DESIGN HAZARD ELIMINATION & RISK REDUCTION REGISTER

Document Number:7694-CCA6_2-P3-REG-CV-JAC-0004Project Title:East Coast Railway - Phase 3 - CCA6.2Project Number:D3658302Client:Iarnród Éireann Irish RailProject Manager:Damian KeneghanDesign ManagerJon DennerLocal HSEiD AdvisorHugh O'Sullivan

Revision	Issue	Revision Description	Prepared	Checked	Reviewed	Approved
Revision	Date	Revision Description	By	By	By	By
A.1	18-Jan-24	Draft	David Thomas	Olwen Rowlands	Jill Gambrill	Jon Denner
A.2	8-Oct-24	Draft- Re-concept design	Emily Marshall	Jill Savory (nee Gambrill)	Jon Denner	Damien Keneghan
А	12-Aug-25	FIRST ISSUE	Emily Jennings	Jill Savory	Jill Savory	Damien Keneghan

Introduction

 $This provides a means of identifying design hazards and recording design mitigation and {\it risk} reduction actions taken.$

All foreseable design hazards for each discipline will be entered into the Design Hazard Elimination & Risk Reduction Register (DHERRR) by the Designers.

A single point of contact will be responsible for coordinating design stakeholder input to the DHERRR to ensure that there are no gaps in design information knowledge exchange.

The discipline lead designer(s) will be responsible for ensuring completeness and consistency of their design discipline across the project.

The full completed DHERRR shall form part of the design record for this project.

Drawings and d	documents which contain sign	ificant risks shall reference this document in the drawings or document notes.								
Hazard / Risk R	Register completion									
Column 1	Risk ID	Enter the Hazard/ Risk number, this should be sequential.								
Column 2	Design Hazard Review Activity Description	State what activity the design hazard was identified (from pull down menu): Design Interactive Design Safety Session Hazop Meeting Hazid Meeting Routine Design Team Meeting Design Stage Meeting Pre-Tender Design Review Meeting Strongton Procession Review HSE in Design Review								
Column 3	Phase	Identify what phase of the project the Hazard applies to (from pull down menu): - P - Pre-construction - C - Construction - M - Maintain / Clean - U - Use as a workpace - D - Demolish/Decommission								
Column 4	Activity	Describe the Activity to be undertaken where a Hazard may be present								
Column 5	Potential Hazard	Describe the Hazard associated with the described activity								
Column 6	Who is at Risk	Identify who is at risk against each associated activity (from pull down menu): - Commissioning - Operations - Maintenance - Decommissioning - Demolition - Public								
Column 7	Probability	Determine the Probability of the unmitigated Hazard (from pull down menu). 1-Highly Unlikely 2 - Unlikely 3-Possible 4- Likely 5-Highly Likely								
Column 8	Worst Potential Severity (WPS)	Determine the Worst Potential Severity (WPS) of the unmitigated Hazard (from pull down menu). 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 disabiling injury or illness. Significant property damage or environmental issue. 10 - Multiple fatalities and catastrophic event								
Column 9 Severity	Initial Risk Rating	Calculates the Initial Risk Rating of the unmittigated hazard (Probability x WP5) Automatic RAG for status 1-5 - Green 6-10 - Amber <10 - Red								
Column 10 Risk	Designer	Select the design discipline raising the hazard (amend to suit in the 'Reference' tab) - Architect - Mechanical - Electrical - Civil/Structural - Environmental - Control / Instrumentation - IPping - HVAC - Commissioning - Non Jacobs Designer - Client - User entry - All Disciplines								
Column 11	Design Measures To Eliminate Hazard	Describe the Design Measures to be implemented to Eliminate the Hazard as a FIRST CHOICE								
Column 12	Design Measures To Reduce Risk	Describe the Design Measures to be implemented to Reduce the Risk associated with the Hazard SECOND CHOICE								
Column 13	Residual Probability	Determine the Probability of the residual risk from the hazard (from pull down menu). Selection per column 7								
Column 14	Residual WPS	Determine the Severity of the residual risk from the Hazard (from pull down menu). Selection per column 8								
Column 15	Residual Risk Rating	Calculates the Residual Risk Rating from the hazard (Probability \times WP5) Automatic RAG for status								
Column 16	Residual Risk Description	Describe clearly the Residual Risk associated with the Hazard to be managed by those using the Design								
Column 17	Included in Drawing No(s)	List the documents where the Residual Risk has been communicated to those using the Design								
Column 18	Action By	State who the action is to be taken/completed (Name or Role)								
Column 19	Target Date	Insert the initial target completion date here. This date should not be revised								
Column 20	Revised Target Date	Insert the latest revised target completion date here.								
Column 21	Date Action Complete	Insert the date the Action was completed - or was transferred to a subsequent action								
Column 22	Tracker Status	Automatic RAG rating for status. GREEN indicates that the action is ongoing with time in hand. AMBER is imminently due and RED indicates due or overdue Insert comments here relating to current status, whether the action is fully closed out, or is								
Column 23	Comments	subsumed into another action etc								
Column 24	Primary Legislation	Identify the primary legislation in the country where the design hazard relates to (where applicable).								

The HSE in Design Review shall confirm that the Design Hazard Elimination and Risk Reduction process has been completed and that the Residual Risks are acceptable to the Project.

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Project Name: East Coast Railway - Phase 3 - CCA6.2

Project Number: Client: D3658302

Iarnród Éireann Irish Rail

DESIGN HAZARD ELIMINATION & RISK REDUCTION REGISTER OF DESIGN REVIEWS

DESIGN REVIEW DESCRIPTION	DATE HELD	MINUTES REFERENCE

CRITICAL RISK SUMMARY REPORT

Jacobs

Project Number: D3658302 Project Title: East Coast Railway - Phase 3 - CCA6.2
Project Manager: Damian Keneghan
Design Manager Jon Denner
Date of Issue: 12/08/25

OVERVIEW OF CRITICAL RISKS ASSOCIATED WITH THE PROJECT. This identifies the top 20 hazards/risks associated with design, construction, operation, maintenance and demolition of the project.

