Appendix 2A

Contractors Method Statement (Blasting)

WARD & BURKE

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

Ros An Mhil Deep Water Quay

MS 019 – Drilling and Blasting Along Quay

Risk Assessment / Method Statement
Safe Operating System

Revision	Description of Revision	Date	Prepared by	Date	Approved/ Reviewed by
0	Initial Release	25/04/2023	Emma Murphy	25/04/2023	Michael Mannion
1	Updated Risk Assessment	26/05/2023	Emma Murphy	26/05/23	Colin Kelly
2	Pulling out casings after blasting and digging out	11/07/2023	Emma Murphy	11/07/2023	Colin Kelly
3	Winter works and site lighting	05/09/2023	Emma Murphy	11/07/2023	Colin Kelly
4	Drilling off Barge	04.03.2024	Emma Murphy	04.03.2024	Colin Kelly

Nominated Person who will ensure work is proceeding in accordance with SOS

Function	Name	Position
Construction	Michael Mannion	Project Manager
Construction	Colin Kelly	Construction Manager
Construction	Colin Kelly	Site Engineer
Construction	Emma Murphy	SHEQ
Construction	Drilling and Blasting Contractor	Carra plant Hire
Construction	IIE – Explosive Supplier	Ruairi O'Connor

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1. PROJECT DESCRIPTION

Ward & Burke Construction Ltd. hereafter referred to as WBCL, have been appointed by Department of Agriculture, Food and Marine (DAFM) as the main contractor and PSCS on the Ros An Mhil Deep Water Quay Contract.

2. LOCATION OF WORKS

The site is located in the townland of Ros An Mhíl FHC is located on the North East shore of Cashla Bay near the village of Ros An Mhíl, which is situated 1km from the harbour. Ros An Mhíl FHC is in the Connemara area of County Galway. The harbour location is shown below in Figure 2 1. It is located approximately 30km to the west of Galway City.

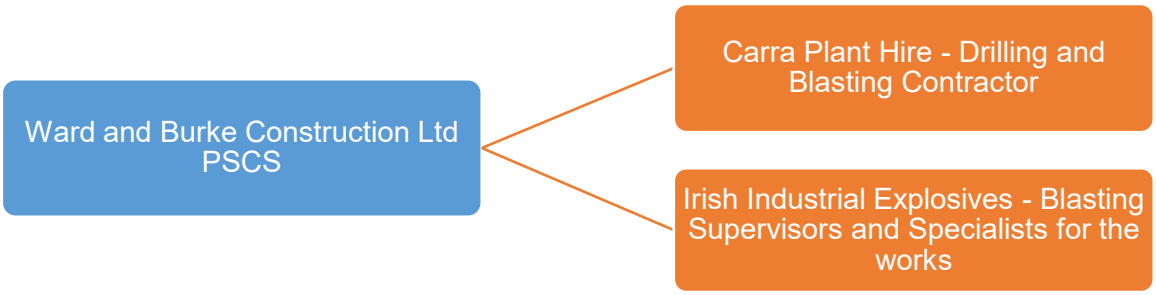
3. SCOPE OF CONTRACT WORKS

The proposed deep-water quay will provide 200m of outside berthing frontage at Ros An Mhíl Harbour. The development will also incorporate dredging works and land reclamation directly to the rear of the deep-water quay which will provide a hard surface link to the existing lands onshore. The development also includes a rock armour revetment, access roads, lighting, drainage infrastructure and other ancillary site works

3.1 SCOPE OF WORKS TO BE COVERED IN THIS RAMS DOCUMENT:

This RAMS document contains information related to the planned drilling and blasting along the new Quay Front to prepare for the installation of the concrete culvert boxes.

4. WORKS TEAM AND SUBCONTRACTORS



5. RE-WORKS REQUIREMENTS

Setting out will be carried out in accordance with the current drawings available.
Temporary benchmarks will be established and agreed on the site.
Full and detailed notes and surveys will be documented regarding the condition of the structures etc., within the works area, in advance of the work commencing.
All Statutory Undertakers will be notified in advance of the contract start-up to enable the location of all existing infrastructure to be established.
A period of time has been allocated in the programme to allow for liaison with all the relevant parties.

- Receive drawings and specification and verify details of drawings.
- Liaise with Gardai ahead of works to organise supervision of blasting works on site.
- Submission of license applications to Dept of Justice for Pump Truck License. (Appointed blasting contractor to complete same)
- Agree and develop danger zones and plans
- Vibration monitors to be set up ahead of works.
- Condition surveying to be completed on buildings adjacent to the blasting area
- Materials and plant availability will be confirmed on site, prior to commencing work.
- Allocate gang and have preconstruction meeting with gang members.
- All personnel inducted and their training records verified to ensure they are competent to carry out work. Copies of all training records to be kept in site offices on file.
- Induction will focus on the health safety and environmental control measures to be in place on site. Communication of all Emergency plans and reporting procedures in the event of an incident (HS & Environmental on site)
- All operatives must hold a valid Safe Pass Card and relevant CSCS Cards and valid Irish drivers' license for the relevant category of vehicle they are operating. Copies of all training records to be kept in site offices on file.
- All operatives will be briefed on this method statement and will sign onto this document prior to commencing work.
- All operatives will attend a 10-minute briefing prior to commencing work each day, where any site-specific hazards will be identified, and risk assessed.
- All necessary permits will be completed and briefed to the operatives prior to commencing work.
- All plant and lifting equipment will be certified and fit for use.
- All plant to be visually inspected ahead of use to identify any leaks etc.
- Any damaged plant to be taken out of use from site.
- This method statement is to be read in conjunction with relevant lift plan and permits.
- Ward and Burke will organise the Works so that there is unrestricted access for emergency services to each part of the works at all times.
- Notification of works to relevant bodies. Contact details on same:

Contact Service:	Contact Details
Gas Network Ireland (GNI)	
Dial Before You Dig'	1850 42 77 47 dig@gasnetworks.ie
Bord Gais Distribution Design Department	01 602 1354
Bord Gais Transmission Mains	021 453 4000
Site Contact – Brendan Creedon	087 2752653
ESB	
ESB Networks, Osprey House, Lower Grand Canal Street, Dublin 2	01-7027257, 01-7026558, 01-7027155
Email:	dig@esb.ie
Eir	
Dial 1901, request Fault Repair	1901
Post your request to:	Plan Design Bureau Administration, Eircom, Block 1C, Cumberland House, Fenian Street, Dublin 2.
Email your request to:	pdbureau@eircom.ie
IRISH COAST GUARD	
The Pier, Rossaveel, H91 TD85	(091) 506 855
DEPARTMENT OF AGRICULTURE, FOOD AND MARINE	
OMurchu, Noel	Noel.OMurchu@agriculture.gov.ie 066 7149340
Ciarán Seioghe	087 921 2014
AN GARDA SIOCHANA	
Eamon – O'Toole Super Intendent	087 967 2063

6. FIRST AID AND WELFARE ARRANGEMENTS

Static welfare units will be at the compound are and will provide:

.1. welfare facilities
.2. canteen facilities
.3. drying/changing room
.4. toilet facilities
.5. first aid facilities (FA boxes, eye wash stations, burns kits)
.6. fire extinguishers
.7. The units have a communication board displaying project details and a list of first aiders. The emergency arrangements that must be followed in the event of a minor or major incident will be highlighted and briefed to all operatives.

- Company Policies
- Emergency plans and numbers
- WB Reporting procedures – Health and Safety and Environmental
- Safety Awareness posters for site
- Etc

(Reference section 13 for emergency for First Aider details for specific sections of works.)

7. PERSONAL PROTECTIVE EQUIPMENT

Required Personnel Protective Equipment:					
 Safety Boots	 Hard Hats	 Hi- Vis clothing	 Life jackets	 Safety Gloves	 Eye Protection
Yes	Yes	Yes	Yes	As required	Yes
 Hearing Protection	 Dust Mask	 Face Protection	 Safety Harness	 Safety Overalls	 Lifebuoy
Yes	As required	As required	As required	As required	Will be located in selected areas on site

All PPE provided for use will be “CE” marked which indicates that equipment has been approved and complies with European Standards.
Personal Floatation devices to be of the correct newtons.

