved provided sufficient signage and road markings in detail design stage	
SD5	5: Design Stage Review	C	13. Interaction with traffic	Bus stops - general	Landing space may not be long enough for the numbers of buses arriving at the bus stop, leading to buses letting passenger on/off at the cycle lane.	Public	4	3	12	Civil / Structural	Prohibit buses from opening their doors unless they are in line with the landing area.	Carry out and provide assessment of bus arrival rates and dwell times at bus stops to confirm length of landing area is appropriate - particularly in the city end of the scheme Extend landing area if bus stop is in a high frequency area.	2	3	6		Project design guidance and drawings BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	**CA**	11-Dec-21				It should be specifically prohibited by Dublin Bus and other bus providers for buses to open their doors when they are not in line with the landing area of a bus stop.	
SD6	5: Design Stage Review	C	13. Interaction with traffic	Bus stops - island stops	Bus stop shelter location creates potential conflict between cyclists and pedestrians by creating a blind spot for cyclists	Public	4	3	12	Civil / Structural	Where possible, locate bus shelter to minimise obstruction to cyclists visibility line. Min clear space has been provided in the FP at the shelter location	In locations where clear space is tight, provide appropriate warning signs	3	3	9		Project design guidance and drawings BCIDB-JAC-GEO_GA-0013_XX_00-DR-CR-9001	**CA**	11-Dec-21					
H19	5: Design Stage Review	C	20. Interaction with the public	Schools (Colaiste Eoin, St Anne School	Member of the public / school students coming in contact with a work vehicle or entering the worksite.	Public	4	4	16	Civil / Structural	Create a secure working area to prevent interface with the school / public.	NTA to provide public with information on the scheme so the public do not raise their concerns with site staff.	3	3	9	Risk remains.								
W001	5: Design Stage Review	C	13. Interaction with traffic	Site Access	Working near a live road carriage	Staff	3	4	12	Architect		Defined access route,Site H&S training and installing of correct safety barriers and hoading.	2	3	6	Yes		**Client & Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W002	5: Design Stage Review	C	Not Applicable	Site Clearance and Site Excavation	Buried Services	Construction	4	5	20	Architect	Contractor to carry out full site survey prior to site work commitment		1	5	5	No		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W003	5: Design Stage Review	D	4. Chemical or biological substances	Site Present	Contact with Hazardous material	Construction	3	4	12	Architect		Site H&S training and site indication	2	4	8	Yes		**Client & Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W004	5: Design Stage Review	C	Not Applicable	Site Present	Environmental conditions-inclement weather	Construction	4	3	12	Architect	Welfare facility's as per code regulations and codes . works to only proceed in the correct weather Conditions		1	3	3	No		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W005	5: Design Stage Review	C	Not Applicable	General Site Activities	Dust due to site works	Construction	5	2	10	Architect	Dust Mitigation Plan		1	2	2	No		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W006	5: Design Stage Review	C	Not Applicable	General Site Activities	Manual handling strains	Construction	5	2	10	Architect	Adequate Training		2	2	4	No		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W007	5: Design Stage Review	C	Not Applicable	General Site Activities	Machine Operations	Construction	3	4	12	Architect	Adequate Training		1	4	4	No		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W008	5: Design Stage Review	C	Not Applicable	General Site Activities	Working from Height	Construction	4	3	12	Architect	Edge Protection and fall arrest systems		1	3	3	No		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W009	5: Design Stage Review	C	Not Applicable	General Site Activities	Night time and low light working	Construction	2	5	10	Architect		Training and provision of sufficient lighting levels	1	5	5	Yes		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		
W010	5: Design Stage Review	C	19. Significant risk of fire	General Site Activities	Fuel Storage for genset	Construction	2	2	4	Architect	Correct maintenance programme to be put in place		1	3	3	No		**Contractor**	Start date on site	n/a	TBC	***ONGOING***		

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W011	5: Design Stage Review	D	18. Significant demolition	Disproportionate collapse	Disproportionate collapse	Demolition	3	5	15	Architect	Demolition Plan		1	5	5	No		**Landowner**	Every day use	n/a	TBC	***ONGOING***		
W012	5: Design Stage Review	M	Not Applicable	Installation and removal of plant items from ground floor plant rooms.	Manual handling strains	Maintenance	3	5	15	Architect	Adequate Training and equiments size to be reduce where possible	Doorways and corridors to be large enough to move plant items through.	2	2	4	Yes		**Maintenance**	Every day use after building handover	n/a	TBC	***ONGOING***		
W013	5: Design Stage Review	C	Not Applicable	Construction general housekeeping	Rubbish or material blown from site could become FOD	Construction	3	5	15	Architect	None	None	3	4	12	Yes		**Contractor**	Start date on site	n/a	TBC	***ONGOING***	Contractor to manage: combination of control measures, induction, behaviours and monitoring.	