Comments	Residual Risk Sum	mary
. Number of completed Mitigation Actions over latest reporting period	Number of 'High' risks	8
. Number of revised Mitigation Actions over latest reporting period	Number of 'Medium' risks	7
. Number of new risks over latest reporting period	Number of 'Low' risks	28
. Number of closed risks over latest reporting period		
. Number of risks with modified scores over latest reporting period		
<u>Suggested areas / topics for comment:</u> . Involvement and competency of project team members with risk management . Tabling and review of risk register at monthly design team meeting . Quality and quantity of design mitigation actions in place		

Risk ID.	Activity	Potential Hazard	12 design Measures to Reduce Risk	Residual Risk Description	18 Action By (Name or	22 Tracker Status	Comments
1	Use of vehicles/plant on	Transportation over foreshore and access ramps,	Access points to be identified and to be incorporated during	Transportation over foreshore	Role) Contractor	ONGOING	Contractor to include appropriate traffic management and works segregation in method statements with misigation and reduction measures to separate vehicles and public.
	vehicles/plant on site - Public	foreshore and access ramps, etc. Potential plant overturning leading to potential for injury/death to members of public with access to the foreshore.	and to be incorporated during design development.	Transportation over foreshore and access ramps, etc. Potential plant overturning leading to potential for injury/death to members of public with access to the foreshore.			works segregation in method statements with misigation and reduction measures to separate vehicles and public .
2	Use of	Transportation over	Access points and restrictions to	Transportation over foreshore	Contractor	ONGOING	Contractor to include site access routes and working areas wi
	vehicles/plant on	foreshore and access ramps,	Access points and restrictions to be incorporated into design.	and access ramps, etc.			Contractor to include site access routes and working areas wit mitigation and reduction measures in method statements. detailed design to consider access restrictions (e.g. ramp
	Use of vehicles/plant on site - Construction Staff	Transportation over foreshore and access ramps, etc. Potentially leading to potential injury/death to Construction staff resulting from vehicles overturning.		Transportation over foreshore and access ramps, etc. Potentially leading to potential injury/death to Construction staff resulting from vehicles overturning.			pocased design to consider access restrictions (e.g. ramp loadings)
			Full services survey to be			and and	Full services search to be undertaken at detailed desion stage.
•	Existing Services	Damage to existing services during construction leading to death or injury to site personnel.	Full services survey to be undertaken during detailed design development.	Damage to existing services during construction leading to death or injury to site personnel.	designer / Contractor	ONGOING	Full services search to be undertaken at detailed design stage. Contractor to survey location prior to excavation works, where reasonable.
5	Unforeseen services present	Striking of live services causing electrocution, explosion, flooding and / or disruption of services.	Full services survey to be undertaken during design development.	Striking of live services causing electrocution, explosion, flooding and / or disruption of services.	Contractor	ONGOING	Full services search to be undertaken at detailed design stage. Contractor to survey location prior to excavation works, where reasonable.
7	Unstable ground conditions	Potential for site operatives or plant to become stuck in pockets of soft or lose ground. Instability of plant working in area of low soil strength. Risk of sufficiation, crash injuries from sinking into ground/loss or damage to plant.	Inform contractor of risk of soft ground from GI and geotechnical analysis in detailed design.	Potential for site operatives or plant to become stock in pockets of self ground. Instability of plant working in area of low soil strength. Bisk of sufficiation, crash injuries from sinking into ground/loss or damage to plant.	designer / Contractor	ONGOING	Contractor to prepare method statement and safe systems of Bisk to be updated following completion GI and geotechnical enalysis.
8	In temporary state the elements of the construction will be subject to wave and tidal conditions	Failure of partially completed works leading to damage of surrounding structures. Potential failure in temporary condition leading to injury to workers.	The partially constructed new severtment will be subject to the temporary loading in a transient state. The design transient state. The design transient states will be identified and considered in the detailed design Stage. These are considered to be minimal due to the new works adding to existing structures, with no intertisional damage to existing structures.	Damage to existing structures during construction which impacts their performance, identified and considered in the detailed design. Contractor expected to consider protection measures for the partially constructed new structure.	designer / Contractor	ONCOING	Contraction to have compretent experience of sections in student Contractions to divelop such systems of work in interstidal areas. Contractions to divelop such sections of the contraction to delicate for contraction to delicate frequent weather register and be prosection in the assessment of warsher conditions and adapt accordingly contraction to senting variety such as sections and contraction consistent temporary works design to include atom consistent supporary works design to include atom consistent supporary works design to include atom.
12	Storage of rock	Public climbing on rock piles, being trapped in voids	Avoid stockpites of rock in publicly accessible areas as far	Public climbing on rock piles, being trapped in voids or	Contractor	ONGOING	Contractor to identify secure area for storage of rock and in accordance with the specification and propose method for
		piles, being trapped in voids or crushed by falling rock.	as possible	crushed by falling rock.			storage. Experienced Contractor and subcontractors to be appointed.
15	Delivery of rock	Risk of barge being grounded.	Stockpiling of rock close to the shoreline to plan rock delivery	Risk of barge being grounded.	Contractor	UNGOING	Contractor to plan rock delivery with tidal restrictions. Contractor to prepare method statement and safe system of
			within tidal windows and not work dependent.				work. Experienced Contractor and subcontractors to be appointed.