- ***lifejackets: 150 newton*** *are intended for use in tidal waters or when foul weather clothing is being used; and where the wearers may not be capable of helping themselves due to injury or exhaustion*
- ***lifejackets: 275 newton*** *are intended for use in tidal waters in extreme conditions, when protective clothing is being worn or loads such as tool belts are being carried; and where the wearers may not be capable of helping themselves due to injury or exhaustion.*

8. ACCESS / EGRESS TO AND AROUND SITE

8.1 Site access and Egress

- Vehicular access to the site will be by designated locations indicated by Chapter 8 signage (Bilingual – Irish and English).

- All entries and exits to and from site will be done in accordance with site TM Plan.

- A speed limit of 15km/hr will be maintained within site.

- Loads to be tipped and stored within designated areas with in site.

8.2 Site Security

- The works area will be enclosed and fenced off from the public using appropriate fencing. Appropriate fencing will consist of heras panels or pedestrian panels along the work zone.

- Heras fencing will be double clipped and secure. They will be positioned so as not to cause tripping hazard for passing pedestrians.

- The site will be completely locked when there is no work taking place. Photos will be taken of all site entrances and will be available for viewing.

- When the site is locked for the night/ weekends 2.2m high Heras fencing will be used. It will be double clipper and footed. Tower lights will be erected, as necessary.

8.3 Internal access and egress within site layout

- Internal walkways will be established to ensure safe walkways and pedestrian and vehicle delineation

- Designated crossing points will be put in place on site

- Physical barriers will be installed to prevent access in to un-authorised or dangerous areas. Temporary fencing will be by means of Heras panels, pedestrian barriers and Euro barriers.

- Exclusion zones will be clearly demarcated to prevent any unauthorised access. Exclusion zones will be explained to all site workers as part of the site induction and this SOS briefing.

- Within proximity to the waterfront Personal Flotation Devices will be required to be worn (Outside of excavators or plant and machinery)

8.4 Site Parking

- All vehicles to park safely on site

- Within site compounds reverse parking will be required by all site operatives' vehicles

9. RESOURCE/EQUIPMENT/MATERIAL REQUIREMENT

9.1 Resources required:

Labour	Role
1	Foreman
1	Machine Operators
1	Drilling Rig operator
1	Drilling General Operative
1	Shot fire/ Blast Supervisor
1	Gardai Supervision

9.2 Plant and Material requirements, siting and mode of operation (including standby equipment):

Plant Type to be used	CSCS card (Y/N if required)	Inspection (Weekly)	6 / 12 Monthly Inspection	Auxiliary Devices Motion/Mirrors/CCTV
Tracked Excavators 30T, 50T, 120T etc	Yes	Yes - GA2	Yes - GA1	Yes
Drilling Rig	No	Yes - GA2	Yes - GA1	Yes
Truck with explosives	No	Yes – GA2	Yes – GA1	No
6T Dumper	Yes	Yes- GA2	Yes – GA1	Yes

9.3 Chemical risk assessment will be available in site file and operatives briefed

Materials	Safety Data Sheet Required (Yes / No)
Explosives	Yes
Diesel	Yes
Ad blue	Yes
Engine oil	Yes
Hydraulic oil	Yes

10. DELIVERY OF PLANT AND EQUIPMENT / STORAGE

Delivery and storage of items for the Works (including spare parts required):

Delivery to site:

- Once delivered to site, the load will be inspected by the site engineer/QS to ensure that the load has been delivered safe and secure and no materials or equipment has been damaged in transit.
- Any materials/deliveries that have been damaged or are not fit to purpose will be returned to the supplier who will be issued with a Quality NCR for delivering materials unsuitable for use.
- Care will be taken during the unloading operation to ensure no materials, plant and equipment are damaged during the process. All operatives involved in loading/un-loading will be briefed on the WBCL loading/unloading method statement.

Storage of Materials on site:

- The site compound will be segregated into areas for storage of different materials, plant and equipment. Due to the confined nature of the site, minimal materials are stored onsite. Materials for this work will only be brought to site as required.
- All materials when delivered to site and signed off will be off-loaded and placed in their segregated and marked area on site.
- The site compound will be kept clean, level, and free from obstructions on the ground to prevent damage to materials, and injury to site personnel.

Materials	Storage Procedure
Pipe	• In segregated and designated area in compound or on site. • On clean and level ground
Fittings	• In segregated and designated area in compound or on site. • On clean and level ground • Strapped on pallets
Chemicals on this site	• Labelled containers • In bunded chemical storage (not within 200m of a water course)
Safety Equipment	• Site containers on this site
Stone/fill if being stock piled	• In segregated area in designated compound • Area to be clean and tidy • No Stone sizes to be mixed
Miscellaneous Equipment e.g skips etc.	• In segregated areas in compounds • In containers
Main site compound to be kept clean and tidy always.	

Explosive Materials on site:

- Gardai will be notified of transport of Explosive material ahead of works.
- The appointed subcontractor will notify the gardai.
- All explosive material will be delivered to site in an ADR Rated vehicle.
- Liquid Dynamite to be stored in the truck.
- No material needs to be stored on site.
- Gardai will supervise the truck and the material for the duration on site.

11. DOCUMENTATION / PERMITS REQUIRED

(Indicate where applicable)	Yes /No / NA
Health and Safety	
Permit to Dig & Service Drawings	X
Service Drawings from Statutory Bodies	X
AF3 for Trenches/Excavations/cofferdam	
Overhead Lines (OHL1 Form)	
Working at Height	
Scaffold Handover Certificate	
GA3 for work at heights	
Lift / cranage	
Crane Lift Plan	
Non-crane lift plan	X
Temporary Works	
TWDC, DRA	X
Permit to load	
Pressure Testing	
Traffic Management Plan	
TM Inspection Sheet	X
Subcontractor	
Subcontractor Safety Documentation (Training, SS, Insurance RAMS)	X
Confined Space Entry Permit	
Calibration and Testing of CS Equipment	X
Suitable training	
Hot works	
Asbestos	
SDS (Safety Data Sheets)	X
Blast Plans	**X**
Pump Truck License – Dept of Justice	**X**

12. SEQUENCING OF WORKS / METHODOLOGY

12.1 SERVICE IN THE LOCATION

For each individual site, we will refer to the Site Investigation records and Utility drawings. We will inspect all manholes and access chambers within the vicinity of the works. We will also check adjacent properties for Gas, ESB and water meter boxes in order to determine the location of any service connections.
The Site engineer and foreman will scan the works area by C.A.T. and Genny for any existing services before excavations proceed and continuously as excavations progress. Persons holding valid C.S.C.S. Location of Underground Services shall operate the C.A.T. and Genny.

All services identified from drawings, inspections and scans shall be clearly marked on the ground, photos taken and recorded, and mapped on 'Permit to Dig'.

12.2 DAILY BRIEFING – RISK PLAN

Ward and Burke Supervisor in charge of the work will ensure that the daily briefing are completed before the commencement of each work activity and periodically as applicable. The daily briefing will detail all precautions to be taken to minimise the risks associated with the work. The supervisor shall liaise with staff to ensure it is safe to carry out the works.

12.3 SEQUENCE OF PROPOSED WORKS

PRE-BLASTING SITE WORKS

1. Condition surveys will be carried out ahead of works.
2. Vibration monitors will be set up ahead of works.

DRILLING WORKS PREPARATION

3. The blasting platform sections to be established.
4. The plan to complete the works in sections of 40m long by 10m wide.
5. See below blasting platform overview. ***Reference Appendix A for Blasting Platform Drawing.***