W014	5: Design Stage Review	C	Not Applicable	Excavation	Risk of contaminated land and exposure to workers.	Construction	3	2	6	Architect	NA - excavation required for foundations, services diversions and soakaways.	Specify surveys to check for contamination.	3	2	6	Yes		**Client & Contractor**	Start date on site	n/a	TBC	***ONGOING***	Specify surveys to check for contamination.	
W015	5: Design Stage Review	C	Not Applicable	Stripped out	Exposure to asbestos.	Construction	3	3	9	Architect	Design unable to eliminate existing Asbestos risk.	Recommended that survey carried out.	2	3	6	Yes		**Contractor**	Start date on site	n/a	TBC	***ONGOING***	Continual observations to be made during strip-out, if any potential asbestos is observed then work shall be stopped and the areas surveys for risks and necessary actions undertaken. Minimise / refrain from unnecessary disturbance of material.	
W016	5: Design Stage Review	C	Not Applicable	Laying large areas of concrete floor slabs	Exposure to fresh cement	Construction	2	3	6	Architect	None	None	2	3	6	Yes		**Contractor**	Start date on site	n/a	TBC	***ONGOING***	Contractor to implement control measures: PPE & monitoring.	
W017	5: Design Stage Review	C	Not Applicable	Inspection of roofs.	Access to roofs and walking around on roofs to inspect them, fall from height.	Maintenance	3	5	15	Architect	Regular roof inspection required and remote technology eg drone ruled out, fixed access eg ladder/staircase		2	3	6	No		**Maintenance**	Every day use after building handover	n/a	TBC	***ONGOING***		
W018	5: Design Stage Review	C	Not Applicable	Cleaning of gutters.	Fall from height.	Maintenance	3	5	15	Architect	Gutter to be cleaned from a MEWP.		1	3	3	Yes		**Maintenance**	Every day use after building handover	n/a	TBC	***ONGOING***		
W019	5: Design Stage Review	C	Not Applicable	Working in Lodge	Slips, trips falls due to low light levels	Construction	3	3	9	Architect	none	Provide sufficient temporary lighting.	3	3	9	Yes		**Contractor**	Start date on site	n/a	TBC	***ONGOING***	Contractor to provide sufficient temporary lighting.	
W020	5: Design Stage Review	C	Not Applicable	Breaking out concrete (by hand)	HAVS	Construction	3	3	9	Architect		Survey to be carried out to determine extent of works needed	3	3	9	Yes		**Contractor**	Start date on site	n/a	TBC	***ONGOING***	Contractor to enforce max time period per staff and to build in breaks	
W021	5: Design Stage Review	C	Not Applicable	Coating PAS ceiling and external concrete to eflux chamber)	Substance exposure	Construction	3	5	15	Architect		None. But supplier process to be followed	3	5	15	Yes		**Contractor**	Start date on site	n/a	TBC	***ONGOING***	Assumed contractor will obtain MSDS, prepare COSHH assessment and put in place control measures.	