17	Handling and placement of rock armour	Death/injury to site personnel from loss of control of rocks (movement	design has minimised quantity of rock required by increasing the revetment slope within possible.	Death/injury to site personnel from loss of control of rocks	Contractor	ONGOING	Contractor to prepare method statement and safe system of work.
		due to soft ground conditions/dropped by construction plant).	Early design of the rock structures & grading to allow delivery rock delivery to commence early in programme.	Death/injury to site personnel from loss of control of rocks (movement due to soft ground conditions/dropped by construction plant). Sisk of injury to eye as a result of rock splinters.			Experienced Contractor and subcontractors to be appointed.
18	Delivery and storage of	Risk of falling rolls of geotextile resulting in injury to construction personnel.	Safe delivery and storage methods will be defined in the	Risk of falling rolls of geotestile resulting in injury	designer / Contractor	ONGOING	Contractor to identify secure area for storage of geotextile material and in accordance with the specification and propos method for storage.
	storage of geotestile material	to construction personnel.	geotextile specification during detailed design.	to construction personnel and public.			method for storage. Experienced Contractor and subcontractors to be appointed.
19	Delivery and storage of geotestile material	Risk of falling rolls of geotextile resulting in injury to public.	Safe delivery and storage methods will be defined in the geoteoble specification during detailed design. Ensure storage of geoteoble is in areas not accessible to the public where possible.	Risk of falling rolls of geotestile resulting in injury to construction personnel and public.	designer / Contractor	ONGOING	Contractor to identify secure area for storage of gesteroils material and in secondance with the specification and propos method for storage. Experienced Contractor and subcontractors to be appointed.
21	Use of concrete	Injury to site operatives.	Minimise the volume of insitu	Injury to site personnel.	Contractor	ONGOING	designer to minimise concrete insitu works.
	or other potentially contaminating materials		concrete. During detailed design, where required, joints to be spaced closely spaced to allow for preparation, casting and adequate curing within tides.				Confractor to insure experienced and trained personnel to handle potentially contaminating materials. Contractor to provide thorough method statement and safe system of work.
22	Use of concrete or other potentially contaminating materials	Contamination of the environment. Injury to site operatives.	Minimise the volume of insitu concrete. During detailed design, where required, joints to be spaced closely spaced to allow for preparation, casting and adequate curing within tides.	Contamination of the environment.	Contractor	ONGOING	designer to minimise concrete insitu works. Contractor to insure experienced and trained personnel to handle potentially constrainisting materials. Contractor to provide thorough method statement and safe system of work.
23	Use of concrete or other potentially contaminating materials	Injury of operatives (banns,)	Minimise the volume of insitu concrete. During detailed design, where required, insitu works to be simplified to minimise exposure.	injury of operatives (burns,)	Contractor	ONGOING	designer to minimise concrete insitu works. Contractor to insure experienced and trained personnel to handle potentially hazardous materials and provide adequate PPE. Contractor to provide thorough method statement and safe system of work.
25	Works between construction	Risk of cutting, trip hazard. The preparations to the preparation of t	Minimise insitu rebar connections by using precast.	Risk of cutting, trip hazard. The precast construction may involve dowel bars on the	designer /	ONGOING	designer to design and minimise dowel connections during
	phases	Risk of cutting, trip hazard. The precast construction may involve dowel bars on the ground or starter bar protruding out from concrete.	corrections by using precise.	I'm precast construction may involve downel bars on the ground or starter bar protruding out from concrete.	Compactor		designer to design and minimise dowek connections during detailed design should be designed to the connection of the Connector to provide coloured plantic caps to every protruds bur.
27	Lifting operations	Risk of plant overturning during moving or lifting on slope.	The proposed Concept design solutions can be adjusted to reduce the risk following results of the GI and geotechnical analysis. Allowable bearing capacity of slope revetment to be checked and shared with Centractor for temporary works design.	lisk of plant overturning on sleps or temporary working platform - Contractor to undertake safe working practices	designer / Contractor	ONGOING	designer to assess the bearing capacity of the existing concri- trovictures. Contractor to prepare method statement of lifting and safe temporary working platform.
30	Working within a designated site	The risk of environmental damage through movement of material, placement of rocks etc.	Correct permissions etc obtained in order to complete works. Conditions of permit will allow for protection of habitat/wildife if required.	Environmental damage.	designer / Contractor	ONGOING	Contractor to provide thorough method statement and safe system of work. EIA provided at detailed design stage.
31	Noise/vibration impacts on marine habitat	Disruption to wildlife due to sits/plant activities, in relation to noise and vibration caused.	Correct permissions etc obtained in order to complete works. Conditions of permit will allow for protection of habitat/wildife if required. Works are generally high up the beach and therefore present less of a concern for marine life.	Disruption to marine life.	designer / Contractor	ONGOING	Contractor to provide thorough method statement and safe system of work. EIA provided at detailed design stage.
32	Managing public access to works	Potential for public to become injured if gaining	At detailed design stage,	Risk of injury to public due to access gained to site.	designer /	ONGOING	Contractor to prepare method statement and safe systems of work. These will ensure that the chance of public access to th
	access to works	become injured if gaining access to site works while heavy plant etc are working.	contractor to address public access concerns as part of method statement.	access gained to site.	Contractor		work. These will ensure that the chance of public access to the site is limited as much as practically possible.