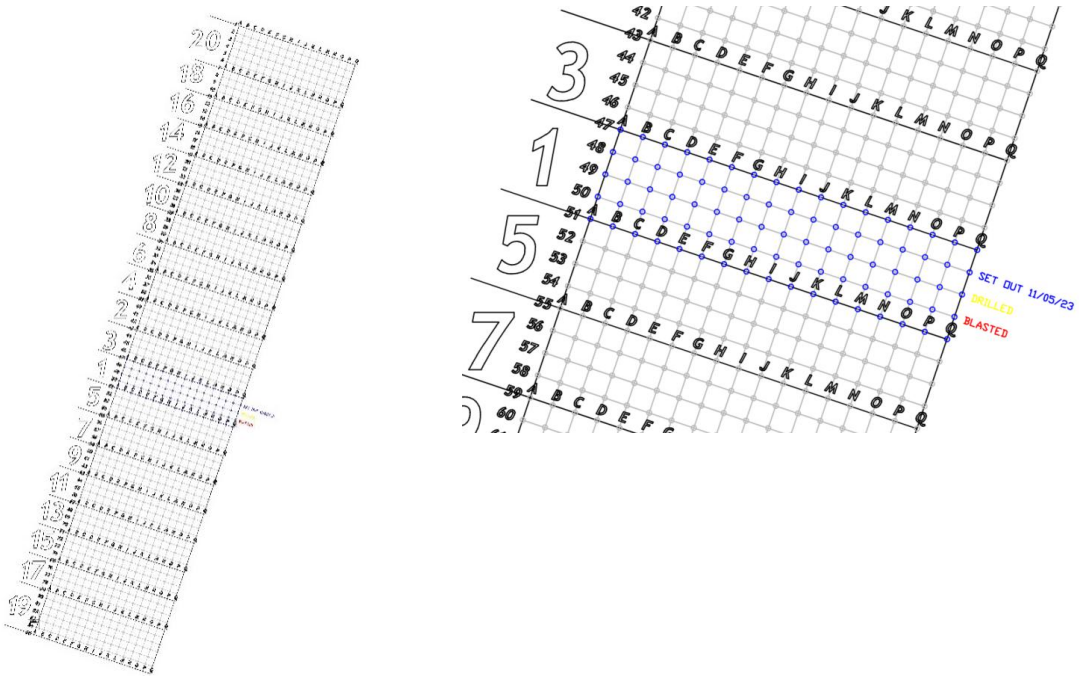


Figure 1 - Blasting platform overview

6. One 40m long x 10m section will be built out at one time.

Figure 2- Blasting Platform 1 & 2 Being constructed

7. Drilling holes will be marked out as per drilling hole locations
8. For the first drill and blast holes will be marked out along the width at 2.0m centres.
9. Holes will be marked out along the length at 2.0m centres of the blast section.
10. The spacing of the drill centres will change from blast to blast.

Figure 3 -Drilling Pattern laid out

11. Once the holes have been marked up the drilling rig will be mobilised on site.
12. Drilling Crew will be a competent subcontractor. Carra plant have been appointed to complete the drilling works.
13. The drilling holes and location will be checked by Carra plant Hire.
14. There will be 2 number drilling rigs on site.

Figure 4 - Drilling Rig

15. Drilled holes profile records and progress will be recorded by Carra Plant.
16. The dept of the drillings will be recorded. This will include the length of the casing, the top of rock level. This information will be issued to Irish Industrial Explosives (IIE) for the blasting section off the works.
17. These records will then need to be issued to the blasting contractor to create the blasting specification.
18. Once the drilling is complete a piling rig will be used to place in the casings for the placement of the explosives.
19. Casings size will be 114.3mm external diameter / 90ill internal diameter. Length will be individual to each hole.
20. A record of casing dept will also be recorded.
21. Once casings in place IIE will come to site to complete a drone survey of the blast areas to create a blast plan of the area.
22. From the dept of the casings and the site drone survey the quantities of the explosives required for the blast will be calculated by IIE.

BLASTING WORKS

1. IIE will be responsible for the blasting works on site.
2. IIE have submitted a licence request to the Department of Justice for a Pump Truck License.
3. Pumped explosives are planned to be used on site.
4. Gardai have been made aware of the works on site.
5. Gardai will be on site when explosives on site.
6. All explosives to be moved to site in ADR approved vehicle but trained persons.
7. Explosives manufactured on site using a mobile manufacturing unit and pumped directly into the drill holes.

ACTIONS BEFORE LOADING COMMENCES

8. An Explosive supervisor / short fire will be appointed to co- ordinate the works. This will be the IIE Responsibility. Appointed person to have all necessary training in place.
9. Gardai will be always on site while explosives are on site.
10. The truck operator and Explosives Supervisor/Shotfirer will examine the blast area to ensure that:
    a. The ground is stable, particularly in the vicinity of any high rock faces.
    b. Access to the working area is safe.
    c. The parking position of the truck is safe with respect to traction and stability.
11. The Explosives Supervisor/Shotfirer should examine the drilled areas in order to check for any weak areas, clay seams or geological anomalies, which might have an adverse effect on the blast.
12. The blast hole pattern geometry, hole depth and water content should also be checked in conjunction with the drillers log.
13. The Blast Specification/ Bast plan prepared will be adhered too.
14. This plan must be in place before hole loading commences. All work areas must be risk assessed and this assessment recorded before work commences. Two blasts require two blast specifications and two sets of paperwork etc…
15. This documentation will be checked by Ward and Burke ahead of any blast.
16. The following must be completed before hole loading commences:
    - blast location/danger zone identification and set up
    - design delay pattern and hole positions
    - initiation and charging design
    - burden data.
17. Gardai will co- ordinate the setting up of their own exclusion and safety zones. E.g. closing access roads etc as decided by Gardai.

RECEIVING AND DISTRIBUTING EXPLOSIVES (PUMP PRODUCT)

18. In this case deliveries are made to the site by pump truck (Mobile Manufacturing Unit).
19. The quantities of boosters and detonators will be checked against the delivery docket.
20. Boosters and detonators should only be removed from their packaging when required.

PRIMING (PUMP PRODUCT)

21. The primer should be located at the bottom of the borehole before pumping commences, unless the blast design requires it to be positioned elsewhere.
22. After the hole is loaded with product, the primer should be raised to a meter from the bottom to ensure that it is completely surrounded with explosive. No excessive force should be used.
23. The legwires, or shock tube to the primer should then be secured at surface.

LOADING THE BASE AND COLUMN CHARGE (PUMPED EMULSION PRODUCT)

24. Vigilance is required throughout the complete operation; especially listening while charging the blasthole.
25. Always load the holes nearest the free face first before the back holes, so that in the event of a truck breakdown, hole collapse, or other reason to discontinue loading, the holes in the front of the blast will be able to be fired.
26. It is extremely important that the loading of the first borehole is very closely monitored to check the product loading linear charge rate and the quality of the borehole.
27. Pumping of the product should take place from the bottom of the borehole.
28. Care must be taken when handling the hose due to its weight. The person holding the delivery hose should not stand with his back towards the free face.
29. Where a continuous column of explosive is to be loaded the column rise should be checked to compare the actual rise with the calculated rise. In poor ground conditions (actual or suspected) increase the frequency of checks on column rise.
30. If there are concerns about the loading linear charge rate, loading should be stopped and the appropriate checks carried out.
31. During the charging operation care must be observed to prevent the primer being dragged up the hole by snagging of the initiation lines, or being flushed up the hole by pressure from pumping.
32. Care should always be taken to ensure that explosive does not become lodged in the stemming section of the borehole. If this occurs it should be pushed down using approved stemming rods or the truck delivery hose pipe.
33. Product taken for sampling must be disposed of in boreholes prior to completion of the charging operation.
34. In wet holes, there is a possibility of the explosives' column becoming separated by pockets of water due to the withdrawal of the hose in excess of the pumping rate. If this occurs, stemming rods, or the delivery hose, should be used in a piston like action within the borehole, and this should free the water. Care should be taken not to damage the in-hole leg wires or shock tube.
35. Second priming is normally carried out by placing a detonator and primer in the upper section of the column charge (Refer to priming and loading sections above).
36. Ensure that the holes have been loaded to the correct stem length.
37. When an emulsion blend is being used a suitable allowance should be made against stemming depth to allow for expansion of the product during gassing.
38. Before any stemming is added, a suitable time must be given to allow gas sensitised product to gas and attain its required density.

CONNECTING AND STEMMING

39. Suitable and sufficient stemming material should be loaded into the hole, care being taken not to damage the shocktube, detonators, leg wires at the collar of the hole.
40. Where shocktube initiation systems are being used, the surface connector units should be attached so as to achieve the desired firing sequence. It is important to allow some slack on the tubes between the holes.
41. Before moving from the blast site to the firing point the following details should be checked by the Shotfirer:
    a. Count the number of holes in the circuit and ensure that all holes are connected.
    b. All connections or joints are made correctly.
    c. The stemming material has not slumped in any hole

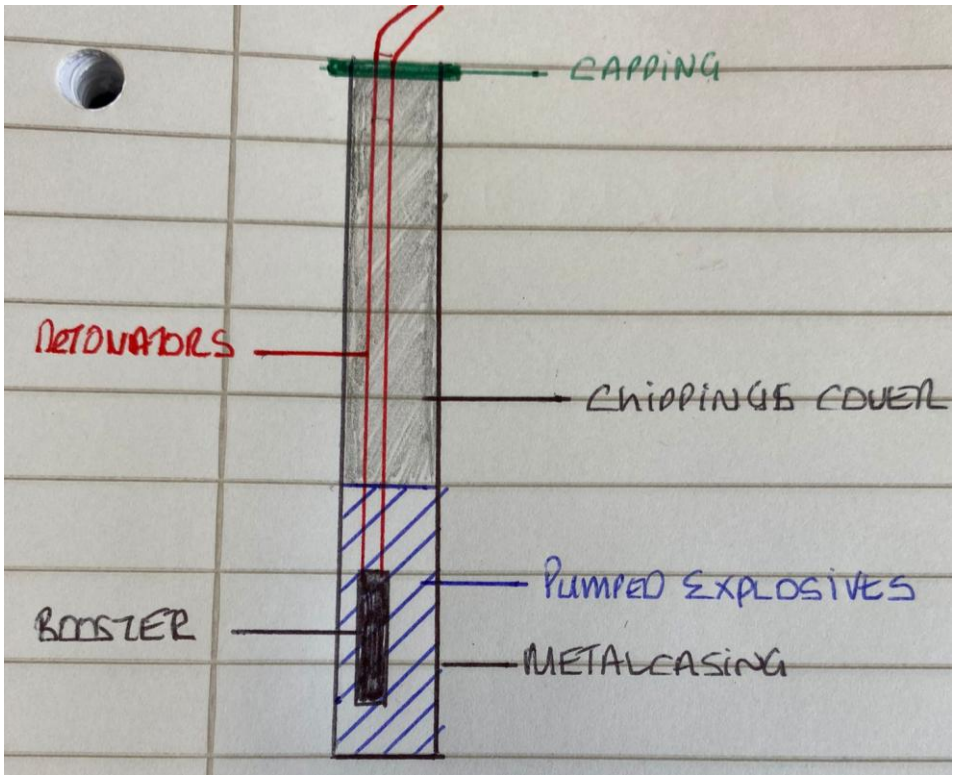


Figure 5 - Cross section of pumped explosives within casings

PROCEDURE PRIOR TO BLASTING

42. The Explosives Supervisor shall determine the Danger Zone for the blast. The Explosives Supervisor should contact the site foreman/ PSCS before the blasting commences and highlight to him the Danger Zone.
43. The Explosives Supervisor/ Shotfirer must complete the Danger Zone Assessment Checklist and record a sketch of the Danger Zone prior to firing the blast.
44. It is the responsibility of the Site Foreman to ensure that the Danger Zone has been evacuated, that sentries have been posted and that an appropriate communication system (Walkie Talkie System) is in place to ensure that no persons enter the Danger Zone until all clear has been given by the Shotfirer.
45. If any person passes a sentry having been advised not to do so, the Shotfirer must be informed immediately.

46. Walkie Talkies will be used for clear communication between WB Blast Co Ordinator and the Shot fire supervisor.
47. No blasting will be carried out when Ferries are due to leave Rossaveel Harbour to the Aran Islands. https://www.aranislandferries.com/time-tables/inismor

20TH MAY - 31ST MAY 2023

OUTBOUND	BUS	FERRY	FERRY	BUS	INBOUND
DAILY	09:30	10:30	08:15	09:00	MON - SAT
DAILY	12:00	13:00	09:00	09:45	SUNDAY ONLY
SAT. - THURS (DAILY)	17:00	18:00	12:00	12:45	DAILY
FRIDAY ONLY	17:00	18:30	16:00	16:45	DAILY
			17:00	17:45	DAILY

1ST JUNE - 30TH JUNE 2023

OUTBOUND	BUS	FERRY	FERRY	BUS	INBOUND
DAILY	09:30	10:30	08:15	09:00	MON. - SAT.
DAILY	12:00	13:00	09:00	09:45	SUNDAY ONLY
DAILY	17:00	18:30	12:00	12:45	DAILY
			16:00	16:45	DAILY
			17:00	17:45	DAILY

1ST JULY - 27TH AUGUST 2023

OUTBOUND	BUS	FERRY	FERRY	BUS	INBOUND
DAILY	09:30	10:30	08:15	09:00	MON. - SAT.
DAILY	10:45	11:45	09:00	09:45	SUNDAY ONLY
DAILY	12:00	13:00	12:00	12:45	DAILY
DAILY	17:00	18:30	16:00	16:45	DAILY
			17:00	17:45	DAILY
			18:30	19:15	DAILY

28TH AUGUST - 1ST SEPTEMBER 2023

OUTBOUND	BUS	FERRY	FERRY	BUS	INBOUND
DAILY	09:30	10:30	08:15	09:00	MON - SAT
DAILY	12:00	13:00	09:00	09:45	SUNDAY ONLY
DAILY	17:00	18:30	12:00	12:45	DAILY
			16:00	16:45	DAILY
			17:00	17:45	DAILY

Figure 6 - Ferry Times

48. Ward and Burke will be in clear communication with the Harbour Master – Ciaran Seoighe to notify him of planned blasts.
49. A system of signals should be adopted to warn of an imminent blast, as well as an all clear signal after the Shotfirer has ascertained that it is safe for persons to return.
50. Sirens will be used ahead of the blasting

a. Siren Sequence will be:

i. **3 hoots 5 mins before the blast**

ii. **1 hoot 1 min before the blast**

iii. **Continuous siren during blasting**

51. The Shotfirer shall fire the blast from a safe place, (upwind if practical) as soon as the Site Foreman or the person appointed by him, gives the signal, and has retreated to a safe position. Any persons in the shot firing position can only be there with permission of the Shotfirer.

PROCEDURE AFTER BLASTING

52. After the blast has been fired the Shotfirer shall wait for the fumes to clear and then proceed to the blast area. He should look for any evidence of misfired materials or other hazards.
53. When the Shotfirer is satisfied that it is safe for persons to return to the site, he should give the all clear signal.
54. Blasted holes and progress will be recorded on the Drilling and Blasting Progress Register.

MISFIRE PROCEDURE

55. In the event of a misfire the sentries will be stood down. The misfire area will be cordoned off and the Explosives Supervisor and a plan made on how to proceed.
56. A further blast plan will be required for same.
57. A Holdpoint will be carried at this stage once agreement has been made on how to proceed.
58. For a misfire the procedure will be for a digger to dig down to locate the booster, detonator and explosives.
59. This works will be carried out under the supervision of the Shot Fire Supervisor.
60. When the undetonated material is found the Shot Fire Supervisor will decide on how to proceed.
61. A risk assessment on each individual mis fire will be carried out in the event of same.

EXCAVATION WORKS FOLLOWING THE BLAST – HOLD POINT

1. Once the blasting has been completed the casings will need to be removed to dig out the blasted stone area.
2. The casings will be removed using a movax piling hammer attached to the Kobelco / CAT Excavator.

Figure 7 - WB MOVAX Piling Hammer

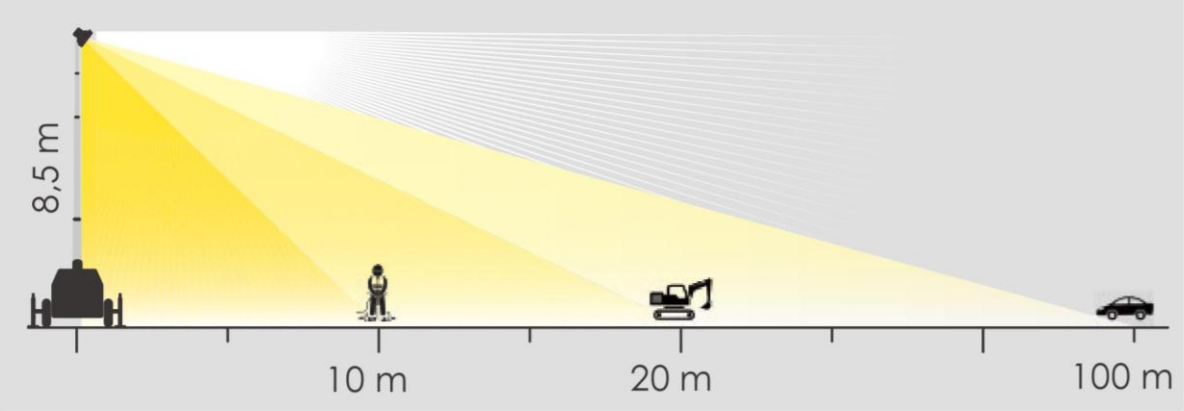
3. Casings will be pulled out with an exclusion zone set up
4. Casings will then be stored in a secure location to be removed off site to a waste facility
5. Once the casings has been safely removed the area will be dug out to start the construction of the next platform
6. This will be done using the 1200 Hitachi long reach excavator.
7. The sequence will be following the numbering of the platform overview layout.
8. Platforms will be constructed to allow the drilling and piling for the next blast and a safe working area for Carra plant away from the excavation works.
9. Once dug out the level and the blast finish will be inspected when digging out to ensure that correct depths have been reached with the blasting works.