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Anter Meeting Date

Update Critical Risk Summary Tab

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2: Minor higher / filtness, property damage or environmental issue.
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Client:		Usbs8302 Iamrod Éireann Irish Rail.	1	5: Highl	ly Likety			4: Major injury or illness, pr	perty damage or env	vironmental is	issue.				LOW	fSEID risk resultin	g from design is permitted.	3 3 6 9 12 15	28 Total low risks
1 2	3 4	5	6	7 8	9	10	11	12	13 14	15	16	17	18	19	20	21	22	H 2 2 4 6 8 10	24
Risk Review Stage Description	Phas Activity	Potential Hazard	Person(s) Most at Risk	Prob WPS	Initial Risk Rating	designer	design Measures to Eliminate Hazards	design Measures to Reduce Risk	Residual Residua Prob WPS		Residual Risk Description	Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)	Target Date		Date Action Complete	Tracker Status	0 1 2 3 4 5 1 2 3 4 5	Primary Legislation
1 5: design Stage Review	C Use of vehicles/plant on site - Public	Transportation over foreshors and access ramps, etc. Potertial plant overstraming leading to potential for injusyldeath to members of public with access to the foreshore.	Public	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Clear pedeathism routes within the site and fending off of working areas to be considered during design development.	2 5	10	Transportation over breathers and access range, etc. Potential plint oversaming leading to potential for injuryleash to members of public with access to the foreshore.	Contractor Buildsbilly/Method Statement [this is not a Jacobs document]	Contractor	Phase 3			ONGOING	Contractor to include appropriate traffic management and works segregation in method statements with mitigation and reduction measures to separate vehicles and public.	НЅА
2 S: design Stage Review	C Use of vehicles/plant on site - Construction Staff	Transportation over foreshore and access ramps, etc. Potentially leading to potential ejury/disath to Construction staff resulting from whiches overturning.	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Clear padestrian routes within the site and fending off of working areas to be considered sturing design development.	2 5	10	Transportation over breathers and access ramps, etc. Potentially leading to potential equipideath to Construction stell resulting from vehicles overhaning.	Contractor Buildsbilly/Method Statement [this is not a Jacobs document]	Contractor	Phase 3			ONGOING	Contractor to include site access routes and working areas with mitigation and reduction measures in method statements. databled design to consider access restrictions (e.g., temp badings)	HSA
3 5: design Stage Review	Risk of discovery of Unexploded Ordnance (UXO)	Feasible presence on sits of unephoted orderinos. Less of life, injury (including hearing damage) due to explication.	Staff	1 5	5	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	UXO Deak abudy to be undertaken during distalled design development	1 5	5	Passible passecs on alte of useplacked ordersco. Lass of Me, injury (including bearing diamogal) due to explosion.	Drawings & Documents (to be prepared at DD stage) Contractor Buildability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			ONGOING	Risk Assessment to be updated after undertaking UXO survey.	HSA
4 S: design Stage Review	C Existing Services	Osmage to existing services during construction leading to death or injury to also personned.	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Phase 3: Preliminary identification of services included on Plan disserings. Very little services present in this floatings. Pull services survey to be undertaken during detailed design development.	1 5	5	Durrage to existing services during construction leading to death or injury to also personnel.	Drawings & Documents (to be prepared at DD stage) Contractor Buildability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			ONGOING	Full services search to be undertaken at detailed design stage. Contractor to survey location prior to excausion works, where reasonable.	HSA
5 5: design Stage Review	C Unforessen services present	Striking of two services causing electrocutors, explosion, flooding and / or disruption of services.	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Phase 3: Day to remain relative of the frontings, very limited services present in this torstage. Executions expected to be in natural beach deposits where no services are expected to be present. Full services survey to be undertaken during design development.	1 5	5	Striking of live services causing efectroculors, explosion, flooding and / or disruption of services.	Contractor Buildsbilly/Method Statement [this is not a Jacobs document]	Contractor	Phase 3			ONGOING	Full services search to be undertaken at detailed design stage. Contractor to survey location prior to excavation works, where reasonable.	HSA
6 St design Stage Review	Working on the coast. Working in the tidal range. Incoming tidal level can rise rapidly.	Tidd working on an exposed creat has a heightened risk of drowings and loss of equipment due to un-expected atoms or wavelcurrent regime.	Staff	3 5	15	Civil / Structural	Rak not eliminated at Phase 3 design Stage.	Construction in tidal zone unavoidable, but minimized and simplified as far as possible.	1 5	5	Table working on an exposed coast has a heightened risk of downing and loss of equipment due to un-expected aforms or severicures or expense.	Contractor Buildsbilly/Method Statement [this is not a Jacoba document]	Contractor	Phase 3			ONGOING	Contractor to obtain ristal information to be able to plan work accordingly. Contractor to have compatere operations of working in stidl environment. Contractor to device pade systems of two interestal assess including the provision of appropriate PPE and identification of access points. Obtain frequent weather apports to predict istal conditions. Tidal monitoring to be undertaken.	HSA
7 S: design Stage Review	C Uretable ground conditions	Potential for alla operativas or plant to become stack in pocular of self- or loss ground. Healthilly of plant voltacing in area of loss and steegth. Risk of suffocation, creath injuries from sinking into ground loss or damage to plant.	Staff	3 5	15	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Inform contractor of risk of soft ground from GI and gentechnical analysis in detailed design.	2 5	10	Potential for also operatives or plant to become shack in podests of soft ground. Instability of plant evoking in area of low roll alrength. Role of sufficiation, crash injuries from sinking into prescribing or damage to plant.	Drawings & Documents (to be prepared at DD stage) Contractor Buildability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			ONGOING	Contractor to prepare method statement and safe systems of work. Risk to be updated following compliction GII and geotechnical analysis.	HSA
5 S: design Stage Review	In temporary state the elements of the construction will be subject to wave and tidal conditions.		Construction	3 4	12	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Phase 3. Design does not require servoral of any of the estainty defences but works are sequent adjacent to the bridge at the Breaches, before consideration at detailed design. The period promotonic din or workness for the subject to the lessops leading in a transient state. The design transient states will be identified and considered in the details design Stage. These are considered to be invited due to the new works adding to estain structures, with no intervious identified to calculate the contraction of the contractions.	2 4	8	Durrage to existing shockness during construction which impacts that performance. Usestind and considered in the detailed deepy. Consuctor expected to consider pretection measures for the partially constructed new structure.	Drawings & Documents (to be prepared at DD stage) Contractor Buildsbillly/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			ONGOING	Contractor to have compaters experience of working in itsid environment. Contractor to develop safe systems of work in interestal areas including the provision of appropriate PPE. Contractor to obtain frequent weather reports and to promotive in the sessessment of weather conditions and edges accordingly. Contractor's temporary works design to include storm conditions.	HSA
9 S: design Stage Review	C Undermining/stability of existing structures leading to collapse	Colleges of selsing structures and or crushinglings to personnel and plant.	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Phase 2: Considered to be very unlikely given very limited works adjacent to existing structures. The proposed Concept design solutions can be adjusted to reduce the nisk following results of the GI and guister/nical analysis, during detailed design.	1 5	5	Underminighibility/ourlanding of existing situations leadings to demagalicitages. Assessment of access routes and temporary works (by Cortextor).	Drawings & Documents (to be prepared at DD stage) Contractor Buildability/Method Statement (this is not a Jacoba document)	designer / Contractor	Phase 3			ONGOING	Risk to be updated following complision GI and geotechnical analysis. These data and visual disjection combined will support the determination of the tolerable loading.	HSA
10 S: design Stage Review	C Falls from revelment	figury to site personnel.	Staff	2 4		Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Design minimizes need for personnal working on revetment. Rock extent enables placement of majority of socks by use of lang-reach excession socking from beauth.	1 4	4	tripry to site personnel.	Contractor Buildsbilly/Method Statement [this is not a Jacobs document]	designer / Contractor	Phase 3			OMGOING	Contractor to prepare method statement and safe systems of work	HSA

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C Controller
Update Critical Risk Summary Tab
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1: Nil or slight lejury / Blancs, property damage or environmental krous.

2: Minor Injury / Blancs, property damage or environmental krous.

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2: Moderals injury or Blancs, property damage or environmental krous.

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3: Moderals injury or Blancs, property damage or environmental krous.