The above sequence will be followed through for all the area blasting

SITE LIGHTING AND WINTER WORKING – HOLD POINT

- As winter months and shorter working hours are coming in site lighting is required.
- Temporary lighting will be in place in the form of tower lights
- LED Tower lights will be used to light up the works areas.
- Ensure tower lights are suitable when brought to site.
- Ensure Tower lights are set up as per manufacturers' specifications.
- Set up on level ground.
- All jacks to be set up correctly.
- Lower masts in high winds.
- Lower masts with caution in subzero temperatures.
- Never place your hand to any other body parts where they should not be placed.
- If any defects are noted report to fitters and do not use.

Automatic Start / Stop LED Lighting System



Illuminated Area Span 3800sqm

DRILLING OFF BARGE – HOLD POINT

Figure 8 - Drilling Rig on Barge

- Drilling off barge required to be completed for pockets of rock within the berm area.

Figure 9 - Barge and Drilling Rig within the berm area

The barge is moved into place by Rory Beatty tugboat.

- Barge is tied down and stability assessment completed for the drilling rig on the barge.
- Once the drilling location has been located via GPS the barge will be set up to start the drilling of the caisings.
- The caisings will be lifted into place using the 300T Crane. (Crane lift plan to be updated for same.)
- The caisings will be placed using the winch on the top of the piling rig.

- Caisings will be let in place to fill with stone and dynamite

Placing Dynamite:

- An extension will be put in place on the truck hose.
- 2 number operators will then harness into the manbasket and to start to load the drynamtie and detonators will be loaded into the ciaisings
- Personnel in the man basket will have clear communication with the crane driver via walkie talkies.
- Emergency boat will be in place when works being carried out.

Placing Stone:

- The man basket on the crane will be used to access and fill the caisings with the stone
- Caisings will be filled using buckets. Stone will be place in a wheel barrow and loaded into the manbasket.
- 2 number operators will then harness into the manbasket and to start the load the stone into the caisings using buckets.
- Personnel in the man basket will have clear communication with the crane driver via walkie talkies.
- Emergency boat will be in place when works being carried out.

12.4 Change in Sequence of Works

HOLD POINT
(This is the stage or point where work is re-assessed)
All operators to be briefed on operation
Ensure all test certificates are in place
Ensure temporary works design certificate is in place
Ensure task specific risk assessment is in place

Update of Method Statements:

- In the even that a MS needs to be updated on site to cover unforeseen works and associated hazards.
- A 'Safety Briefing Form' will be completed on site to account for the scope of new works address, Hazards identified, and associated control measures identified. Briefing will be carried out with all persons on site on the updated task and persons will be required to sign off on same.
- This form will then be attached to the back of the MS for record purposes.

(See Appendix 'A' Safety Briefing Form.)

13. EMERGENCY PROCEDURES AND ARRANGEMENTS

All incidents must be reported to WBCL Site Management as soon as is reasonably possible.

The following information will be posted in the site welfare unit.

1. Hospital route - Reference Site induction and emergency boards in communal areas
2. Emergency Plan
3. First Aiders
4. Emergency procedures
5. Incident reporting guide.

Emergency Plans will be communicated at **site induction**.

Examples of plans that will be available on all communication boards on site include, but not limited to:

- Environmental Spill
- Fall into water / Drowning
- Overturning of plant
- Medical emergencies on site
- Fire

Emergency preparedness and plans will be continually reviewed on site and communicated to site operatives as appropriate.

14. EMERGENCY CONTACT INFORMATION

Details of Service	Name	Contact Number
Ambulance or Fire Brigade		999/112
Health & Safety Authority		1890 289 389
First Aider on Site 	Colin Kelly	086 102 0440
	Emma Murphy	086 044 5768
	Robbie Connelly	086 386 6076
Local Hospital	Galway University Hospital	091 524 222
Garda Station	Carraroe Garda Station	091 595 102
Local Authority	Galway Co Co	091 509 000
Water & Sewer Network	Irish Water	1850 278 278
ESB		1850 372 999
Eircom		1901
Bord Gais		1850 20 50 50
Dept of Agri, Food & Marine	Noel O'Murchu	066 7149340
Inland Fisheries	Inland Fisheries Ireland Teach Breac, Earl's Island Galway, H91 E2A2	091 563118
Harbour Masters	Fishery Harbour Centre, Rossaveel , Co Galway Ciarán Seoighe	091 560507 087 921 2014
Irish Coast Guard	The Pier, Rossaveel, H91 TD85	091 506 855
EPA	EPA, Johnstown Castle Estate, Co. Wexford Y35 W821	053 916 0600
Site Engineer	Colin Kelly	086 102 0440
Communication Liaison Officer	Emma Murphy	086 044 5768
SHEQ Advisor	Emma Murphy	086 044 5768
COVID 19 Compliance Officer	Emma Murphy	086 044 5768
Ward & Burke Head Office	Galway	(091) 776827

15. ENVIRONMENTAL CONTROLS / WASTE

- For all chemicals such as liquids, powders etc. a safety data sheet (SDS) is required and held on file.
- To assess the health hazard of the chemical, a chemical risk assessment will be completed for all hazardous substances used for the works.
- All necessary precautions, as detailed in the chemical risk assessment must be taken when working with a hazardous substance. e.g. specific personal protection.
- All chemicals will be labelled.
- Chemicals will be stored on site in chemical storage, on drip trays or plant nappies.
- Appropriate chemical storage in compound – 110% allowance
- Spill kits will be available on site.
- Emergency spill plan will be in place.
- Refuelling away from water courses
- All fuels, oils, greases, hydraulic fluids will be held in bunded storage.
- All waste will be segregated per type and be disposed of in the correct skips provided on site.
- Hazardous waste must be stored in suitably labelled containers for further removal off site.
- A copy of the waste haulier license will be held on site, and records held of all waste transfers will be available on request from the Safety Advisor.
- Keeping the site clean is vital for both housekeeping and environmental management matters.
- vibration monitoring will be carried out on site as per contract requirements.
- Acoustic enclosures will be erected to minimise the noise levels.
- Reference*:*
    - *Site CEMP and associated procedures*
    - *Site Environmental Emergency Plan*

- **Marine Mammal Observer (MMO)** will be in place for the blasting works to supervise the works and the.
    - The marine mammal observer will be in a position to get the best view of the surrounding waters from where the blast will take place
    - Ward and Burke will notify the MMO of planned dates of blasting to ensure on site for the works.