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Client:	E.		D3658302 Iarnród Éireann Irish Rait		5: High	ry Likety	A: Major injury or illness, property damage or environmental issue.							Low HS	stiD risk resultin	g from design is permitted.	3 3 6 9 12 15	28 Total low risks		
Risk designment of the Revi	2 3 gn Hazard lew Stage scription	4 Activity	5 Potential Hazard Rapid Ingress of water, causing possible entrapement leading to	6 Person(s) Most at Risk	7 8 Prob WPS	Initial Risk	10 designer	11 design Measures to Eliminate Hazards	12 design Measures to Reduce Risk	13 14 Residual Residual Prob WPS	Residual	16 Residual Risk Description	17 Included on Drawing No(s) or other doc. (give ref.)	18 Action By (Name or Role)	19 Target Date	20 Revised Target Date	21 Date Action Complete	22 Tracker Status	0 1 1 2 3 4 5 1 1 2 3 4 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	24 Primary Legislation
11 S. Gass Review	gn straige C	Excivations and Foundations	ricipio ingress or treate, custing possione entrapreser searing to repry/showning of site personnels.	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Phase 3 Limited executation rended to continue proposed deterous respirity of entits in shallow executions with the field improper policy areas of their unlasty to cour. The lose exceution has been relierant within the required structure stability. The proposed Concept design substance can be adjusted or ductor the risk following results of the GI and gootschricks analysis, during detailed design.	1 5	5	Rapid ingress of water, causing possible entrapment leading to injuryldowning of alte personnel.	Drawings (to be prepared at DD stage) Contractor Sulidability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			онаотна	Contractor to prepare method statement and safe systems of work and plan works to minimise access to the excevated area.	Plan
12 S: desi Review	gn Stange C	Storage of rock	Public climbing on sock piles, being trapped in voids or crushed by falling took.	Public	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Rock stodpiles to be fenced off to prevent public access	1 5	5	Public climbing on rock piles, being trapped in voids or crushed by felling rock.	Contractor Buildability/Method Statement [this is not a Jacobs document]	Contractor	Phase 3			ONGOING	Contractor to identify secure area for storage of rock and in accordance with the specification and propose method for storage. Experienced Contractor and subcontractors to be appointed. Main stockpile within secure and segregated from public.	HSA
13 5: deal Review	'	Delivery of rock	Grounding of barge leading to oil splil	Environment	2 5	10	Civil / Structural	Riak not eliminated at Phase 3 design Stage.	Basge is designed to be partially beached. Sensible use at correct tide times can limit the libelihood of grounding significantly.	1 3	3	Rak of barge being grounded.	Contractor Buildability/Method Statement (this is not a Jacobs document)	Contractor	Phase 3			ONGOING	Contractor to plain rock delivery with tiskal restrictions. Contractor to prepare method statement and safe system of work. Exparienced Contractor and subcontractors to be appointed.	HSA
14 5: desi		Delivery of rock	ftak of barge being grounded.	Staff	3 3	9	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Stockgilling of rock close to the shoreline to plan rock delivery within idial windows and rot work dependent.	3 3	9	Rak of barge being grounded.	Contractor Buildability/Method Statement [this is not a Jacobs document]	Contractor	Phase 3			ONGOING	Contractor to plan rock delivery with tistal restrictions. Contractor to prepare method statement and safe system of work. Exparienced Contractor and subconfractors to be appointed.	HSA
15 S: clean Review		Delivery of rock	Falling cocks leading to injury/death of also personneli. Risk of injury to eye as a nesult of nock splintes.	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Early design of the rock structures & grading to allow delivery rock delivery to commence seely in programme.	1 5	n	Falling objects leading to injury/death of also personnel. Risk of injury to eye as a result of rock splitters.	Contractor Buildability/Method Statement (this is not a Jacobs document)	Contractor	Phase 3			ONGOING	Contractor to propere method statement and safe system of work. Experienced Contractor and subcontractors to be appointed.	HSA
16 5: deal Review		Handling and placement of rock annuar	Death/riply to also personnel from base of control of mode (movement due to soft ground conditional dropped by construction plant).	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Early design of the rock structures & grading to allow delivery rock delivery to commence seely in programme.	2 5	10	Deathfrighty to alla personnel from loss of control of rouds (movement due to soft ground conditional diopped by construction plant). Raik of Injury to eye as a nessal of rock splinters.	Contractor Buildability/Method Statement (this is not a Jacobs document)	Contractor	Phase 3			ONGOING	Contractor to propere method statement and safe system of work. Experienced Contractor and subcontractors to be appointed.	HSA
17 5: desi Review		Delivery and storage of geoleodile material	Black of falling rolls of geolectile resulting in injury to construction personnel.	Staff	3 3	9	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Safe delivery and storage methods will be defined in the geotectile specification during detailed design.	2 3	ь	Rak of falling rols of geotestile resulting in injury to construction personnel and public.	Specifications (to be prepared at DD stage) Contractor Buildsbilty/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			ONGOING	Contractor to identify secure area for storage of geosetelis material and in accordance with the specification and propose method for storage. Experienced Contractor and subcontractors to be appointed.	HSA
18 5: desi Review		Delivery and storage of geoleodile material	Risk of falling rolls of geolectile resulting in injury to public.	Public	3 3	9	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Sale delivery and stronge methods will be defined in the geotectile specification during detailed design. Timuse stronge of geotectile is in areas not accessable to the public where possible.	1 3	3	Plak of falling rolls of geotestile resulting in injury to construction personnel and public.	Specifications (to be prepared at DD stage) Contractor Buildshilty/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			ONGOING	Contractor to identify secure area for storage of geotexistic material and in accordance with the specification and propose method for storage. Experienced Contractor and subconfractors to be appointed.	HSA
19 5: desi Review	'	Handling and placement of geolecitie	Risk of overturning of plant and antraprared of personnel in the intertidal sub-tidal zone resulting in risk of injury or drowning.	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Use of geolecisis minimized where possible. Specifications in detailed design to include details of safe placement of geolecise.	1 5	ю	Rlak of coveruming of plant and entrapment of personnel in the interdial sub-ddal zone resulting in risk of injury or drosening.	Specifications (to be prepared at DD stage) Contractor Buildshilty/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3			ONGOING	Contractor to provide thorough method statement and sale system of work. Experienced Contractor and subcontractors to be appointed. Specification to include details of sale placement of geotechia	HSA
20 5: deal Review		Use of concrete or other potential contaminating materials	Figury to sile operatives.	Staff	3 4	12	Civil / Structural	Riak is eliminated at Phase 3 design Stage.	No insitu concreté is proposed in the cross section. During detailed design, where sequired, insitu works to be simplified to minimise exposure.	1 1	1	legury to alle personnel.	Contractor Buildability/Method Statement (this is not a Jacobs document)	Contractor	Phase 3			ONGOING	designar to minimise concrete insitu works. Contractor to insure experienced and trained personnal to handle potentially contaminating materials. Contractor to provide thorough method statement and safe system of work.	HSA
21 S: desi Review	gn Starge C	Use of concrete or other potential contaminating materials	Contemination of the environment, Injury to alle operatives.	Environment	3 4	12	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	No insitu concreté is proposed in the cross section. During detailed design, where required, insits works to be simplified to minimise exposure.	2 4		Contamination of the environment.	Contractor Buildability/Method Statement (this is not a Jacobs document)	Contractor	Phase 3			ONGOING	designer to minimise concrete insitu works. Contractor to insure experienced and trained personnal to handle potentially contaminating materials. Contractor to provide therough method statement and safe system of work.	HSA