16. RISK ASSESSMENT

Risk Assessment

Likelihood: How often could the hazard occur? Consider the task, frequency, duration, method of work, employees involved.
Severity: How serious would the hazard's effects are if realised? Consider the type of hazard: Biological, ergonomic, physical, and chemical.
Risk = Likelihood x Severity

RISK RATING **Likelihood (L) x Severity (S)**		**HAZARD SEVERITY (S)**				
		1	**2**	**3**	**4**	**5**
		Negligible Negligible injury, no absence from work	**Slight** Minor injury requiring first aid treatment	**Moderate** Injury leading to a lost time accident	**High** Involving a single person's serious injury/death	**Very High** Multiple serious injuries/death
1	**Very Unlikely:** A freak combination of factors would be required for an incident/accident to result	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**
2	**Unlikely:** A rare combination of factors would be required for an incident/accident to result	**LOW**	**LOW**	**LOW**	**MEDIUM**	**MEDIUM**
3	**Possible:** Could happen when accidental factors are present but otherwise unlikely	**LOW**	**LOW**	**MEDIUM**	**HIGH**	**HIGH**
4	**Likely:** Not certain to happen but an additional factor may result in an incident/accident	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**HIGH**
5	**Very Likely:** Almost inevitable that an incident/accident would result	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**HIGH**

LOW RISK **(Score 1 – 6)**	May be acceptable, however, review task to see if risk can be reduced further
MEDIUM RISK **(Score 8 – 10)**	Task should only proceed with appropriate consultation with specialist personnel and HS&E team. Where possible the task should be refined to take account of the hazards involved or the risks should be reduced further prior to task commencement.
HIGH RISK **(Score 12 – 25)**	Task must not proceed. It should be refined, and further control measures put in place to reduce risk. The controls should be re-assessed for adequacy prior to work commencement

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
Training	• Completing task not trained to carry out resulting in injury to operatives or co worker	**3x 4 = 12**	• Ensure correct training in place to complete task assigned. • Training to be checked and record taken at induction to site. • Training will be provided as required • All persons to be inducted on site	**2 x 4 = 8**
Manual handling	• Musculoskeletal injuries, in particular low back pain but also includes finger injuries • Overexertion and awkward body positions, during hand digging	**4 x 3 = 12**	• Workers to have received manual handling training. • Mechanical lifting to be use where possible. If manual handling is unavoidable, depending on the activity use a two-man lift (lifting items) or rotate the task (hand digging). • All operatives to be trained in good manual handling techniques. • Use excavator for as much lifting as possible. • Persons hand digging to 'stand up every 10 minutes' when their task involves awkward body position such as bending and twisting.	**2 x 3 = 6**
Pre-planning the works	• Operatives unfamiliar with the scope of work and untrained in their task, causing injury or harm to themselves or others. • Faulty plant & equipment causing injury to personnel. • Failure to plan works can result in potential incidents as no suitable control measures are in place	**3 x 4 = 12**	• All personnel to attend the project induction, be briefed on this method statement and attend daily briefings. • *A daily safety briefing will be carried out daily ahead of works*. • Work method to be agreed and all associated risks and control measures to be in place for. *All operatives to be signed off on Method Statements (RAMS) ahead of works.* • Ensure appropriate traffic management agreed and in place ahead of commencing work. • All personnel to hold the relevant training and CSCS certification/ ADR Training and Shot Fire Training. • Ensure a pre-start inspection of all plant and equipment is carried out. • Licenses to be in place from Dept of Justice • Gardai supervision	**1 x 4 = 4**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
Working in close proximity to members of the public and stakeholders (Businesses etc.) in the works area	• Members of the public entering site • Injury to member of the public	**4 x 3 = 12**	• Physical barriers will be installed to prevent access into un-authorised or hazardous areas. • Safety information signage prominently displayed setting out standards and controls. • A briefing on the Method Statement ahead of the works will be carried out. This is to ensure all operatives are aware of the close proximity of members of the public, including children.	**2 x 3 = 6**
Working near watercourse	• Personnel falling into water • Drowning • Working at heights • Tide and levels	**4 x 5 = 20**	• Safety signage erected. • Life vests to be worn at all times along water edge . • Life buoy will be in place. (Life buoy stands and on excavators) • No lone working. • Suitable emergency plans to be in place. (Emergency Boat and Sea Survival trained operatives in place) • No wearing life jackets in machinery. • Life buoys on excavators • Emergency hammers in all plant and machinery • No vandal guards were left on machinery or on storage over sunroofs. • Monitor daily tide times and levels on: https://theportofgalway.ie/galway-tide-times/ • No working on platforms at high tide times where tides are going to be higher than the existing platforms. • All plant to be removed off the works platforms where high tides are above the level of the working platform	**2 x 5 = 10**
Drilling Works and Drilling Rig	• Dust • Entanglement in moving components • Lifting of extension rods • Collapse into water • Working adjacent to water	**4 x 4 = 16**	• Dust Suppression to be in place • Exclusion zone to be set up • Suitable and correct PPE to worn • Life jackets to be worn by operatives. No wearing life jackets in machinery. • Clear communication between drilling rig driver and drilling operative	**2 x 4 = 8**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
	• Noise		• All guards in place • All emergency stops to be in place • Any breakdowns and fitters to be communicated on MS 05 Fitter and Maintenance RAMS	
Drilling Rig on Barge	• Working over water • Falling into water • Excavator and drilling rig not secure • Access to welfare facilities • Fire • First Aid • Collapse of Barge • Oil Leak		• Harbour Master to be notified of movement of barge • Barge to be moved to work zones using Rory Beatty Tugboat • Suitable Jack up Barge on site for works • Suitable size machine for works on the Barge (Stability Assessment sign off to be in place) • Excavator chained down and secure on barge • Handrails on barge • Welfare facilities on barge • Lifebuoy on barge • Life jacket to be worn on barge • No lone working on barge • Suitable access to and from barge • Access boat and Emergency boat in place • Emergency plans in place • No operating in bad weather (Risk assess weather conditions and no working in red warning) • Adhere to Harbour Maser requests for safe use of barge in harbour • VHF Radios to be on barge to be to alert to harbour notices and warning • Barge to moved into harbour dock when bad weather promised • Fire Extinguisher on board • First aid kit and first aider on barge	