design HAZARD FLIMINATION AND RISK REDUCTION REGISTER

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Client:	uniter.		D3658302 Iarnröd Éireann Irish Rail		s: ngr	dy Likely			4: Major injury or illness, pro	perty damage or envi	onmental issue	k.			LOW HSELL	isk resulting from design is permitted.	3 3 6 9 12 15	28 Total low risks
Risk ID.		3 4 Phas Activity	5 Potential Hazard	6 Person(s) Most at Risk		9 Initial Risk Rating	10 designer	11 design Measures to Eliminate Hazards	12 design Measures to Reduce Risk	13 14 Residual Residual Prob WPS	Residual	16 Residual Risk Description	17 Included on Drawing No(s) or other doc. (give ref.)	18 Action By (Name or Role)	19 20 Farget Date Revised Date Co		0 1 1 2 3 4 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	24 Primary Legislation
	Review	C Use of conceste or other potential contaminating materials	,	Staff	3 4	12	Civil / Structural	Rask not eliminated at Phase 3 design Stage.	No institu concrete is proposed in the cross section. Ouring detailed design, where required, institu works to be simplified to minimise exposure.	2 4		Injury of operations (burns,)	Contractor Buildability/Method Statement [this is not a Jacobs document]	Contractor	Phase 3	ONGOING	assigned to misimize concrete index works. Contractor to issue experienced and trained personnel to handle patentially hazandous moserials and previous adequate PPE. Contractor to provide thorough method statement and safe system of work.	
23	5: design Stage Review	C Insitu concrete pouring	Risk of unstable formwork and falsework on esisting slipping concrete revetiment.	Staff	2 4	٠	Civil / Structural	Risk is eliminated at Phase 3 design Stage.	Concrete has been designed out of the cross sections required for CCAS 2	1 1	1	Blak of unstable formeork seminer. Contractor to undertake temp works design and consider staging the concrete pours at detailed design stage.	Contractor Buildability/Method Statement [this is not a Jacoba document] & Temporary works design	designer	Phase 3	OMGOING	designer to minimise volume of insitu concrete during detailed design. Contractor to provide thorough method statement and safe system of work.	HSA
24	5: design Stage Review	C Works between construction phases	Risk of cutting, tips heared. The greated contraction may involve dowed bans on the ground or starter bar protouding out from concrete.	Staff	3 2	6	Civil / Structural	Risk is eliminated at Phase 3 design Stage.	Concrete has been designed out of the cross sections required for CCAS 2	1 1	1	Blak of cutling, trip hazared. The precast construction may involve down! bars on the ground or starter bar protructing out large concrete.	Contractor Buildability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3	OMGOING	designer to design and minimise dowel connections during detailed design stage. Contractor to provide coloured plastic caps to every promuting bar.	HSA
25	5: design Stage Review	Use of Hazardous Materials C (cerrents, grouts,) for works preparation	Nealth problems and Environmental damage due to contact with I exposure to certenia, grouts elic.	Staff	3 3	9	Civil / Structural	Risk is eliminated at Phase 3 design Stage.	Concrete has been designed out of the cross sections required for CCA6.2	1 1	1	Musik problems and Environmental damage due to contact with / exposure to cements, ground exic.	Contractor Buildability/Method Statement (this is not a Jacobs document)	Contractor	Phase 3	OMGOING	Contractor to insure superismond and trained personnel to handle potentially hazardous materials and provide adequate PPE. Contractor to provide thorough method statement and sale system of work.	HSA
26	5: design Stage Review	Use of Hazardous Materials C (cernents, grouts,) for works preparation	Environmental damage due to contact with / exposure to cements, groute etc.	Environment	3 3	9	Civil / Structural	Risk is eliminated at Phase 3 design Stage.	Concrete has been designed out of the cross sections required for CCAS 2	1 1	3	Health problems and Environmental diamage due to contact with / exposure to cements, groute etc.	Contractor Buildability/Method Statement (this is not a Jacobs document)	Contractor	Phase 5	OMGOING	Contractor to insure superismond and trained personnel to handle potentially hazardous materials and previous adequates PPE. Contractor to provide thorough method statement and sale system of sold.	HSA
	5: design Stage Review	C Lifting operations	Risk of plant overfurning during rewing or lifting on slope.	Staff	3 5	15	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	The proposed Concept design solutions can be adjusted to reduce the risk following masks of the GI and posteriorized analysis. Allowable bearing capacity of alope revetment to be checked and shared with Contractor for temporary works design.	2 5	to	Blak of plant coveruring on slope or temporary working platform - Contractor to underside sale working practices	Contractor Buildability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3	OMGOING	designer to assess the bearing capacity of the existing concrete structures. Contractor to prepare method statement of filting and safe temporary working platform.	HSA
	5: design Stage Review	C Lifting operations. Lifting of plant i materials (i.e. precast units) may be carried out in gusty winds	Them is a risk of the lifted dam becoming out of cortrist with the sak of outshing of plennonic, Damagia to properly and Injuny to / death of paraconnel from overhead loads and falling objects.	Staff	3 5	15	Civil / Structural	Hazard not eliminated at this Concept design Stage.	Aggressimula weights and approximate centre of gravity of precest units to be shown in detailed disagn drawings.	1 5	5	There is a risk of the litted tem-becoming out of control with the nisk of crushing of paramonal. Dismays is properly and injury to / death of paramonal from overhead basis and talking objects.	Cravings (to be prepared at DD stage) Contractor Buildability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3	OMGOING	Contractor to prepare method statement of lifting and safe temporary working platform. Contractor to chack the unit weight and centre of gravity before any lifting is carried out. Contractor to to obtain frequent weather reports and to procedule in the assessment of weather conditions and adapt accordingly.	HSA
29	5: design Stage Review	C Brittle failure of precast units/ roc	Damage to properly and injury to / death of personnel from overhead teads and falling objects.	Staff	2 5	10	Civil / Structural	Hazard not eliminated at this Concept design Stage.	Approximate weights and approximate centre of gravity of precast units to be shown in detailed design drawings.	1 5	5	Dimage to properly and injury to / death of personnel from overhead loads and falling objects.	Coverings (to be prepared at DD stage) Contractor Buildshifty/Method Statement (this is not a Jacobs document)	designer / Contractor	Phone 3	OMGOING	Contractor to unkentake lifting earcher design and include additional auchor point obsengithering requirements. Frequired, it is normal practice for the contractor to undertake temporary works design. Contractor to check the unit weight and centre of gravity before any lifting is certain out.	HSA
	5: design Stage Review	C Working within a designated site	The risk of environmental damage through movement of material, placement of nodes etc.	Environment	3 3	9	Civil / Structural	Hazard not eliminated at this design Stage.	Correct permissions etc obtained in order to complete works. Conditions of permit will allow for protection of habitat-widdle if required.	2 3	6		To be covered in EIA and Contractor BuildabilityMethod Statement (this is not a Jacobs document)	designer / Contractor	Phone 3	OMGOING	Contractor to provide thorough method statement and safe system of work. EIA provided at detailed design stage.	HSA
31	5: design Stage Review	C Noiselvibration impacts on mains habited	Disruption to wildfile due to sinciplant activities, in relation to noise and wheelion caused.	Environment	3 3	9	Civil / Structural	Hazard not eliminated at this design Stage.	Correct permissions etc obtained in order to complete works. Conditions of permit will allow for prefection of habitativelidits if required. Works are generally high up the beach and threstore present less of a concern for marine life.	2 3	6		To be covered in EIA and Contractor Buildability/Method Statement (this is not a Jacobs document)	designer / Contractor	Phase 3	OMGOING	Contractor to provide therough method statement and safe system of work. EIA provided at detailed design stage.	HSA
32	5: design Stage Review	C Managing public access to works	Potential for public to become injured if gaining access to site works while heavy plant etc are working.	Public	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	As detailed design slage, contractor to address public access concerns as part of method statement.	2 5	10	Diffails of Injury to public due to accessa gained to alte.	Coverings (to be prepared at DD stage) Contractor Buildsbilty/Method Statement (this is not a Jacobs document)	designer / Contractor	Phone 3	OMGOING	Contractor to prepare method statement and safe systems of work. These will ensure that the chance of public access to the site is limited as much as practically possible.	HSA

design HAZARD FLIMINATION AND RISK REDUCTION REGISTER

1: Nil or slight-injun / Illines, property damage or environmental issue.

2: Minor Injuny / Illines, property damage or environmental issue.

2: Minor Injuny / Illines, property damage or environmental issue.

2: Moderate Injuny or Illines, property damage or environmental issue.

2: Moderate Injuny or Illines, property damage or environmental issue.

4: Major July Party Illines, property damage or environmental issue.

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Client:	larmidd Einarm Irish Rail 4: Major Injury or Illness, property damage or environmental issue.												3 3 6 9 12 16					
		5										17					22	H 2 2 4 0 8 10
Risk design Hazard Review Stage Description	3 4 Phas Activity	Potential Hazard	6 Person(s) Most at Risk	7 8 Prob WPS	Initial Risk	designer	11 design Measures to Eliminate Hazards	12 design Measures to Reduce Risk	13 14 Residual Residual Prob WPS		Residual Risk Description	1/ Included on Drawing No(s) or other doc. (give ref.)	Action By (Name or Role)		20 Revised Target Date	Date Action	Tracker Status	1 2 3 4 5 Primary 1 2 3 4 5 Englishers 5 EVERTY
Review	Volds in rock armour	Rtsk of falling/instrapment to the general public.	Public	3 5	15	Civil / Structural	Hiszard not eliminated at this design Stage.	10 no, sels of pedestrien access steps proposed reducing distance someone on the based needs to waik for safe agress to approx 200m. Further design of beach access points etc to be considered in the detailed design Stage.	1 5	5	This has public could still fall ordo? Into rock revetment, but this would likely only occur if purposely demong ordo? over the flood walls.	Drawings & Documents (to be prepared at DD stage)	Contractor / Client	Phase 3			ONGOING	Contractor to individually place rocks to minimise deep rock chimneys rocks) as per rock Specifications: the per rock Specifications of the process of the period of the they become non-interviolent. Client to ensure signage is installed.
34 S: design Stage Review	U Volds in rock armour	Plak of falling/infragment to the maintenance staff.	Staff	3 5	15	Civil / Structural	Hazard not eliminated at this design Stage.	10 no. sale of pedestrien access along proposed reducing distance someone on the basel meets to walk for sale agress to approx 20 cm. Further design of beach access points etc to be considered in the detailed design Stage.	1 5	5	Martenance staff to take case to not climb onto rock revetment. Consider use of alternative survey methods. e.g. drone to monitor structure.	Drawings & Documents (to be prepared at DD stage)	^d Contractor / Client	Phase 3			омдолма	Contractor to individually place rocks to minimize deep rock chimneys (voids) as per rock Specifications. Other to plane and variation immediates an internetiates activities to reposition rocks if only become non-restriction.
35 5: design Stage Review	U Unatable/soft ground conditions front of revelment	in Iftals of entragment in unatable soft saturated ground in front of reveloped - minimal agrees points.	Public	2 4		Civil / Structural	Mazard not eliminated at this design Stage.	Rock armour at the reduces the potential for scour and subsequent impact on ground conditions	1 4	4	Stak of entrepreset in unstable soft saturated ground in host of revetneest - minimal agrees points.	Documents (to be prepared at DD stage)	Client	Phase 3			омдолмд	MSA. Appropriate signage on prominande warning of risks of accessing beloch exes.
36 5: design Stage Review	U Settlement of the ground	Excessive selflement of the shudures resulting in unsafe conditions (e.g., uneven ramp, uneven slep heights), or shudural failure of the shudures. Slips, tops, fails.	Public	2 4		Civil / Structural	Hazard not eliminated at this design Stage.	The proposed Concept design solutions can be adjusted to reduce the risk following results of the GI and geotechnical analysis. Settlement values to be estimated at detailed design stage.	1 4	4	Blak that design measures limitation mean that setfement could still result in unade conditions. Consider pre-leading the ground prior to installation of the top aurtical structures to mitigate if required.	Drawings (to be prepared at DD stage)	designer	Phase 3			омасима	PEAk to be updated following completion OII and geostechnical analysis: disapper to quently settlement and consider the settlement in the design obtaining.
37 5: design Stage Review	U Public access to the beach restricted	The rock revelments will have a larger footprint on the beach than the sessing revetments, thereby reducing the useable area of the beach. This could lead to people becoming trapped during changing tides	Public	3 5	15	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	10 no. sale of pedestries access alogo proposed reducing distance someone on the beard needs to walk for sale agrees to agrees 200n. The forgists of the recolumnish has been minimed as much as possible at this stage, including buying the toe rather than an exposed tos.	2 5	10	People becoming trapped during changing tides	Documents (to be prepared at DD stage)	designer / Client	Phase 3			ongoing	designar to review beach access points during detailed design development. Consider installing warning signs at access points to highlight risks to the public.