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
Explosives on site	• Incorrect management • Incorrect detonation • Fire • Injury	**4 x 5 = 20**	• Competent subcontractor to be appointed for the works. • Appointed Shot fire Supervisor in place for all blasts • Works to be supervised by Gardai and Ward and Burke Construction. • Risk Assessment and Method Statement will be in place. • Explosives to be moved to by trained ADR personnel and ADR Approved vehicles. • Blast plan risk assessment to be in pace for all blasts. • Danger Zone to be set up for all blasts. • Sirens will be in place for all blasts. • Fire Extinguishers to be in close proximity to works. • Misfires to be managed and risk assessed.	**2 x 5 = 10**
Blasting Works	• Explosives on site • Danger Zones • Flying Debris • Misfire • Marie Life	**4 x 5 = 20**	• Licensed and trained blasting subcontractor to be appointed for works. • ADR training and approved vehicles to be in place on site. • Dept of Justice Licensing to be in place. • Gardai will be in place on site when explosives on site. • Trained Shot fire personnel to be I place to supervise all blasting works on site. • Blast plan and Risk assessment to be carried out by Blasting Subcontractors for each blast. • Danger zones to be established ahead of evert blast. • Spotters and full danger zone perimeter plans will be established on site. • Warning Sirens will be in place for works. A siren sequence will be in place for the blasting times. • Mis Fire Procedure will be in place. • Buildings with personnel occupancy in close proximity to the blast will be vacated ahead of the works. • No persons will be allowed back within the danger zone until the shot firer supervisor advises safe to do so.	**2 x 5 = 10**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
			• Vibration monitors will be in place ahead of works. • A marine mammal observer will be in place for the works. • Warning Signage to be in place on site perimeter.	
Danger Zones	• Person within the danger zone during blast • Injury • Loss of life	**4 x 5 = 20**	• Danger zone plan established. • *Ref App D – Danger Zone Map – Review by I.I.E.* • Spotters to be in place. • Clear communication between spotter, WB Blast co-Ordinator's and Shor firer • Blast to be stopped if any person enters the dangers zone. • Warning Signage to be in place. • No blasting when ferries passing works • Safety Boat to be in water. • No one allowed enter the danger zone until Shot Fire supervisor approves same after the blast.	**3 x 5 = 15**
Plant Working Near the Water's Edge	• Plant falling into the water • Person falling into the water • High Tide Times	**3 x 5 = 15**	• No Lone operating near the water's edge • Life jackets are not to be worn in the cab of a machine when operating near the water's edge. If the operator is wearing his life jacket in the cab and the machine falls into the water. Then the life jacket will inflate and cause difficulty for the operator to exit the cab. • A life jacket will be available in every machine working on the revetment. An operator that leaves his machine must put on his life jacket. • Safety Boat in place for work. • Emergency Rescue plans in place.	**1 x 5 = 5**
Tractor on site	• Operating tractor on site • Attachments • Power Take off • Lifting operations • Towing Operations • Loader on tractor	**3 x 5 = 15**	• Suitable license for operating tractor in place • Mirrors in place • Suitable steps in place • All drop links suitable and correct length for machinery attached to tractor. • All covers and chains in place on PTOs	**2 x 5 = 10**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
			• Loader to be suitable and inspected • No driving close to water edge on site	
Poor weather conditions	• Slips, trips and falls • Poor lighting • Strong winds • Sunburn	**5 x 3 = 15**	• Lighting to be provided for poor lighting periods. • Weather reports will be analyzed each day. The site supervisor will access the sea conditions each morning. • Wave and storm weather may impact the works on site. • All lifting activities to follow lift plans and adhere to wind limits. • Adequate and suitable PPE to be worn in adverse weather conditions where work must carry on. • Sun protections to be available on site	**2 x 3 = 6**
Operating plant and machinery – excavators, side tipping dumpers, ride on roller, rock breaker	• Collapse or overturning of vehicle or load • Impact causing entrapment or other serious injury to driver or operatives • Persons struck/crushed by moving plant or machinery • Damage to plant or other plant • Poor driver visibility, working near adjacent plant and machinery	**3 x 5 = 15**	• All plant and machinery to have auxiliary devices and visual aids fitted. To be in good working order, without defect. • Competent persons only to operate plant and machinery, they must hold the relevant CSCS card. • Ground conditions under machinery to be continually assessed. • All plant and machinery to be certified every 12 months and GA1 form to be held on site. Daily Visual inspections and weekly GA2 recorded inspections completed by driver. • People/plant to be segregated, no un-authorized persons are permitted on the work site.	**2 x 5 = 10**
Using machinery attachments	• Incorrect use/incorrect attachment • Overloading • Damaged/defective attachments	**3 x 4 = 12**	• Competent persons only attach/detach machinery attachments. • Always use the correct attachment for the excavator / machine • Double locking quick hitches to be in place on excavators as required. • Check all hoses and rams to ensure no oil leaking. All leaks to be repaired immediately • Quick hitch visually inspected ahead of use.	**2 x 4 = 8**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
			• SWL to be identified and known to the machine operator. • All plant and equipment to be serviced regularly on site • Any damaged attachments to be removed from site	
Movax	• Lifting and pulling casings • Hydrualic hoses and pressure • Hydraulic leaks	**3 x 3 = 9**	• Movax to be inspected ahead of use • All hoses to be inspected ahead of use • Report any leaks and get fixed • Spill kit in excavator in the event of any spill • Exclusion zone to be set up for pulling casings	**2 x 3 = 6**
Carrying out lifting operations	• Collapse or overturning of vehicle or load • Persons struck/crushed by moving/overhead load • Exceeding SWL • Trapping/crushing of hands/fingers when securing/releasing load • Adverse weather – high winds, heavy rain, direct sunlight	**3 x 5 = 15**	• Lift plan/non-crane lift plan to be completed for lifting works. • Competent slinger/signaler assigned to lifting operations. • Lifting equipment to be thoroughly examined by a competent person every six months, GA1 held on site. GA2 for lifting equipment is completed weekly by the plant operator. • Plant and machinery to be thoroughly examined by a competent person annually, GA1 held on site. Daily visual inspections and weekly GA2 to be completed for same. • Lifting attachments to be securely attached to the load when lifting and checked by the slinger/signally before the lift commences. *The bucket must be removed when using lifting equipment.* • Never exceed SWL of lifting equipment. • Weather conditions to be always monitored, if in doubt do not lift. • Tag lines to be used as required • No standing under suspended loads • Clear communication between Slingers and Drivers with either Walkie Talkies or clear visual hand signals	**2 x 5 = 10**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
Lifting people with the man basket	• Collapse of man basket. • Personnel falling from man basket. • Working over water	**4 x 4 = 16**	• Personnel harnessed into man basket • Clear communication between personnel in man basket and crane driver • Emergency plans in place • Crane and man basket tested and certified (every 6 months) • Crane and man basket inspected ahead of use. • Clear communication between crane driver and personnel in man basket	**2 x 4 = 8**
Loading and unloading	• Access and Egress • Moving loads • Tie down of loads and Security of same • Load dislodgement	**3 x 4 = 12**	• Ensure safe access to hook or unhook loads. • Ensure correct tie procedure to be followed. • Ensure correct tie down equipment used. • Loading and Unloading MS to be briefed and communicated. • Ensure correct size equipment used for off loading. • Ensure safe working area for loading and off loading. • Ensure sheet piles are loaded and unloaded correctly – Refence WB Sheet pile Training Documents. • Ensure hard standing for loading and off loading. • Ensure exclusion zone around loading and unloading area.	**2 x 4 = 8**
Boat	• Access to the barge • Breakdown of boat	**4 x 5 = 20**	• Suitable and inspected ahead of use • Communication back to land and Harbour • Walkie Talkies in place • All emergency equipment in place – lifebuoy, oars, bucket, flare	**2 x 5 = 10**
Working at heights – any height that an individual can fall from	• Falls from height. • Objects falling from height • Fall from man basket	**4 x 5 = 20**	• Leading Edges water edge to have suitable control measures in place • Authorized persons only are permitted in the work area, daily briefing to include the risk of falling into a shallow trench. • Correct length ladder to be used. Ensure any extension ladder cannot become loose. • No Lone operating near the water's edge • Life jacket to be worn with in the site boundaries	**2 x 5 = 10**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
			• Life jackets are not to be worn in the cab of a machine when operating near the water's edge. If the operator is wearing his life jacket in the cab and the machine falls into the water. Then the life jacket will inflate and cause difficulty for the operator to exit the cab. • A life jacket will be available in every machine working on the revetment. An operator that leaves his machine must put on his life jacket. • Personnel harnessed into man basket • Clear communication between personnel in man basket and crane driver • Emergency plans in place • Crane and man basket tested and certified (every 6 months) • Crane and man basket inspected ahead of use. • Clear communication between crane driver and personnel in man basket	
Temporary Work	• Collapse of temporary works on site • Not installed as per design • Not appropriate to the works	**4 x 5 = 20**	• Ensure all temporary works installed as per design. • Temporary works to be inspected by the TWS head of any load being put on same.	**2 x 5 = 10**
Hot Works/ Welding Cutting	• Burns • Fires • Explosion • Gas Cylinders	**4 X 4 = 16**	• Only competent and trained people are to carry out. welding and cutting operations. • Fire Extinguisher to be in close proximity to works. • Ensure permit is in place. • Fire resistant life jacket to be worn is working in close proximity to water. • No naked flame near gas cylinders • Ensure that flashback arrestors and all hoses are in good working order. • Check gauges regularly and check gas bottles for leaks. • Gas Cylinders to be secure and chained up in transit.	**2 X 4 = 8**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
Compressed Air and compressor	• Attachment to tractor • Hoses and fly off of compressors. • Motor parts and entanglement	**3 X 5 = 15**	• P.T.O cover to be in place and P.T.O. Chain in place • Top link correct length • Lifting arms to have correct secure pins in place. • All suitable covers in place on compressor • **Whip checks in place for hose attachment points on compressor and attachment point to excavator piling rig** • PPE to worn when operating compressor. • No facing of an any hoses to any body part • No guards to be removed	**2 x 5 = 10**
Chemicals on site	• Skin/eye irritation • Allergic reactions.	**4 x 5 = 20**	• All chemicals to have MSDS on file • All chemicals to have COSHH Assessment completed for same • Operatives to be briefed on the control measures which are in place for each COSHH substance prior to use. • Wear correct PPE at all times, including task specific PPE	**2 x 5 = 10**
Noise and Vibration	• HAVS (hand arm vibration syndrome) • Tinnitus (ringing in the ears) and/or hearing loss	**4 x 4 = 16**	• Follow the manufacturers' instructions for operating any equipment that generates noise or vibration. • Hearing protection to be worn when operating abrasive wheels and electric equipment including circular saws – min SNR 35dB. Hearing protection to be worn by persons adjacent to the abrasive wheel work. • Low noise emission plant used on site. • Regular breaks to be taken when operating vibration equipment – avoid continuous working. • All plant and equipment, large and small, to be regularly inspected and maintained	**2 x 4 = 8**
Dust	• Bad for lungs • Carcinogenic	**4 x 4 = 16**	• Dust suppression to be in place • PPE to be worn as required • Masks to be PF3	**2 x 4 = 8**
Using abrasive wheels	• Eye/face injuries • Cuts	**3 x 4 = 12**	• If dust is generated using the abrasive wheel, dust suppression to be used	**1 x 4 = 4**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
	• Finger amputation • Incorrect/damaged cutting discs • Noise • Dust		• PPE to be worn when using abrasive wheels – safety goggles EN 166, hearing protection min SNR 35dB. • Hearing protection to be worn by persons adjacent to the abrasive wheel work Competent persons only to operative abrasive wheels, abrasive wheel cardholders only to mount/dismount abrasive wheels. • Respiratory protection to be worn when operating A.W- PF3 • All guards to be in place and without defect – the equipment must be visually inspected before each use. • The correct abrasive wheel must be selected for the task. • Abrasive wheels to be stored correctly to avoid accidental damage,and must not be used beyond the expiry date.	
Poor housekeeping	• Slips, trips or falls	3 x 4 = 12	• Good housekeeping to be always maintained. • Clean as you go. • Skips to be used in the disposal of waste on site. • Waste to be recycled where possible. • Don't over crowd site with equipment. Try and get items delivered to site as needed on site.	**1 x 4 = 4**
Winter Working	• Poor weather conditions • Fewer day light hours • Colder Weather • Higher Winds	**3 x 4 = 12**	• Monitor Weather on Met Eireann • Head Weather warnings • Monitoring tide times and heights • Temporary site lighting to be in place. • All plant and machinery to have suitable lighting in place • Suitable PPE to be worn. • Suitable Welfare in place on site – Canteen and Drying room	**2 x 4 = 8**
Tower Lights	• Collapse of mast • Overturning of tower light • Leaks	**3 x 4 = 12**	• Ensure tower lights are suitable when brought to site. • Ensure Tower lights are set up as per manufacturers' specifications. • Set up on level ground. • All jacks to be set up correctly. • Lower masts in high winds	**2 x 4 = 8**