35 5: design Stage Review	U Ensalon / Beach lowering	Toe of the rock neverment could become partially exposed leading to tip hazard, or people falling between the rock voids though a very thin beach layer.	Public	3 5	15	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	The revelment be has been designed to account for future beach lowering. Rock specifications during detailed design will specify rock placement to reduce deep rock chirmega (volds).	1 8	5	Sips, trips and fail or people becoming trapped	Documents (to be prepared at DD stage)	designer	Phase 3			омдолмд	TESA to be addressed throughout design development and too detail endates as required to reduce risk. Contractor to include place in class or minimize deep rock chimneys located to the other place for class to minimize deep rock chimneys located as per rock Specifications.
39 5: dessign Starge Review	Wave overlopping onto the footgath	trijury from large wave dasharges overlopping the revetment and brooking over a produstrian	Public	2 4		Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Mazard is reduced due to the increase in the revelenced creat width and refinement of the revelenced cross section.	1 4	4	Bijury duel to woress	Deswings & Documents (to be prepared at DD stage)	designer designer	Phase 3			омасима	MSA sassigner to undertake further analysis of wave overstopping and geometry of structures during design development
40 5: design Stage Review	U Falls from height	Public falling from wave walls	Public	2 5	10	Civil / Structural	Hazard eliminated at this design Stage.	No wave walls have been proposed as part of CCA6.2	1 1	,	Palls from height	Documents (to be prepared at DD stage)	designer	Phase 3			омасима	HEA staigner to undertake further design of walls and stapped revenuers during design development to delar people climbing to wall.
41 5: design Stage Review	U Change to awirening conditions	Shudures within the cosstal zone can change currents and swimming conditions which could lead to drawning	Public	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	The proposed structures for the preferred option are all shoreline structures and should ne specified in sea conditions. Rock than there included in reduce reflections at the law or specified in the season of the structure of the season of the season of the season of the charges in currents.	1 5	5	Minor risk of change in swimming conditions	Documents (to be prepared at DD stage)	designer / Client	Phase 3			омасима	HEA designer to consider further consider this risk through detailed design.
42 S: design Stage Review	Public accessing beach areas during storm conditions	Risk of drowning	Public	3 5	15	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	10 no. salta of pedestrian access slaps proposed reducing distance someone on the based resed to twalk for salte agrees to supress 2000m. Seedigant to about Center that earning singus should be installed all the access points to the created different (i.e. at access points through the food wall circle the promessale) to create different (i.e. at access points through the food wall circle the promessale).		15	Mask of drowning	Documents (to be prepared at DD stage)	designer / Client	Phase 3			омасима	Oler to ensure signage is intrasiled at visible locations along the access points. Signs should also be provided to warm predictations of presence of maintenance vehicles.
43 5: design Stage Review	C Proximity to Trainline	Risk of construction next to trainline - collisions, vibrations, noise	Staff	2 5	10	Civil / Structural	Risk not eliminated at Phase 3 design Stage.	Sinct regulatory guidelines must be followed. Worker training provision required to advise on hazards of working near trainlines. The design has been aligned so the cross sections shall be placed fairly for away from the trainline.	1 5	5	Collision with train, vibrations from train causing sock fall	Documents (to be prepared at DD stage)	designer / Client	Phase 3			омасима	Oler to ensure signage is intrasiled at visible locations along the access points. Signs should also be provided to warm predictations of presence of maintainance vehicles.

Project Name: Project Number: Client: East Coast Railway - Phase 3 - CCA6.2

D3658302

Iarnród Éireann Irish Rail

DESIGN HAZARD ELIMINATION & RISK REDUCTION SET UP PAGE

PERSON AT RISK	DESIGNER (Amend to suit)
Construction	Architect
Commissioning	Mechanical/ Electrical
Operations	Process
Maintenance	Civil / Structural
Decommissioning	Environmental
Demolition	Control & Instrumentation
Public	Piping
User Entry	HVAC
User Entry	Commissioning
	Non Jacobs Designer
	Client
	User entry
	User entry
	User entry
	All Disciplines

Review List
1: Design
2: Interactive Design Safety Session
3: HAZOP Meeting
4: HAZID Meeting
5: Routine Design Team Meeting
6: Design Stage Review
7: Pre-Tender Design Review
8: Construction Phase Design Revision
9: HSE in Design Review

	Phase List									
Р	Pre-construction									
C	Construction									
Μ	Maintain / Clean									
U	Use as a workplace									
D	Demolish/Decommission									

Severity of Injury		
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. Massive property damage or environmental issue.	
10	Multiple fatality and catastrophic event	

Residual Risk Yes No

Probability			
1	Highly Unlikely		
2	Unlikely		
3	Possible		
4	Likely		
5	Highly Likely		

DE5IGN HAZARD WHEEL

The de5ign Hazard Wheel has been developed to assist technical design teams identify health, safety and environment in design hazards, considering the asset's whole lifecycle.

Refer to the <u>de5ign Manual</u> to download the most up to date interactive version of this tool.