HEALTH AND SAFETY RISK ASSESSMENTS:				
HAZARDS	**RISK**	**Risk Rating**	**CONTROL**	**Resultant Risk Rating**
			• Lower masts with caution in subzero temperatures • Never place your hand to any other body parts where they should not be placed. • If any defects are noted report to fitters and do not use • Do not set up on water edge. • Set up on surface where risk of turning over.	

Environmental Risk Assessment

Likelihood: How often could the hazard occur? Consider the task, frequency, duration, method of work, employees involved.
Severity: How serious would the hazard's effects are if realised? Consider the type of hazard: Biological, ergonomic, physical, and chemical.
Likelihood (L) x Severity (S)

RISK RATING

RISK RATING **Likelihood (L) x Severity (S)**		**HAZARD SEVERITY (S)**				
		1	**2**	**3**	**4**	**5**
		Negligible Insignificant or no impact	**Slight** Minor compliance impact EX spill requiring adsorbent material –	**Moderate** Moderate aesthetic impact –	**High** Major regulatory impact, EPA notification	**Very High** Catastrophic impact, toxic release –
1	**Very Unlikely:** Rare / once every 5 years	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**
2	**Unlikely:** Unlikely / once a year	**LOW**	**LOW**	**LOW**	**MEDIUM**	**MEDIUM**
3	**Possible:** Moderate / once a month	**LOW**	**LOW**	**MEDIUM**	**HIGH**	**HIGH**
4	**Likely:** Likely / once a week	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**HIGH**
5	**Very Likely:** Almost certain / once a day	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**HIGH**

LOW RISK (Score 1 – 6)	May be acceptable, however, review task to see if risk can be reduced further
MEDIUM RISK (Score 8 – 10)	Task should only proceed with appropriate consultation with environmental specialist personnel and HS&E team. Where possible the task should be refined to take account of the potential environmental impacts of the activity involved or the potential impacts should be reduced further prior to task commencement.
HIGH RISK (Score 12 – 25)	Task must not proceed. It should be refined, and further control measures put in place to reduce potential environmental impact. The controls should be re-assessed for adequacy prior to work commencement

ENVIRONMENTAL				
Disruption to the community	• Disruption to members of the public because of the works	**4 x 2 = 8**	• Appropriate advanced warning signage will be in place to alert the public of upcoming works and current works • Any complaint relating to environment will be managed immediately • Notify locals of the upcoming blasting works	**1 x 2 = 2**
Working adjacent to water	• Spills • Pollution • Potential death to aquatic and mammal life • Potential impact to habitats	**2 x 5 = 10**	• Suitable chemical storage to be in place. 110% Capacity • Spill kits to be on site. • Chemical spray In place for oil spill_**Bioversal** • All personnel to be briefed on the management of spills. • Refueling operations to take place in designated areas away from water course. . • Any spill to be reported immediately to the SHEQ Advisor and Site Management • Emergency plans to be put into action	**1 x 5 = 5**
Refueling	• Spills • Pollution • Potential death to aquatic and mammal life • Potential impact to habitats	**2 x 5 = 10**	• Refuel away from water course. • Spill kits to be in place. • Any spill to be reported immediately to the SHEQ Advisor and Site Management • Emergency plans to be put into action	**1 x 5 = 5**
Mammals and Aquatic Life	• Sound • Vibration	**2 x 5 = 10**	• Marine Mammal Observer (MMO) in position for the works • WB will adhere to any guidance from the MMO	**1 x 5 = 5**
Chemicals on site	• Spills • Pollution • Potential death to aquatic and mammal life • Potential impact to habitats	**2 x 5 = 10**	• Suitable chemical storage to be in place. 110% Capacity • Spill kits to be on site. • All personnel to be briefed on the management of spills. • Refueling operations to take place in designated areas away from water course. • Silt screens to be installed as required. • Any spill to be reported immediately to the SHEQ Advisor and Site Management • Emergency plans to be put into action	**1 x 5 = 5**
Dust	• Excessive dust generated through the work • activity	**4 x 3 = 12**	• All site dust will be kept to a minimum. • Water suppression will be used on site for all abrasive wheels works site / Dry weather as required. • Access roads will be kept clean	**2 x 3 = 6**

			• During dryer periods dust suppression will be reviewed • Trucks and loads may be required in dryer weather	
Noise and vibration	• Nuisance noise/unwanted noise • Vibration affecting adjacent structures	**3 x 3 = 9**	• Noise will be kept to a minimum using low noise emission plant and equipment. • vibration monitoring will be carried out for the blasting works • Any complaint relating to noise will be managed immediately.	**3 x 1 = 3**
Environment – Invasive Species	• Spread of invasive species	**1 x 2 = 2**	• *Pre works assessment have noted that no invasive species present. Same will be monitored on site as works progress.* • Best practice guidelines in relation to invasive species management to be followed	**1 x 2 = 2**
Environment – Waste Management	• Contamination to ground and water courses. • House keeping	**3 x 3 = 9**	• Suitable skips to be provided on site. • Waste to be segregated. • Waste to be removed off site by licensed haulers and to licensed facilities • If any contaminated waste is encountered suitable control measures will be put in place	**1 x 3 = 3**
• **ENERGY MANAGEMENT AND SUSTAINABILITY**				
Energy Management and Sustainability	• Increased energy usage will increase our carbon footprint • Draw on Fossil Fuel (Non-Renewable Energy) Usage on site	**5 x 4 = 20**	**IDLING TIME: TIME IN WHICH A MACHINE IS RUNNING SO IS NOT BEING PRODUCTIVE.** • Not digging a trench , Not Sheet piling, Not lifting in pipe. How can we reduce idling time? • Turn off engine when not in use for construction activities. **TRACKING OF DIGGERS** Tracking of excavator uses large amounts of fuel. How can we reduce tracking amounts: • Planning works to ensure that material is in close proximity to the works areas to prevent excess tracking.	**5 x 3 = 15**

			e.g.; Stringing pipe out along pipeline routes to prevent tracking. Works area to be suitable size and can material to be stored in close proximity to same **SERVICING OF PLANT AND MACHINERY** • Ensure all plant and machinery serviced regularly to ensure that engines are running efficiently and fuel not being wasted. • Ensure fuel filters are regularly changed to ensure fuel being used efficiently. **SITE COMPOUND AND OFFICES** • Compound lighting to be censored/ timers. • Office and Canteen heating to put on timers/ turned off when not in use and summer months. • All electrical equipment to be turned off when not in use. **TRANSPORT TOO AND FROM SITE** • Provide accommodation in close proximity to site to reduce fuel consumption too and from site.	

17. COMMUNICATION SHEET

We, the undersigned, understand and accept the Safe Operating System

DATE	EMPLOYEE	TAINING FOR PLANNED WORKS	SIGNATURE